



FACULTY
OF ARTS
Masaryk University



Re-thinking Teacher Professional Education: Using Research Findings for Better Learning

**ICET 2017
61st World Assembly**

Yearbook of Teacher Education





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Masaryk University
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The Conference is organized under the auspices of Mgr. Kateřina Valachová, Ph.D.,
Minister of Education, Youth and Sports.



The Conference is organized under the auspices of JUDr. Bohumil Šimek,
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TOWARDS A THEORY FOR IMPROVING TEACHER LEARNING: UTILISING EVIDENCE-BASED TEACHER EDUCATION TO IMPROVE PROFESSIONAL DEVELOPMENT

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This paper looks critically at how the findings in three NEEDU reports on teaching in South African classrooms are used as conceptual foundations for the various initiatives that have been introduced to improve teachers' professional development. Theories on the significance of evidence-based teacher education are drawn on to determine how the findings provide a defensible theory or plausible strategy to enhance the intellectual growth of teachers. Specifically, issues of curriculum focus, pedagogical motivation and its relevance to assessment that are highlighted in the reports are probed to identify the perspective of teacher education that is promoted. Attention is paid to, in particular, cues on the rethinking and planning that is required to improve the teachers' learning and schooling for all learners within the country. In conclusion, the paper reflects on how the findings have been, or are critical, for rethinking and designing contextually responsive and meaningful learning for teachers.

Introduction

Wagner (1993) claims, 'educational researchers must begin with ignorance, not truth'... In this way, some of the 'blind spots' we have in our educational vision are more likely to demand our attention. ... We need to ask ourselves: What is the policy question that current research on teacher quality is aiming to answer? (see Reid, 2003, 50).

Reid's belief is that only when the assumptions that underpin views on teacher quality are understood on the basis of evidence obtained through research that policy can be problematised and made responsive to identified needs. Slavin (2008, 13) calls it making 'education research far more central to education policy'. For Webster-Wright (2009), research is crucial in providing useful data on which to base teacher professional

development. In his view evidence-based development is more likely to improve the quality of teaching and learning because as Wickham and Bailey (2000) argue too, research promotes chances for (i) sharing and collaboration among stakeholders, (ii) dialogue on various educational issues, (iii) communication between teachers, learners and policy planners, (iv) improved performance levels of teachers and learners, (v) teacher designed staff development initiatives, (vi) developing priorities for school planning and (vii) development to new forms of knowledge (see Odom et al. 2005).

These viewpoints emphasise a collaborative model of teacher development. Good examples are the professional development schools in the USA, where emphasis is on teachers' uptake of both formal and informal knowledge to assist them to improve their professional work (Castle et al., 2006; Richter et al. 2011). Undergirding the model is the idea that professionals need to upgrade their knowledge and skills continually throughout their careers and reflect the notion of lifelong learning (see Day, 1999). It considers teaching as a knowledge-based profession that expects teachers to continuously learn newer ways of carrying out their practice. Their learning requires programmes that are coherent, broad-based, rigorous and impactful because they take into account the changing variables that may influence teaching in a specific context and historical period. The variables include amongst others, support materials such as (textbooks, wall charts, photocopies, audio-visual equipment, etc), infrastructure (classrooms, libraries, laboratories, etc) and personnel (teachers, administrative staff, support staff, etc). Responsiveness to them can not occur in a vacuum but depends on the knowledge and skills that give events during lessons their reality. Teachers constitute experiences in accordance with how they make sense of these variables as the context of teaching (Cipriani, 2013). These experiences are thus 'embedded in social interactions, structures and knowledge, and in the use of artefacts, bodies and environment' (Adam, 2013, 6), that is what is done (O'Brien, 2014).

The National Education Evaluation and Development Unit (NEEDU)¹ reports of 2012, 2013 and 20-(not published) in South Africa focused on these aspects in the effort to help education authorities benchmark teachers' competences or professional knowledge and skills and use the findings in these reports as resources for teacher development programmes to ensure that teachers are at the cutting edge of the curriculum policy requirements. The reports are indispensable to evidence-based teacher development in the country.

¹ NEEDU is an independent evaluation and development institution established in 2009 to provide the Minister of Education (MBE) with an accurate and methodical account of the status of teaching and learning in South African schools. The Department of Basic Education (DBE) wished to assess the match between policy and practice i.e. how well all tiers of the education system (schools, circuits, districts, and provinces) are performing with regard to implementing the curriculum policy intended to provide effective equal education for all. NEEDU was to identify critical factors that may hinder/promote school improvement; provide schools with evidence-based information and examples of good practice; make recommendations on minimum performance standards for schools and attainment of these standards; make recommendations on appropriate interventions and sanctions; strengthen internal evaluation capacity; review and assess the monitoring evaluation and support structures provided in the education system (see DOE, 2009, 65–67).

In this paper we first provide a brief historical account of teacher education in South Africa before providing a detailed discussion of the findings in the NEEDU reports and highlighting the teacher development needs they identified in relation to the curriculum, pedagogical motivation and its relevance to assessment.

Teacher education in South Africa: A brief historical account

During apartheid teacher education in South Africa was highly fragmented with great disparities in the quality of education provided for the different races. The provision hindered the optimal functioning of teachers in some schools. Current education policies are an attempt to redress the legacy through both structural and curricula changes. However, there is still, in general, a dearth of poorly educated and under-qualified teachers which compromises the educational ethos in schools and the effective implementation of educational policies.

Earlier inquiries into teachers' capacity for example, the National Teacher Education Audit (NTEA) of 1996 and Taylor and Vinjevoll (1999) express concerns about, respectively, the diversity in levels of competence among teachers and misconceptions of new curriculum expectations at school level. These shortcomings resulted, on the part of teachers, in a general inability to deal with the new school curriculum requirements. To address the shortcomings, teacher development initiatives tended to focus on the generic pedagogical knowledge and skills that were considered to be needed in a rather decontextualised manner, mainly through workshops held away from the schools in which they taught. In short, teacher development initiatives have generally been informed simply by what is known about the broader structures and philosophy within which teacher education was provided during apartheid. For example, a Committee on Teacher Education Policy (COTEP, 1996) developed a set of norms and standards for the various roles teachers had to perform to facilitate effective teaching and learning. Jansen (2003) argued that the images portrayed in these roles contradicted the ways in which teachers perceived themselves. Motala et al. (2003, 614) also asked '... with the contextual differences within South Africa, is it possible and helpful to think of aggregate solutions?'

The NEEDU reports (2012, 2013 & 20-) provide crucial evidence of the existing systemic imbalances between the policies and national expectations. The evidence has been critical in conceptualising new strategies for teacher learning and providing appropriate teacher education interventions that are likely to give impetus to effective teaching and learning in schools. The findings are discussed in detail below.

The NEEDU Reports

The various NEEDU reports have attempted to:

- establish congruence in policies and practices between different levels of the schooling system from the national DBE, provincial and district offices, school leaders and teachers

- delineate features of the system that are working smoothly – examples of good leadership, management and teaching

An evaluative research approach to school assessment was adopted to track curriculum processes throughout the four hierarchical levels of the schooling system – the national DBE, provinces, districts, and schools over a 3 year cycle (2012–2014) – and identify ‘blockages to quality schooling’ (NEEDU, 20-, 13). The focus was on school improvement and the evaluation was designed to find out why schools perform as they do and how this could be changed/improved to reduce continuing existing inequalities in the provision of teaching and learning. The table below indicates the planned 3-year research cycle.

Table 1. NEEDU planned 3-year research cycle

Year	School Phase	Grade	Type of School	Number of schools
2012	Foundation (FP)	1–3	Urban primary schools	134
2013	Intermediate (IP)	4–7	Rural monograde (first semester of 2013) and multigrade (second semester of 2013) primary schools	219 (99 monograde and 120 multigrade)
20-	Further Education and Training (FET)	10–12	Urban and rural Senior Secondary High Schools (first semester of 2014)	93
	General Education and Training (GET)	8–9	Urban and rural Junior Secondary High Schools (second semester of 2014)	90

NEEDU set out to answer the following research questions over this period:

1. What is the state of South African schools and in particular the quality of school leadership, teaching and learning?
2. How do the national, provincial education departments and districts direct, monitor, support and evaluate the schools?
3. How can the knowledge and professional capacity of educators best be developed?
4. Which factors inhibit or advance school improvement, especially with respect to achieving equality in the provision of quality education?

The first evaluation of 2012 focused on the state of literacy teaching and learning in the Foundation Phase (FP) to identify why learners underperform (NEEDU, 2013, 6, 11-13). The focus was on the quality of curriculum processes and to find out if teacher performance was a management or capacity issue e.g. are teachers ill-disciplined (won't) which is a management issue or do they lack capacity (can't) which is a professional development issue? Teacher knowledge and the quality of teaching and learning were assessed through the use of DBE workbooks, reading, writing and number work in the learners' books. Two key factors were crucial, namely, 1) the quality of teaching and learning is best measured through the direct outcomes of teaching and learning e.g. writing in learners' books, one-on-one assessment of

learners' reading etc. accompanied by 2) an examination of the quality of instructional leadership (IL) in the school system. The assumption was that IL is characterised by 'coherent curriculum planning and coordination, effective language policies and programmes, good time management, procurement and deployment of books, promoting high levels of writing, using assessment to improve teaching and learning and fostering professional development among educators' (NEEDU, 2013, 4).

The 2013 evaluation looked at the Intermediate Phase (Grade 4 to 6) in 'mono-grade' and 'multi-grade' rural primary schools. Special attention was paid to recruitment, promotion and employment continuity, staff recruitment and promotion. In South Africa, Grade 7 is often included in primary schools and that is why it was excluded from this sample. Multi-grade schools are more common in rural areas² where there is more than one grade in one class (e.g. Grade 1, 2 and 3) due to smaller learner numbers in the schools.

The 2014 draft report (which has not been published) is an overview of the research undertaken in high schools in 2014. It focused mainly on the improved/increasing throughput rates especially in the last three years of schooling (Grades 10-12), the role of the language of learning and teaching (LOLT) in academic progression and assessment – formative assessment (ANAs)³ and summative assessment (NSC)⁴.

Findings and recommendations of the NEEDU Reports

As regards the curriculum, educator subject knowledge is weak. The pace of teaching and cognitive level is far below the curriculum specifications. Teacher in-service training was viewed as failing to develop subject and pedagogic knowledge in ways that would improve teaching and learning. In some instances, teachers enrol in courses that do not necessarily improve their teaching knowledge but rather their take-home pay or promotion. Pre-service training in initial teacher education institutions (ITE) is seen as failing to produce skilled teachers, particularly in subjects like language (EFAL and LOLT, reading and writing), science and mathematics. In many high schools there was no compliance with policy expectation (CAPS⁵) nor was the curriculum covered in an in-depth manner (NEEDU, 20-, 46).

As regards pedagogy NEEDU 2013 identified a lack of sufficiently qualified teaching staff as one of the main issues, especially in rural areas (NEEDU, 2014, 57–58). The shortage is in core subjects such as Maths and English at the FET phase. Furthermore, only one in 5 teachers has a degree in teaching.

² Rural schools are defined as state schools that are situated far from larger towns or on farms. Over half of the approximately 26 000 schools in South Africa are classified as rural schools (13 192) that provide for about 30% of the learner population.

³ Annual National Assessments

⁴ National Senior Certificate Examination

⁵ Curriculum Assessments Policy Statements

Insufficient time was allocated to key subjects such as Maths, Science and English irrespective of being prioritized by CAPS. The quality and time devoted to teaching in both English and Maths was inadequate and below the norm in Grade 10. Despite the prior Maths knowledge of Grade 8 learners being identified as the most common barrier to progression in over 50% of the high schools in the NEEDU 2014 sample, there was no school or district-based programme that addressed this (NEEDU, 20-, 46).

The NEEDU reports of 2012 and 2013 had already indicated that the basic literacy and numeracy skills of learners are well below curriculum specifications. Not enough attention was being given to writing in language (less than 4 pages instead of 8 per week in Grade 3) and mathematics (should write on 4 days per week) and this affected writing quality and conceptual development. Less than 43% of high schools had a school-based programme to address language challenges at district level (NEEDU, 20-, 48–49) and there was little English essay writing despite CAPS requiring learners at this level to write 2 essays and 4 transactional texts per term (NEEDU, 20-, 49).

NEEDU 2012 found that language (particularly the LOLT⁶ and EFAL⁶) and literacy stood out as crucial barriers to effective teaching and learning. Many teachers don't speak English as a HL and use code switching in lessons. Poor mastery of the LOLT was found to be a serious impediment to teaching and learning (NEEDU, 20-, 48). This is compounded by the LOLT (English) which for the majority of learners (80%) is an additional language and for 75% is not their HL. Reading fluency was generally found to be below the average in the FP. In one-on-one assessment of Grade 2 learners' reading many of the best failed to read at the average rate i.e. 70 words per minute (wpm). 72% were below average while 22% were on or below the poor benchmark (20 wpm). Few reading books were visible and the reading corners lacked a variety of appropriate books and were not conducive to reading for pleasure as recommended by policy. While teachers found the DBE workbooks very useful they were not being used to their full potential. Apart from the DBE workbooks teachers often used poorly designed worksheets. Too little speaking, reading and writing by learners impedes their learning.

Across all rural schools in the 2013 sample, very little independent reading or writing was noted, pacing of instruction was slow, oral reading fluency was weak and workbooks were under-utilised. Also, while Maths is a core subject attainment is generally poor. Numeracy was not given the systematic handling it required in the FP and the Intermediate Phase (IP) and the additional resources provided by the DBE were underused. Consequently, 'poor instruction in reading and numeracy in the first six grades results in low levels of reading fluency and comprehension and high innumeracy among learners' in both urban and rural schools (NEEDU 2014, 51). In response, NEEDU 20- recommended that promotion requirements for EFAL

⁶ English First Additional Language

be increased to 40% for diploma/degree study (see Wedekind, 2013) and that the standard of NSC papers be increased. Since a high level of proficiency in English is a key indicator of a learner's success in further study and in the world of work, the focus should rather be on the quality of the passes and not the quantity.

Time management emerged as a problem in all three reports. NEEDU 2013 provides some of the reasons why schools are dysfunctional due to ill-discipline and poor time usage by both teachers and learners. This included absenteeism (evident in attendance registers), punctuality of both learners and teachers and extra-curricular disruptions during the school day e.g. sports meetings, choir practice, training courses, union meetings or funerals. This was the case even though principals are responsible for efficient time management practices in schools and circuit managers (CMs) were to ensure that principals do so and, where necessary, assist principals to develop good leadership and time-keeping practices.

All three reports have argued that instructional leadership positions in schools (HOD, deputy principal, principal) and districts (subject advisors) are not occupied by the best people in terms of knowledge and skill. Expertise seems to be compromised by patronage and seniority. A World Bank Report (2010, xi) has described it as the 'quiet corruption' conducted by cabals, usually invoking the name of the union or political party, operating in organised ways to secure promotion and protection for their members (see Pattillo, 2012, 14, 58). Post-provisioning as regards staff placements/appointments/promotions was thus challenging. For instance, officials are appointed/promoted for other reasons (not on merit) e.g. subject advisors don't have qualifications for that subject. Inappropriate appointments have a detrimental effect on the development of an educational system that requires intelligent leadership, clear vision and coherent HR processes and consequently, pedagogical motivation.

NEEDU (20-, 54) also points out that in high schools there is still a widespread shortage of textbooks. Learners have to share books and don't have their own for homework and reading for pleasure. The textbook process from the procurement stage to storage, issuing and retrieval needs to be properly implemented and managed (NEEDU, 20-, 54).

To summarise, the NEEDU 2012 report identified issues such as, teacher subject knowledge (of reading), pedagogical content knowledge (how to teach reading), time management and instructional leadership as areas of concern. The 2013 report made similar observations with regard to time management (e.g. teachers spent too much time marking and doing administration work during school hours); literacy (reading with comprehension and writing was not covered sufficiently); and in multi-grade schools (where students of different grade level are taught in the same class) many teachers made no attempt to provide differentiated learning experiences appropriate to each of the respective grade levels. The 20- draft also found that instructional leadership, assessment, teachers' subject and pedagogic knowledge and expertise, staffing provision and the LOLT are blockages to quality schooling.

These findings have implications for professional teacher development at both pre-set and in-set levels.

Research for teacher learning

The NEEDU reports highlight a need for a change of paradigm in teacher education and its praxis, with the evidence they provide being central to all initiatives. First, as regards curriculum issues, teachers require specialised professional education, skills and competences to adequately address the needs of learners. In response the following initiatives to improve teachers' professional development occurred. Amongst examples of the private sector interventions, is the Primary Mathematics Research Project (PMRP) which was designed to provide teachers in rural and township schools with the knowledge and skills to teach the foundation concepts and techniques underlying the Number and Operations strand (Grade 4-6) in the national curriculum (Schollar, 2015). The Gauteng Primary Literacy and Mathematics Strategy (GPLMS) initiated in 2011 is a collaboration between the Gauteng Department of Education (GDE) and the private sector (a consortium of NGOs and CSI backers) to assist teachers and learners with literacy and mathematics instruction in the FP and Intermediate Phases (IP) (Fleisch et al, 2015).

Other strategies aimed at improving teacher capacity include the following:

1. An intervention that emerged from the Teacher Development Summit of July 2009 led to the Integrated Strategic Planning Framework for Teacher Education and Development in South Africa (ISPFTEDSA) (DBE/DHET, 2011). It is a co-ordinated national endeavour that views teacher professional development (in-set and pre-set/ITE) as a collaborative approach involving government, higher education institutions and teacher unions in teacher education and development. Teachers are encouraged to be responsible and accountable for their own professional development (NEEDU 20-, 61).
2. Norms and standards were introduced to improve the quality and efficiency of in-set professional development provided by teacher development centres (131) in the country and managers of Teacher Training Centres were to be trained so that they are sufficiently knowledgeable to provide support to teachers (NEEDU 20-, 61–62).
3. Establishing Subject Committees and Professional Learning Communities to improve and support teacher competence (NEEDU 20-, 62).
4. Integrated Quality Management System (IQMS) process in which school-based educators are appraised to identify their developmental needs that are then captured in their personal development plans (PDPs) according to the Education Labour Relations Council (ELRC, 2003).
5. 1+4 Programme for teachers is the largest current government intervention. It is part of Operation Phakisa (2014) that uses Big Fast Results methodology from Malaysia to fast-track and remedy critical issues such as improving the content and pedagogical knowledge of teachers of Grade 8 and 9 Maths. The model is based on a professional learning community model in which teachers meet on set days with lead teachers who break down content on the first day (learning

provided to teachers) so that they can be thoroughly prepared for teaching it over the next 4 days (structured, effective and guided teaching). However, the results may only be possible to evaluate in about 5 years' time.

6. The Literacy and Numeracy Intervention (LNI) of the Western Cape Education Department (WCED) that focuses on teacher subject knowledge and the Gauteng Primary and Language Mathematics Strategy (GPLMS) that uses scripted lesson plans have integrated training with on-site pedagogical support from lead teachers, coaches, SAs and NGOs. While both have reported increased performance results they need to be better monitored and evaluated so that more reliable data is provided on the most effective aspects of the programmes (NEEDU 2013, 68).
7. Three INSET block-release programmes that focus on subject content have shown promising results. The Cape Teaching and Leadership Institute (CTLI) in the Western Cape has a maths and reading programme run over two weeks that has shown an increase in pupils' reading and maths scores in the annual provincial tests (NEEDU 2013, 58). The SciBono Centre in Gauteng (2 weeks) and the Maths and Science Teacher Education College in Limpopo (9 weeks) also use a similar model of an intensive residential course. These would appear to be better option than afternoon cluster workshops that are poorly attended and difficult to organise (NEEDU 2013, 60).

Evaluations of these initiatives are beginning to happen (see, for example, Mouton et al, 2013; Besharati, 2014; de Clerq & Shalem, 2014). However, what is clear is that there has been little improvement as regards teachers' classroom practices. For example, while the RCT method used in the PMPP showed significant gains, disappointingly, after evaluating 34 donor-funded projects operating between 1995 and 2005, Schollar and Roberts concluded that:

... many of the development programmes ... have failed to result in the expected significant impact on the ultimate beneficiaries; this is not inherently a 'bad thing' – it is just as important to know what does not work as it is to know what does! (Schollar & Roberts, 2006: xxiv)

Therefore, without understanding the effects of this lack of impact and its relevance to the pedagogical motivation and assessment expertise expected from the teachers, there is a likelihood, of this simply adopted technological approach to teachers' professional development, continuing. The need, rather, is for an approach that addresses the concerns reported as peculiar to the South African context.

Donor-funded mainly NGO-driven professional development programmes have been prominent in South Africa for at least the past three decades and many are currently being tried out with the teachers. The NTEA (1996), found at least 100 INSET programmes of this type (Taylor, 1995). Even though reduced in the 1990s and 2000s, INSET activity supported by both international and local corporate agencies continues. Following a survey of 99 Corporate Social Investment (CSI)

managers and 171 Non-profit Organisations (NPOs), Trialogue (2015) concluded that total CSI expenditure by companies in South Africa in 2014 was estimated at R8.2 billion. The expenditure grew 3% year-on-year between 2001 and 2007, and a striking 10% year-on-year growth through the global recession. But, without an approach that is based on a theory whose goal would be the criticism of practices within the schooling system, the lack of improvement in teaching and learning is likely to continue. Such a theory would combine conceptual and practice analysis to facilitate the re-conceptualisation of the weaknesses or shortcomings revealed in the NEEDU reports, reformulate and develop more precise plans demanded by these concerns. Responsive teacher development interventions will then be adapted or new ones introduced without losing sight of the universal ethical standards used to define quality in teaching as professional practice.

Theories used during apartheid were largely characterised by a complete disregard for the constitutive role of social life in knowledge and by a rigid anti-historical bias (cf. Horkheimer, 1989). Taking these notions into account, it is reasonable to expect evidence-based teacher education in South Africa to have the following characteristics:

- explanatory power
- normative tendencies
- practical utility
- self-reflexivity.

to achieve emancipation and the transformation of teachers and society through professional practice that is ethical. Such education would fuse theory and practice to provide analysis and critique of teachers' shortcomings as part of the broader challenges within society that need to be tackled. The resultant change would thus be facilitated by education that is context-responsive and empowering. Such an analysis will clarify what is essential to the forces of mis-education that is affecting adversely learning outcomes in schools. Its theoretical stance will be practically connected to these outcomes because the aim would not be merely descriptive as is the case with findings in the NEEDU reports but rather the conceptual implications of these findings will also be highlighted. Knowledge of the forces of educational inequality will be provided and used to inform policies aimed at professionalising teachers and teaching and, if not, at least at eroding educational domination and inequality.

As a heuristic for professional analysis, the theory would be aimed at questioning not only the isolated elements of the inadequate teaching which it takes as its object, but also existing values and thus promote a distrust of the rules of conduct with which teachers are presently constituted as individual members of the profession (cf. Horkheimer, 1972, 207).

As Dant (2013, 87) citing Horkheimer (1972) argues, theory does not aspire towards 'absolute truths' but in 'its merging of the experience and action of the thinker and the categories available to consciousness' it engages in the dialectic between lived experience and the categories given to describe it. Therefore, for Dant (2013, 87–88) the validity of theory lies not in the adoption of a method, vindicated by epistemology,

but in the enlightenment that is successful in generating a political practice that moves towards emancipation. The Frankfurt School's critical theory seen as a 'critical re-appropriation and revision' (Blake & Masschelein, 2003, 28) of the ideas of Kant, Hegel and Marx is an invaluable example. Its major assumptions being that:

- Reality is both objective and subjective
- Reality is based on the dichotomy between human consciousness and its created internal reality
- Reality is in a state of continuous change
- Knowledge is obtained through the interactive relationship between external reality and human consciousness
- Knowledge would result in action which furthers the evolutionary process
- People consistently evolve toward a higher level of knowledge
- Knowledge moves people towards emancipation
- The goal of the search for knowledge is an increased awareness of reality.
- It conceives itself as a "moment" in a transformative practice directed toward creating a more humane world
- It is not itself 'value-free' but interested

Together they clarify what would be essential to an epistemological stance based on the NEEDU findings, in two senses: First, the theory or stance recognises that human subjectivity is important in shaping human consciousness. Second, it refutes the view that reality is always objective and thus highlights significant implications for education in general and, in particular, curriculum. Since reality is historically contingent and as a result, subject to change, given the significance of time and space in this regard, human action, at a particular time, changes the object acted upon as well as the subject within an environment.

The proposed theory rejects the separation of mind and body or subject and object. Concepts or thoughts are viewed as an outcome of a dynamic relationship between an active organism and active environment and thus cannot separate the individual from his/her actions. Viewed in this sense, teachers' actions or curriculum cannot be delinked from identity politics. Applied to evidence-based teacher education, the viewpoint thus provides a lens through which actions (curriculum practices) and subjectivity can be seen as a basis from which to challenge teaching practices that require change. Since the former are context-bound and usually contested because of their subjective nature, they have to be understood as reflecting multiple representations of reality by individuals.

As Margonis (2011, 275) points out, teachers, interact with those they teach through language, selected curricular materials they consider relevant to what is taught and through their bodily expressions and tone of voice. Since these aspects are often linked to vested interests, as Habermas (1973) reminds us through his notion of knowledge-constitutive interests, they cannot be changed unless understood by subjects as detrimental to learning outcomes.

The view invokes Giroux's (1993, 48) notion of teachers as transformative intellectuals who "must take active responsibility for raising serious questions about what they teach, how they are to teach, and what the larger goals are for which they are striving". Similar calls for teachers to be intellectuals are also made by Pinar (2004) when he asks (rather rhetorically) why and when there is evidence, should teachers not be permitted, indeed, encouraged, to show students that academic knowledge is not self-contained, that it reaches out toward and back from life as human beings live it? Why is the curriculum not an incentive for teachers to reflect on and think critically about themselves and the world they will inherit (Pinar, 2004, 186)?

Basmadjian (2007) would see such evidence as providing the spaces between theory and practice into which teachers will grow as they rethink and refine their practices. The solution, as Reid (2003) suggests, is therefore to encourage teachers to conduct their own theorising about their experiences in an informed and disciplined way as a frame. Reid's belief that it is only when the assumptions that underpin views on teacher quality are understood on the basis of evidence obtained through research that policy can be problematised and made more responsive to the identified needs. As pointed out earlier, Slavin (2008, 13) calls it making 'education research far more central to education policy' (cf. also Webster-Wright, 2009; Wickham & Bailey, 2000; Odom et al.2005).

Conclusion

The theory that is suggested here emphasises an understanding of teaching as education that is always immersed in ideology and thus identity politics. The critical stance that it proposes for analysing concepts and practices that shape teaching are likely to clarify its origins as interest-bound. It thus supports teacher professional developmental model(s) that consider subjectivity as crucial to the agency required by professional responsibility and accountability. Without consideration of who teachers are, in suggesting ways of acting proposed, theories are likely to be decontextualised and irrelevant to teacher identity. In short, without acknowledging teachers' identity, deepening understanding of why they are partly responsible for improving teaching and learning would be unrealisable. As Mwamwenda (1994) has argued, the absence of such a critical stance in teacher development initiatives will make it impossible to redefine their core businesses within the ever-changing global context. Decision-making that is a consequence of research is likely to enhance proper understanding of concepts and practices relevant to teacher identity and development and, as a consequence, effective policy implementation.

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**INTER-REGIONAL PROTOCOLS,
NEO-NATIONALISM AND GLOBAL
EDUCATIONAL JUSTICE: A REFLECTION
ON THE PLIGHT OF FINANCIALLY
DISADVANTAGED AFRICAN
INTERNATIONAL STUDENTS
IN SOUTH AFRICA**

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This paper explores the Southern African Development Commission (SADC) protocols on higher education. It specifically examines the case of financially disadvantaged African international students in the South African public universities on whether such students would have a moral claim for financial assistance while studying at South African universities. This analysis is partly informed by the observation that host countries stand to benefit from international students in terms of skills, research, university rankings and other intercultural interactions. Despite this observation, the paper further observes that the financially disadvantaged international students have not been given prominence in the prevailing debates about university funding; and on whether such a discourse has any ramifications on the existing SADC protocols. In view of these issues, this paper seeks to explore possible permutations of the current issues and their bearing on global educational justice. In addition, the paper raises questions on the place of neo-nationalism in higher education policy and practice.

This paper proceeds by employing an interpretive methodology on the higher education policies and practices in question. Despite that information being used in the final end, the paper further engages a critical methodological paradigm as it seeks to consider how interventions in this regard ought to be imagined and executed. This philosophical paper is informed by the cosmopolitan approach to internationalisation.

Introduction

South Africa as a regional economic powerhouse in Africa receives and hosts the highest number of international students from other African countries. In the context of the Southern African Development Commission (SADC), the international mobility of students tends to flow mostly towards South Africa. However, the common worldwide pattern is that most international students struggle financially in their host country of study and the case of African international students in South Africa is no exception. Using the theoretical framework of neo-liberalism that informs regional protocols on education, this paper seeks to

Neoliberalism in international higher education

The central characteristic of neo-liberalism is the prominence of market as the sole controlling factor in the nation-state. The traditional formula of supply and demand which inevitably translates to terms such as clients, consumers, service providers and service consumers is the permeating feature of neoliberalism. In this regard, the contestable and contentious theory of neo-liberalism apparently underlies, informs and determines the patterns of trade and relations within the nation state. Accordingly, neoliberalism is a political rationality in the perceived logic of free markets is accepted as the optimum way of solving problems and organising society' Quinn and Bates (2016). The state is viewed positively as an organ that is responsible for creating and establishing an environment that should allow the market forces to dictate terms of trade and relations.

In the context of higher education, neo-liberalism results in marketization of education. In other words, education is viewed as a commodity to be sold or traded in to those who can financially afford (Lynch, 2006). The student is treated like a consumer who has the buying power for the educational services that are provided on the market. Perhaps, neo-liberalism is more pronounced in the context of international higher education in which international students have been traditionally perceived as students from a higher economic class. To this end, universities in countries such as Australia, United Kingdom or even the United States of America treat international students as a source of financial revenue. International students are required to pay full tuition, medical aid and other living expenses on their own. The host nation state rarely gets involved in the financing or assisting the international students meets some of their financial necessities of pursuing international education. On the contrary, neo-liberalism states that "there is glorification of the consumer citizen construed as willing, resourced and capable of making market-led choices" Lynch (2006:5). Though both local and international students are considered consumers under neo-liberalism, in most nation state, local students are comparatively financially cushioned by the nation state. Such financial cushions may come in forms of bursaries, scholarships, loans and grants that international students are often denied.

In consideration of the outline of neo-liberalism discussed in this subsection, the following part of this article focuses attention on the regional protocol of education in the Southern African region. Regional protocols could be analysed as pacts that attempt to control neo-liberal marketization of higher education that results in fewer regional students accessing higher education because of prohibitive tuition fees. Such a discussion is critical in the context of southern Africa, in which South Africa has since 1994 emerged as the regional hub of higher education that attracts African international students.

1997 SADC Protocol on Education and Training

The 1997 SADC protocol on education was put in place. The SADC regional block is a collection of 15 nation states who share geographical borders, except for island nations like Madagascar, Mauritius and Seychelles. Besides South Africa and Mauritius, the member states are economically poor countries with underdeveloped economies and infrastructure. However, in spite of the vast economic development levels of nation states within this region, there have been constant efforts towards regional integration in terms of trade among regional countries. It is within the context of regional integration that the SADC protocol on education and training was signed upon in 1997 in Malawi. It is also significant to state that Mauritius was not a signatory of this protocol on its commencement for reasons that are not known (Schoole, 2004).

The protocol outlines a number of areas to enhance educational collaboration within the region. For the purposes of this article, five areas will be highlighted that are closely connected to the regionalisation agenda. Firstly, mobility of international students from the region is stated as of primary importance. In an endeavour to promote mobility of international students within the region, the protocol member states need to facilitate the movement of staff and students across national boundaries (SADC Protocol on Education and training, 1997). To that end, it is suggested that prohibitive immigration policies be eliminated in order to allow free movement of both staff and students. Lee and Schoole (2015) point out that “since SADC 1997 initiative to promote regional cooperation in the education sector, educational mobility within the region has notably increased” Lee and Schoole (2015; 832). It is worthy to point out that the envisaged international mobility was the one in which ideally all countries are attractive enough for international students so that it becomes an intra-regional mobility.

Secondly, besides the reservation of places for international students, the protocol also notes that international students from within the region should pay tuition fees that are equivalent to those paid by local domestic students (SADC protocol on Education and Training, 1997). In this regard the SADC protocol does not prioritize the economic rationale of recruiting international students as is the case in countries such as Australia or United States among others. Mpinganjira (2012) notes that within the framework of the SADC protocol, “students originating from member countries are treated as local students for the purposes of tuition fees and are charged similar

fees as local students” Mpinganjira (2012; 263). The SADC protocol on higher education and training therefore, has inherently a contra-position to most regions in which international students are treated as potential clients to boost financial coffers of universities. Wright and Shartner (2013) argue that “for many universities, recruiting international students is a central plank of their mission for success as research and teaching institutions” Wright and Shartner (2013: 115).

Thirdly, in order to promote increased communicational interaction of international students and staff, the protocol seeks to promote English and Portuguese as regional languages for instructional purposes (SADC protocol on Education and Training, 1997). Language is a critical issue for two primary reasons within the scope of regionalisation. Firstly, it is a well-known fact that language is essential determinant factor in so far as international students’ choice for study destination. Secondly, language is an issue of access to education since it is used as language of instruction. Woldegiorgis, and Doevenspeck (2015), points out that Portuguese and English language determine the pattern of inflow of international students in SADC. Accordingly, Angola has emerged as the top study destination for students from former Portuguese colonies such as Mozambique, while South Africa mainly attracts English speaking African international students. In the context of regionalisation of higher education in SADC, Portuguese and English are the ideal languages for internationalisation given the colonial history of the region. Besides, the colonial legacy, it may have been assumed that adopting these languages could assist in minimising xenophobia within higher education in the region.

Fourthly, Kotecha (2011) notes that the SADC protocol on education and training was aimed at the general improvement of higher education standards within the region through cooperation, collaboration, credit transfer and harmonisation of academic year. The improvement of higher education was prefixed on the need to equalise opportunities to attract mobile students within the region. However, what seems to have obtained over the period of time is that South Africa has remained the top destination of study for half of the mobile students in the SADC region (Mpinganjira, 2011). To illustrate the attractiveness of South Africa, Mpinganjira (2011) further notes that in 2008 there were 45 000 international students from the region pursuing their tertiary studies in South Africa. Countries like Namibia and Madagascar appear to attract moderately considerable number of mobile students within SADC. In this regard, Rouhani (unpublished thesis) is of the view that the SADC protocol is a step towards internationalisation not only for South Africa but for the region in general as it seeks to promote intra-regional mobility of students as well as collaboration among universities within the SADC region.

Fifthly, though immigration policies do not directly fall within the armpits of higher education, they can either boost or stifle student international migration. In cognisance of this fact, the protocol states that the immigration policies that hinder student and staff mobility should be eliminated including formalities that make movement prohibitive (SADC protocol on education and training, 1997). However, the obtainment of study permits has continued to be a cumbersome process within

SADC region. According to Sichone (2006), the renewal of study permits in some African countries is so complicated that it accounts for a number of international students drop out.

Financial challenges for African international students

Generally, international students tend to encounter serious financial challenges within their hosts country of study. According to Dominguez-Whitehead and Sing (2015), the financial challenges for international students fall under the non-academic issues. Financial challenges manifests themselves in paying up for decent accommodation, tuition, medical fees and other daily ordinary expenses that international student incur. In its annual 2014 report, the University of Johannesburg for instances acknowledges that a substantial number of international students drop out and fail to return back to both the country and university because of financial challenges (University of Johannesburg, 2014 Report). It is instructive to note that these financial challenges are encountered by both undergraduates and post-graduates students. Schoole (2015) notes the fact that “not so many bursaries and scholarships are available for international students”.

It is of significant to note that the financial challenges for international students are a global phenomenon. In the case of Australia, Marginson et al (2006) states that international student encounter a predicament as their study permits generally stipulates that they are not supposed to engage in forms of salaried employment. Furthermore, Dominguez-Whitehead and Sign (2015) note that part of financial challenges encountered by international students is exacerbated by their families back in their home countries who even expect financial remittances from them.

It is however instructive to take into account those international students are not a homogeneous group when it comes to financial security. For instance in the context of South Africa, Dominguez-Whitehead and Sing (2015) suggest that “while international students from the America, Asia and Europe tend to be well funded and economically secure, international students from Africa may experience more financial concerns” Dominguez-Whitehead and Sing (2015).

Marginson (2012) perhaps aptly sums up the financial challenges that international students encounter with the observation that international students are in a ‘grey zone’ or limbo. In this metaphorical language, it is argued that because of lack of financial support from the national governments of their host countries, international students are a vulnerable, uncertain and a de-powered population. It is critical to note that in the argument in this article, it is the deliberate state financial denial or limitation to international students that is at the core of financial challenges for international students.

There is a claim that international students are viewed as sources that generate financial income for the universities. It is for this reason that in a sample of seven universities in Africa namely Makerere university (Uganda), University of Benin, Edo State (Nigeria), Witwatersrand university (South Africa), it was noted that university

put in place institutional mechanisms that entails that international students are charged higher fees and levies than domestic students (Okeke, 2010). Furthermore in the context of United Kingdom, international students pay as much as three times than the students who hail from European countries. In some countries the claim that international students generate income is justified by the argument that over the past decade, state funding for universities has been drastically reduced. According to Tannock (2013), “international students’ fees are unregulated by the government and they can pay as much as three to five times the rate charged to domestic students” Tannock (2013:454). Forbes-Mewett and Nyland (2013) observe that in Australia, international education is considered as a national export industry that brings in financial resources for the county. In the case of South Africa, it is noted that in 2003, the country generated 1.4 billion rand through tuition, accommodation, medical fees as well as food expenses that the international students spent. In a way, this has led to universities becoming entrepreneurs as they regard international education as a commodity that both domestic and international students have to purchase.

Legitimacy of financial claims for African international students

The financial challenges that African international students encounter in pursuing their studies in South Africa begs the question of South Africa’s financial obligation towards them. From the onset of this debate, it is significant to state that according to the immigration act, international students should be financially secure to adequately fund their studies and other living expense. In fact the immigration act of 2002 categorically states that in case an international student becomes a financial destitute therefore, can no longer sustain themselves, then the South African government is obliged to deport them (Department of Home Affairs, 2002). Furthermore, this article takes into account the fact that the African international students can access some financial allocations from the National Research Fund (NRF). Perhaps more importantly, it is imperative to state that South Africa is one of the few countries in the region that has implemented the SADC clause of charging SADC students tuition fees that are the same with domestic students.

However, it is in view of the institutional structural barriers to deny or limit the financial bursaries and scholarships for African international students that this article seeks to explore the legitimacy claim for public universities to financially assist African international students. The centrality of the debate on the legitimacy of the claim to financially assist international students emanate from the conceptions of nation state within the neo-liberal framework. In a country where education is one of the tools used to correct the legacies of inequalities, attempting to situate the issue of moral legitimacy of African international students to be financially assisted seem rather too idealistic and academic. In addition, given the narrative that African immigrants in South Africa compete for the scarce resources with citizens, the debate on moral legitimacy inadvertently tends into the complex matrix of xenophobia. Accordingly, Ramphela (1999) notes that, “citizenship and residence status are used strategically

to gain access to benefits and resources that only some students can enjoy. Some rights and benefits are reserved for citizens and other foreigners who satisfy certain conditions” Ramphele (1999:9). In this view, the logic of denying or limiting bursaries and scholarships available to international students in favour of domestic, is apparently touted to be located in the citizenship status or residential status of international students.

In our view, there are five primary reasons that can justify the moral claim of African international students towards funding in South Africa. Our arguments in outlining the moral legitimacy for African international students to claim access to funding in South Africa is primarily informed by the realisation that the general discourses on the rationales of internationalisation of public higher education in South Africa are not strongly motivated and influenced by the frameworks of economic rationales. As already alluded to in this article, in some countries, international students are regarded as ‘cashcows’ for both the nation state and the university. However, in South Africa, the political, social and cultural discourses apparently have more primacy over the economic rationale (Bolsmann and Miller, 2008). Probably economic rationale is given secondary importance because of the realisation on the part of South Africa and other African countries that it has higher quality university education in comparison to other African countries. It is out of this perspective that we draw the moral legitimacy for access to funding for African international students in South Africa.

Firstly, without dismissing the notion of nation state that outlines inclusion and exclusion, it is our argument that on the basis of South Africa being a strong relatively economy, it can cater and avail funding to African international students. Given the fact that South Africa considerably exports in other African countries that are not comparatively industrialised, there is a case of moral obligation towards African international students. It is noted that “the country’s investment stock in Africa has increased from R14, 7 billion to R121 billion in 2010. The rest of Africa is South Africa’s fastest export destination after Asia” Mail and Guardian (24th to 30th March 2017). Deriving from the financial benefits that South Africa draws through exports to African countries, it becomes a contradiction that sustained institutional measures can be put in place to exclude African international students from accessing funding.

Secondly, countries that host international students tend to eventually benefit from the acquired skills upon graduation of the students. Aloyo and Wentzel (2011) points out that South Africa is a huge beneficiary of human skills of graduate African international students. Though Lee and Schoole (2015) note that some international students choose to return to their countries of origin upon graduation, there is a substantial number who remains and get employed in South Africa. According to Chien and Chiteng (2011), academic mobility can be regarded as boosting human skills base, while concurrently is a brain drain for the sending countries. In the context of southern Africa and Africa in general, South Africa benefits more than in any other country owing to its political and economic stability. Given the foregoing

explanation of the skills benefits, it becomes an implicit imperative for South Africa to structurally deny African international students access to funding.

Thirdly, one of the national objectives of higher education in South Africa is to increase the skills base in Southern Africa and Africa at large. Accordingly, part of the agenda transformation of South African higher education is the numerical increase of recruitment and retention of international students from the southern African region (DoE, 1997). The rationalisation of recruitment of students from SADC is informed by the necessity of South Africa to assert itself as the leading academic research country in Africa. To this end, organisations such the International Education Association of South Africa (IESA) were formed specifically to increase the capacity for South African universities to develop outreach outlook in Africa (Dunn and Nilan, 2007). Therefore, in view of deliberate plan of South Africa to recruit and retain African international students within public higher education universities, it becomes paradoxical that there is an equal plan to deny them the means to funding. In our view, the without adequate funding, the objective of increasing African international students may not achieve its desired goal since a considerable number will drop out.

Fourthly, perhaps what is central to the debate on the moral legitimacy that seeks to justify the claim for funds by African international students is the notion of nation state. Generally, nation states are supposed to be responsible for their nationals, including in services such as education. However, with the increase in globalisation and the consequential by-product such as neo-liberalism and internationalisation of higher education, the debate on regional responsibility seem to be gaining momentum. Accordingly, Rampele (1999) reminds that university education is by its very nature transcendental of geographical boundaries in such a way that what is unreflectively taken as national education has extends its influence to the regional and global arena. The view of transcendence of higher education therefore, is more pronounced in the framework of international education in which the recipients of such education are both local and international students. To that end, the denial or limiting of funding towards international students is itself a direct compromise on the transcendence nature of university of education.

Conclusion

It is important to take into account the perspective that by charging SADC students fees that are equivalent to domestic students; South African state is implicitly subsidizing fees for African international students. Furthermore, it would be disingenuous to ignore the fact higher education funding mechanisms have proved problematic as they have been complaints that funding is inadequate. However, it is the systematic institutional structures that have been put in place to limit the number of bursaries and scholarships for African international students that we find contradictory to both the spirit of regionalisation of public higher education as well as the implied South Africa's moral responsibility.

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21ST CENTURY SKILLS FOR LIFELONG LEARNING

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This paper presents the results of a recent study of students' perceptions of their education, targeted at three grades of students in a Swedish upper secondary school's Arts program using an auto ethnographic research method. According to the European Union, students of today need "21st century skills" for lifelong learning to be successful. These skills include critical thinking and problem solving, information literacy, global awareness and an overall need for mastery of knowledge, ranging from facts to complex analysis. To implement successful training programs for the future we must start a dialogue with the students focusing on their needs for better learning.

Introduction

According to the European Union, students of today need "21st century skills" for lifelong learning to be successful. A global challenge for democracy is that political changes transcend national frameworks, while influence over the politics remains at a national level. When democracy is moving across national borders to a supranational level, important social issues, such as how we can achieve an equal level of education, will be discussed in a wider perspective. Kemp (2005) notifies that globalization increases young people's opportunities of mobility within and between different cultures, as active world citizens. Nihlfors (2008) suggests that globalization has the same effect on schools and learning as on other areas of society, with increased mobility and competition as consequences. A starting point for exploring potential educational futures is to identify the key variables of the development of 21st century educational policy and leadership (West-Burnham, 2016).

The knowledge, skills and commitment of teachers as well as the quality of school leadership, are important factors in achieving high quality educational outcomes. Good teaching and the ability to inspire students have a positive impact on young people's futures. Mulford (2008) states that priority should be on structures that provide time for reflective dialogue and action, as well as time and resources to

progress through the developmental stages involved. Student voices and leadership should have a much higher priority in schools and their communities.

School leaders need to recognize and concretize given goals and negotiate different interests, needs and requirements and finally consider them in their daily work. A dialogue between all stakeholders is a transition to a more democratic leadership, according to modern demands of influence and decision-making participation. When school leaders design and construct the content of teaching and learning processes in a dialogue with both teachers and students, the school's possibility for high quality outcomes will increase (Sträng, 2011).

School leadership for learning

The European Council conclusions on effective leadership in education (Council of the European Union: General Secretariat, 2013) emphasize that good educational leaders should develop strategic visions for their institutions and perform as role models for students and teachers. The needs to maintain the balance between pursuing long-term development goals and adapting them to a rapidly changing reality is a challenge for the school leadership. The values to which the school community has committed itself should prove to be viable. The effectiveness of school leadership is reflected upon how well school leaders can adapt to their new roles and how competent they can become in co-designing and co-implementing policies for equity and learning, as well as in encouraging the establishment of participative, democratic school cultures. Reform policies can only be coherently integrated into the life of schools and classrooms if a capacity building approach for professional school leadership pays attention to topics like; reducing complexity, coordination, learning context, energization, connections for learning and system-wide change. An important part of school leadership is helping a group to develop shared understandings about the school organization and its activities and goals that can undergird a sense of common purpose and vision with the education (Hallinger and Heck, 2002). Contemporary research notes that school leadership is second only to teaching in school-related factors in its impact on student learning, according to evidence compiled and analyzed by the authors (Leithwood, Louis, Anderson & Wahlstrom, 2004). The initiative for the study presented here was consequently from the school principal.

Conceptualizing student learning

All youth in Sweden who have completed compulsory school are entitled to a three-year upper secondary school education. Upper secondary education provides a good foundation for vocational activities and further studies and for personal development and active participation in the life of society (Skolverket, 2012). The upper secondary school consist of 18 national programs each lasting three years and divided into upper secondary foundation subjects, subjects common to a program, orientations, program specializations and a diploma project. The Arts program is a higher education

preparation program. With a diploma from the program, students will have the knowledge needed for higher education studies in primarily artistic, humanistic and social science areas. The core of the education is that students should create, experience, and interpret art and culture. Creativity, curiosity, communication, interaction and the ability to be personally creative and performance oriented should be central in the education. Taking responsibility for one's own work, managing and assessing large quantities of information, examining questions from different perspectives, using digital tools and media, and having the opportunity to broaden and specialize are basic parts of the education as well as preparation for artistic and scientific studies at higher education level.

The present study is conducted in the Arts program at an upper secondary school and was predicted on the teachers and the principal's perceptions of student learning as motivated, contingent and well situated. Central to this perspective was the assumption that students are active learners who reflect upon and may actively participate in investigating their own practice (Jurasaitė-Harbison & Rex, 2013). The aim of the study was to investigate upper secondary school students' personal and informal approaches to learning, and to determine the extent to which these reflected the effects of teaching and assessment demands rather than representing relatively stable characteristics of the individual learners (Entwistle & Ramsden, 2015).

Schools are also sites for ongoing organization, in addition to being institutions with the core business of teaching. The improvement of student learning cannot be an exclusive task for individual teachers or school leaders, but a shared responsibility of teachers, school leaders and students. A key to successful improvement may be to expand the collective learning for students and other staff in mutual activities (Larsson & Löwstedt, 2010). Informal student learning is often defined as mainly spontaneous and incidental or planned by the student in settings and time frames such as individual reflections on teaching or interactions with other students in the classroom, but also in school hallways, cafeteria and other places for learning and training (Jurasaitė-Harbison & Rex, 2013)

Method

In the study of upper secondary school students' personal and informal approaches to learning I used an auto ethnographic strategy of inquiry with letter writing as research method with the aims to describe and systematically analyze the students' personal experience in order to understand their experience of learning (Ellis, Adams, & Bochner, 2011). The empirical material consisted of 89 letters from all three grades of the Arts program in the investigated school, located in a medium-sized Swedish city.

In the letters, the students are supposed to give an account of themselves, their own experiences and the experiences of another. As a research method, the merits of letters are the quality established the give and take of an imaginary conversation

between the researcher and the writer (Clandinin & Connelly, 1994). This conversation progresses simultaneously on several levels as dialogues within the text of letters by writers with similar voices. These dialogues are well suited for collective studies of pedagogical phenomena in school life, in which different perspectives and aspects visualize. They function as a kind of “black box”, in search of a better understanding of educational processes (Dahllöf, 1999). The purpose of the study is however not primarily to achieve a total picture of the situation in school, but to maintain a broader understanding of student’s learning from the individual’s point of view. The reinterpretation that takes place in the letters can lead to different understandings of what actually happens and provide important knowledge of the values and motivations among students in secondary school and their approach to learning. Research of this kind cannot and should perhaps not even be value free, but it is helpful to have the values brought out explicitly (Ramsden, 1984).

Paying attention to the letters’ structural form, word choice and phrasing I coded the students’ writing to describe how they positioned themselves as learners. I also looked for signs where the students indicated learning without explicitly stating it as such, e.g. by saying, “I like to be doing, I am finding, I love to learn”. Statements such as these showed that the writers positioned themselves in a learning process more than taking active steps to learning (Jurasaitė-Harbison & Rex, 2013).

Critics have argued that writers create the lives they write about (Smith, 1995). Common to all perspectives on auto ethnographic strategies for research is the assumption that people enter into conversations with certain goals. Even when they cooperate to provide information for mutual understanding, they attempt to attain certain personal goals. Having goals did not necessarily make the students in this study planned communicators, merely spontaneous writers with a more or less clear sense of what they wished to obtain (Reardon, 1987). The opportunity for students to write a letter to their teachers and the principal about their experiences of learning in upper secondary school perceives rather as the trading of resources of attention, concern, support and other personal needs in an effort to achieve their goals (Roloff, 1981).

The students were informed before the study that teachers and principals to improve their performance and work environment should use their letters. Through the students’ own interpretations of these objectives, the school should have a higher degree of autonomy to implement the outcome of students’ interpretations in planning for teaching and learning. In the study, therefore I had to uncover and interpret the underlying patterns of the students’ values and motives for their approaches to formal and informal learning. With this knowledge, I should in addition contribute to increased awareness of students’ learning to their benefit on the organizational level (Larsson & Löwstedt, 2010).

As a qualitative researcher, I self-consciously drew upon my own experiences from the research field as a resource, which allowed me to identify denotative and connotative meanings and make connections of larger structures, forged out of the empirical material that gathers in the study (Denzin & Lincoln, 1995; Reardon, 1987,

Sträng, 2011). To achieve empirical soundness I followed a systematic process of interpretation and representation that exposed the statements from the letters in three categories as students' conditions for learning. The categories were pre-selected by the principal and the teachers.

Results: Student conditions for learning

In the following section, I provide brief summary descriptions of the three domains that compromise the conditions for students' personal and informal approaches to learning in upper secondary school. When describing their experiences, the students express both emotional and analytical qualities, from "emotional learners" (Jurasaitė-Harbison & Rex, 2013) to a higher degree of reflecting on teachers' role for students' learning over time. The relations with teachers respond with the students' different types of social and professional need. First grade students look for a safe haven in the new school environment, while the graduating students have experienced the importance of knowledge and skills for lifelong learning and adult life.

Security

First grade students look at security as mainly a personal matter. In their letters, they express the good feeling of waking up in the morning without anxiety and go to school without being unwelcome or unwanted. They describe the importance of feeling comfortable before meeting other students, teachers, environments and lessons. It is important to be yourself and talk to everyone in the school without fear.

Most of the time I feel safe in school. I adapt myself easily to different situations and I am rarely insecure but mostly the teachers who give me security by respond to me and listen to what I have to say.

You greet teachers everywhere, not only in the classroom but also in the corridors, and then I feel safe.

If you do not feel safe, you cannot concentrate, and then it is harder to learn

Security for a second grade student is daring to ask teachers when you do not understand, and correspondingly explain to your teachers that you really have learned. This makes students more motivated for learning and reduces the fear of unexpected events during the school day. The role of teachers in student learning is increasing and the students regard the class as a family. By participating in various social and cultural practices, the students will acquire resources requisite for both reproducing and transforming relevant social and cultural formations (Foucault, 1979; Kamberelis, 2013).

Our class is like a family, where no one is mean to me. Art students will stand out and it is the very purpose of the program, daring to be you.

Teachers bring a sense of security. For example, when teachers help me to feel safe is when we have oral presentations, and there are several different options to present my work.

Third grade students note that issues of all kinds are solved quickly by teachers and co-students, but it is a problem when they don't know what is expected from them. Another issue is when the feedback from teachers is too slow or inexplicit. The dialogue between students and teachers is an important source for learning, as well as the friendship between classmates. In a study of classroom culture Kamberelis (2013) speaks of «fourth-grade professionalism» with key components of social responsibility and increased self-regulation among students. In my study, the «third grade professionalism» in the classroom is a good example of a professional learning community, including students and teachers, and ultimately the principal. The idea of the professional learning community is that formal education is not simply to ensure that students have taught but to ensure that they learn. The shift from a focus on teaching to a focus on learning has profound implications for school improvement (DuFour, 2008).

Security for me is that the education has a clear sense and that different subjects and topics fit together so I can see and understand “the big picture”

I feel very confident with teachers who I have known since first grade. One good thing is that you meet them often, even outside the classroom

For three years, I never felt unsafe. My classmates give me security and the teachers give me the help I need for learning

In third grade I have grown as a human being with much bigger self-confidence than before. This is all entirely dependent on the Arts program and its teachers and students

Teaching

The importance of teacher performance is fundamental in educational research. Today hardly anyone would question the impact of good teaching for students' learning. Nevertheless, good teaching in theory might not automatically match the students' personal and informal approaches to good learning. In their letters, the students from all three grades agree on a few basic criteria for effectiveness in teaching and learning.

The first criteria is *fast and constructive personal feedback* from the teachers, directed at a particular student rather than a group of students. For successful communication, students and teachers should respond logically to each other with at least a minimum amount of feedback, coherence and interaction (Reardon, 1987).

I sometimes feel that feedback does not give me the chance to explain how I experience the teaching and what I think the teacher should do to make it better for me.

The teachers should have feedback that is more individual with students so we could get a better view on our results and performance

I get a lot of support and good feedback that tells me what I should do to be a better musician

The second criteria is how to use and exploit the potential of the technical equipment. According to the students, the teachers cannot always effectively adapt their teaching

to the new technology, which prevent the students to use their own technical knowledge and skills for better learning. The school's choice of equipment is also questionable by critical students.

I like to have an iPad, but a PC had been better because PC is better suited for schoolwork. Our iPads are terrible...they are worthless as IT tools and it feels ridiculous to walk around with it...besides I will also say that the school should find new ways for us to present our work...It's Learning is the worst I have ever seen!

I do not like my Mac so much...ok for Photoshop, Illustrator and InDesign...but Premiere is useless because it is so slow

The third explicit criteria for good teaching is *value creation as educational practice*. According to the educational goal of training the Art students in managing and processing information and examining questions from different perspectives, the value creation as educational practice is a crucial part of increasing the students' approach to learning.

The concept of value creation originates from the Japanese educator and philosopher Tsunesaburo Makiguchi (1871–1944), considering the lifelong happiness of learners to be the authentic goal of education. Makiguchi's educational theories about value creation formed the basis of his most important work, *The System of Value-Creating Pedagogy* (Soka kyoikugaku taikai), published already in 1930 (Gebert & Joffe, 2007). In a recently published doctoral thesis the Swedish researcher Martin Lackeus (2016) express that an educational philosophy letting students learn through creating value for others and giving teachers prescriptive advice on *what, how* and *why* issues in education will trigger emotional learning and allow for deeper learning as well as increase specific knowledge, skills and attitudes. Laszlo (2007) states that students can more easily access information at a deep level where their egos interfere less. Despite the challenges in assessment, there is thus a need for evaluate the educational philosophy's effectiveness in terms of learning outcomes.

The Arts program develops your self-consciousness when you are standing on the stage and play your own music for other students and teachers.

I highly recommend the Arts program to all who love music and want to improve your skills and knowledge. Here you will have the best school years ever... you will love your class-mates because you are all here for the same reason... the love of music

It is very good that the school have started with value creation for learning, instead of all the time focusing on students' results and performance

Motivation and Meaningfulness

The students' motivation should be set against what the school is aspiring to achieve. A clear vision will set the context for the school to make sustained improvements and move forward (Mulford, 2008).

The impact on student outcomes is in basic the measure of the school's effectiveness in producing skills and knowledge. To involve the students' own knowledge, skills and social competence in the school improvement process will increase their motivation of the need to learn how to make well-informed decisions for their upcoming adult life (Lazarova, et. al., 2016). In their letters, the students express their motivation explicit as a source of values, close connected to security and teaching as the two other conditions for learning. Values are synonymous with meaning or defined as concepts of the desirable with motivating force (Hodgkinson, 1996). There are certainly values that sustain minor motivation, but values seem nevertheless to be an important factor of the students' attitudinal orientation and understanding of their education.

The school motivates me because it is a big part of my daily life and I want to do the best of my three years here

I feel motivated because I know that if I do not make it, I will always have good help from my classmates, my teachers and my parents.

The first year I was not very motivated but when I think of the future, I do understand that I need a good education to have a good life as an adult

Sometimes the school do not motivate me so well. I would learn how to buy a house, pay bills or just to live as a civil person

What is motivating me in the school is that I learn how to learn... how to make memories... find friends... a meaningful journey, that is it!

In the study, I identify two kinds of student motivation. The first kind is achievement motivation (Klemp, 1977) with the need to do something better than it has been done before. The abilities for this need are time phased and realistic goals and seek feedback for the own performance. The second kind of motivation connects to networking, goal sharing and a micro-political awareness in-group coalition with regard to level and results and orientation to personal and collective goals. Klemp (1977) claims that achievement and power motivation together form a basic ability called *cognitive initiative*, which refers to how the students define themselves as actors in a situation. In the study, that is the students' definition of themselves as members of the Arts program and as musicians and artists.

Discussion

The conditions for students' personal and informal approaches to learning in upper secondary school combines both student thinking and actions as learners. The combination of mental and behavioral elements show a dynamic profile of students as learners that builds on the teachers and the principal's perceptions of student learning as motivated, contingent and situated. The assumption that students are active learners who reflect upon and may actively participate in investigating their own practice (Jurasaitė-Harbišon & Rex, 2013) is visible through the empiric evidence.

The boundaries between formal and informal learning differs looks slightly different in particular contexts from the three grades of the program. The students have in general good awareness of their informal learning, grounded in their motivation and sense of meaning in the teaching. In the letters, they express that the structure of the program have enabled them to learn and reflect on their performance process and outcomes (Eraut, 2004; Jurasaitė-Harbison & Rex, 2013).

In a European perspective, knowledge and skills equalize differences between groups and increase young people's opportunities to choose career and achieve quality of life (Giota, 2014). Without knowledge, categorizations and preconceptions can lead to prejudice and widening gaps between people from different regions or cultures. One way to define equity is people's right to education. As a concept, democracy is about equal worth and rights for individuals to influence their lives. Bauman (2002) argues that the future of democracy depends on its ability to enthuse and engage young people in dialogues on important social issues.

In many European school systems seeking for good solutions to improve the quality of education, there is strong confidence ahead research, analysis and reports illustrating different school systems and their elements, providing recommendation for tendencies in planned transformation. A widespread perception is that the quality of an education system is not primarily determined by structural reforms of school systems but by the quality of teachers' preparation to perform their profession. Initial training and the way teachers upgrade their knowledge and develop skills during teaching practice will have an essential impact on teachers' performance. A challenge for every school is to develop the activities of teaching and learning from traditional ways of mediating knowledge, to a strong emphasis on student's inclinations and abilities to learn. In these processes, the students will acquire strategies for their studies and professional life, through basic skills and competences. Student active work forms and social training demands the teacher's flexibility and ability to handle conflicts. The teaching profession extends from a mediator of knowledge, into a catalyst of the knowledge society (Hargreaves, 2004). Students' and teachers ability to acquire new understanding and insight into society's roles and guidelines is not obvious. Common accepted opinions are neither obviously generalizable nor automatically transferable to every context. Different issues require different approaches to formulate acceptable answers and contribute to the student's willingness to learn something new (Lazarova, Sträng, Jensen, & Sørmo, 2016).

Apart from focusing on teachers' professional development consisting in the improvement of teachers' individual qualifications, it is however important that learning conditions is put into the context of needs related to work and development of individual schools as organizations. This requires activities, which guarantee all school actors (students, teachers, school leaders) sufficient conditions for appropriate participation. This optimization must be simultaneously in providing the basic 21st century skills for lifelong learning; digital skills, foreign languages, technological culture, entrepreneurship and social competence, as well as structural, ideological and co-operative aspects of the school's ability in teaching and learning.

An evidence-based investigation of students' perceptions of learning is not merely about whether or not to apply standards of mastery knowledge and better learning in the 21st century. The results and findings of this study are just inscriptions or cultural theses (Popkewitz, 2006) about who individual students are and should like to be in adult life.

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PERSPECTIVES ON MAKING AS A PEDAGOGICAL APPROACH

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Our study explores the impact of involvement in a week-long makerspace camp on three educators, who came into the study at three distinct points in their careers: a pre-service teacher, a master of education student, and an in-service teacher. Specifically, we were interested in understanding: i) how involvement in the camp would impact the various educators' perspectives on teaching and learning; ii) how their involvement might influence the potential for uptake of this particular pedagogical approach; and iii) how pedagogical documentation (metacognition being a central component of makerspace learning) might impact the educators' understanding of how students learn in a makerspace.

Introduction

The purpose of the March Break Maker Camp was to pilot, with a small group of students, a new approach to teaching and learning using new makerspace tools. It was a layered co-learning opportunity for the student participants, the teacher candidate volunteers, and the researchers. The students learned about themselves, the design process, problem-solving, new technology tools and how to conduct research. The teacher candidates explored makerspace pedagogies, how to implement them and they were introduced to the learning potential of new technologies. The classroom teacher (hired to teach the students coding through Scratch) learned about the makerspace pedagogy and new technology tools and acquired more in-depth knowledge on the pedagogical potential of makerspaces. All of the educators collaborated to develop best practices associated with makerspaces.

In addition, we all engaged in research throughout the process – even the students who were positioned as co-researchers through the practice of pedagogical documentation. They were asked to document their own process work, final products, discussions and presentations in the classroom and to interview one another about their experiences and provide feedback. Everyone involved in this research project

had a vested interest in the activities and research and it provided an organic learning environment in which everyone involved could learn from one another. We were all “actors” in this process, at times acting and being acted upon (Latour, 2005), teaching and learning, consuming and creating. The work we undertook was for various authentic purposes with real-world applications and/or audiences. The research questions driving the study included: i) How does involvement in a makerspace study impact perspectives on teaching and learning for educators at various points in their careers?; ii) How does involvement impact uptake or buy-in of maker pedagogical practices for these educators; and, iii) How does the practice of student pedagogical documentation impact educators’ understanding of student learning in a makerspace learning environment?

Theoretical Framework

Maker Pedagogies

Production pedagogies draw on a combination of student-driven and active-learning approaches such as inquiry-based learning, constructivism, constructionism and Critical Digital Literacies (Hughes & Morrison, 2014). According to Thumlert et al (2014) a production pedagogy is “one in which learning actors are enabled to engage (multi)literacy, artistic, and/or practical design challenges and aptitudes through the making of authentic cultural artefacts—and with correspondingly real audiences similarly enabled to witness such acts of art and knowledge production” (p. 12). By their very nature, maker pedagogies are collaborative and invoke such skills and competencies as critical thinking and problem-solving, collaboration, communication, global citizenship, self-awareness and metacognition, entrepreneurship, innovation and creativity (Hughes, 2017). They disrupt traditional pedagogical approaches and in a sense, stand in opposition to the current education system – one which has been compared to the rigid and hierarchical assembly-line of the Industrial Revolution (Robinson, 2011). While traditional, teacher-centered pedagogy can be classified as uni-directional or a “top-down” approach to teaching and learning, maker pedagogies can be aligned with the transformation-based approach. In a sense, the idea of “the teacher as expert” has been replaced in favour of a more democratic learning dynamic. Learning is bi-directional and occurs as a result of a multitude of learner interactions – learner and self, learner and peer, learner and technology, learner and chosen challenge, learner and facilitator.

Production pedagogies engage learners in the “activity of production, enabling actors to deconstruct and reconstruct, interpret and refigure, and to make both meanings and ‘things’ within the context of appreciably meaningful cultural/aesthetic interventions” (Thumlert et al, 2014, p. 13). Drawing on actor-network theory (Latour, 2005), this approach emphasizes the reciprocal relationship between the user or “actor” and the technologies; we are both acting and acted upon (Thumlert et al, 2014, p. 2). These scholars propose that focusing on the affordances of digital

technology alone, or even how the learner interacts with the technology, tends to re-inscribe the traditional approach to schooling. Rather than focus on explication and step-by-step scaffolding (Ranciere, 1991), we might more usefully give learners opportunities to begin in complexity, to discover, explore, and enact their own course of learning “by engaging in idiosyncratic challenges, by figuring things out, and by co-producing multimodal artefacts” (Thumlert et al, p. 7). These elements all combine to create a fertile learning environment where students’ development of self and agency are intricately intertwined with the learning process.

Pedagogical Documentation

In line with the underlying concepts of formative assessment, pedagogical documentation works to inform teachers so that they can adjust ongoing teaching to suit the needs of their students (Buldu, 2010; Ontario Ministry of Education, 2015). Caldwell (1997) defines pedagogical documentation as a way to systematically capture student learning. Educators can use observations, transcriptions of interactions in the learning environment, analyses of final artifacts and use these with students to inspire deeper reflections (Buldu, 2010). This allows students to engage with their learning process in a way that was not possible until recent years. They can not only look back and reflect on their learning experience, they can see concrete examples of it. This sharing between educator and student encourages the greater involvement in the student’s learning experience. This can serve to improve student self-confidence and self-awareness when it comes to their content understanding and willingness to participate in class-wide activities (Buldu, 2010; Parnell, 2012).

Additionally, this technique offers teachers the opportunity to reflect on their teaching practices. Pedagogical documentation exposes the gaps in student learning as well as areas that they are thriving (Buldu, 2010). By engaging students in the documentation process, we are encouraging them to share their perspective of the learning environment. While educators can assume or theorize what students believe or how they are learning, pedagogical documentation provides students the opportunity to bring their perspective to light (Niemi, Kumpulainen & Lipponen, 2015). By shifting the research power to the students, these implicit beliefs on student learning and knowledge acquisition can be empirically shown through the data. Pedagogical documentation has the power to challenge preconceived assumptions about classroom practice (Niemi, Kumpulainen & Lipponen, 2015) and through a new lens, the improvement of practical skills and technique could improve the learning environment for all stakeholders. Through the use of professional judgement based on the data collected, educators are better able to foster lesson plans to the specific needs of their students in a way that the class will find engaging while still making critical curriculum connections (Ontario Ministry of Education, 2012). Production pedagogies, by their inherent incorporation of authentic learning and assessment practices, facilitate perhaps a richer level of teacher understanding when it comes to what and how their students learn.

Technology Integration in Teaching Practice

Through research in the area of technology integration and teaching we know that the up-skilling of pre-service teachers is a solid predictor of how they will adhere to transformation-based pedagogies as opposed to the traditional pedagogies with which many have been indoctrinated throughout their years of schooling (Machado & Laverick, 2015; Polly, Mims, Shepherd & Inan, 2010). Pre-service teachers are more likely to integrate new pedagogies and tools if they have been provided with hands-on, practical experiences (Kiili, Kauppinen, Coiro & Utriainen, 2016). As a result, it was important for us to have heavy teacher candidate (TC) involvement in the March Break Camp from the Bachelor of Education program. We saw this as a key opportunity to reshape how the teacher candidates think about and approach education. We also know that the most effective professional development when it comes to technology (for any pre- or in-service teacher) does not come from isolated professional development (PD) days. In these scenarios, teachers are shown a new technology and then left to figure it out, integrate it and troubleshoot technical issues on their own (Hughes & Burke, 2014; Potter & Rockinson-Szapkiw, 2012). In contrast, we know that the most effective PD comes when teachers are introduced to a technology in an authentic learning environment. In this way, the technology is purposefully integrated into a plausible scenario and the teacher can see and understand the best practices surrounding the tool. Importantly, the teacher can also learn how to use the tool with knowledgeable others in a supportive environment (Kimmons & Hall, 2016; Martin, et al., 2010).

Methodology

To explore our research questions, we used a qualitative design in keeping with the established practice of in-depth studies of teaching and learning and case studies in general (Stake, 2000). The qualitative research made use of a case study methodology, which included the written reflections and transcribed interviews with the three participants as the primary data sources.

Participants

Sixteen students were participants in the March Break Maker Camp – 11 boys and 5 girls. The students ranged in age, and, apart from the two outliers in the group (one aged 8 and one aged 12), most students were between 9 and 11 years old. The students were in learning-exceptional and mainstream programs at their home schools. We also had 14 teacher candidate volunteers – three males and eleven females; three researchers – including 2 masters students, and one in-service classroom teacher. For the purposes of this paper, we chose to focus on the experiences of one of the teacher candidate volunteers, one master of education student, and the in-service teacher. Although our study includes data based on a large sampling of participants, we used purposive sampling for this paper due to its limited scope

Setting

The camp took place primarily in our makerspace lab at a university in Southern Ontario, Canada. The students used MacBook Pro laptops to access various online programs and tools, such as the block coding program Scratch, internet search engines like Google and digital design tools like Piktochart. Within the makerlab, the students worked on projects at communal tables and collaborated on the carpeted common area. Here they could spread out their materials, plan the way to address the tasks, brainstorm with peers and work together to learn and build. Occasionally, the students spread out into different rooms to work on individual or group projects to allow themselves more space and a quieter environment to share ideas. This was done to build community amongst campers and to create an environment that focused on that project/tool. Everyday, the students also accessed activities, shared knowledge or reflected on daily tasks using the online platforms, Padlet and BitStrips.

Data collection

Data sources for the study as a whole included field notes based on observations of students and interactions between students and instructors. In addition, in-depth open-ended interviews were conducted with the teacher candidates, the in-service teacher and the Masters students who helped with instruction. The transcribed interviews, along with our field notes, are the primary sources of data for this paper.

Data analysis

In the analysis of the educator interviews, Davies' (2011) theoretical framework for evaluating educational technology integration was applied. This framework includes three distinct phases: the awareness stage where teachers become aware of the various technology available to be integrated into their pedagogical practice; the praxis stage, where teachers begin to use and become familiar with the technology (and are generally excited about the tools and their potential), but do not necessarily have the competence yet to know where, why and how to integrate the tools most meaningfully into their practice; and the phronesis stage where both competence in the tool and wisdom of best practice with it are achieved.

Analysis of the data required several different layers of coding and interpretation. Using a thematic coding system, we coded the interview transcripts following traditional coding procedures (Strauss & Corbin, 1990). We then compared themes across the different cases in order to identify recurring and overlapping thematic and structural patterns (Black, 2007). The analytic methods included thematic coding (Miles & Huberman, 1994) and critical discourse analysis (Fairclough, 1995). The data were read and coded for major themes and subthemes across data sources and the codes were revised and expanded as more themes emerged.

During the data analysis, we were particularly interested in what Bruner (1994) identifies as 'turning points,' looking for areas where the students presented increased confidence or "aha moments" in their work with the makerspace tools and/or activities.

Findings/Discussion

Awareness

For the educators involved, the makerspace camp was a unique opportunity to progress through Davies' (2011) framework of technology integration. In our study we extend this framework to include not only the technology but the adoption of production pedagogies (which includes metacognitive reflection, and in our case, pedagogical documentation), as the technologies and pedagogies are so closely aligned here. In Davies' (2011) first phase toward effective integration, educators need to be introduced to the available tools (the foundation for later adoption). This occurred seamlessly in the context of the camp as the educators witnessed not only the wide variety of available technology, but also the students using the tools in authentic situations.

The teacher candidate shared: "The camp program introduced me to new methods for...21st century learning. I was able to improve my understanding of how to engage students through inquiry-based projects, obstacles relevant to technology and infrastructure, and best applications for use in the classroom." He then shared, "It is amazing to see the reality of the makerspace and STEAM/STEM movement in education. It is beneficial because it is real. The makerlab is applying it, the schools are trying to apply it, and it is not just an idea being talked about." While he shared he had been learning about the maker movement and coding in his B.Ed. program, the first-hand experience with this new approach, "created a better awareness of what works and what does not, with regards to makerspaces."

The masters of education student similarly shared: "Through my involvement in the camp, the theoretical basis that was laid out in my graduate courses was given depth and reality. I was able to witness firsthand the implications of maker pedagogies and STEAM (Science, Technology, Engineering, Arts, Mathematics) education in a non-traditional learning environment, the makerspace lab, and the impact that they could have on student learning and engagement."

Even for the in-service teacher, involvement in the camp provided a deep learning opportunity. He explained that seeing the maker approach to learning and the associated tech tools was "mind blowing." His ultimate goal is to have students engaged in self-directed learning and for him to be the "guide on the side". Seeing this being successfully achieved in the camp helped him understand, with authentic examples, how this might be achievable in the near future.

For all the educators, having the opportunity to see students from a variety of different educational backgrounds and experiences come into the makerspace and flourish, confirmed that the makerspace (with its associated tech tools and pedagogies) was an effective approach to learning. Rather than simply reading about makerspaces or attending PD days, involvement in the camp provided the setting to see and learn the tools and pedagogies in a hands-on authentic context.

Praxis

The praxis stage of the Davies' (2011) framework is explained as the point in which there is familiarity and excitement for use of technology tools but mastery and meaningful integration is not yet achieved.

While progressing through the inquiry process with students in the makerspace, the Bachelor of Education student expressed how he “was challenged with the true essence of being led through inquiry and how possible that would be to do in a more traditional classroom.” There was an understanding of the benefits and clear interest in the use of this teaching methodology, but the student still exposed gaps in his understanding of the implementation.

Conversely, the M. Ed student shared that, “by being a part of the camp and experiencing the technology tools firsthand, I have developed not only a deeper understanding of the tools themselves, but also the affordances and constraints that they potentially present with different student groups. I have seen tools that are incredibly engaging but lose their novelty after a few moments – the 3D printer for example – and others that students got lost in for hours – block coding tools like Scratch and Scratch Jr.” Here, there is evidence that the knowledge base is still developing, but there is a shift towards deeper understanding of the use of these tools.

With regards pedagogical documentation, the methodology encourages users to shift perspectives and understanding to a deeper more meaningful level. The cases in this study reflect that the educators all had different experiences with the use of pedagogical documentation. The teacher candidate struggled to define the concept initially but after reflecting on the week he concluded that, “it is the ways in which students were accomplishing tasks with digital devices, they were also reflecting on their projects or telling their process(es) through these tools. It shows me the relevance of how making can use formative assessment to show student understanding.” His understanding shifted from having little-to-no formal exposure to pedagogical documentation, to understanding the relevance and importance of its use. He acknowledged the power of this documentation method as it exemplifies a shift in the students: “there emerges a huge sense of personal connection and responsibility. Not only do they strive to show their understanding, they try to produce something greater.” At this stage, he recognizes that both process and product are important in makerspace learning.

The graduate student seemed to have more exposure to pedagogical documentation and was able to recognize its importance from the beginning of the camp. She acknowledged, “By positioning the students as researchers from the get-go, they were told that their viewpoint on the experience mattered and it opened the doors to what they thought were the more crucial things to focus their attention on and how they chose to document it, be it by video or still photography.” Here she recognized the ownership that is afforded to the students through this methodology and also outlined the ways it impacted student learning: “It forces students to really think in the moment and make decisions, but it also allows them to engage in their learning in ways that

they may never have experienced.” Her understanding, while not complete, showed a growing familiarity and interest in the future of this documentation method.

The in-service teacher identified as being a current user of pedagogical documentation in his own classroom and demonstrated a clear understanding of its use in education. “Any time the students were recording – they were recording for an audience. When recording for others (peers, a larger group, parents), it makes for an interesting context.” His comments suggested that the students were aware of the purpose of their recording and that is what contributed to the higher quality content. Clearly his students are aware of the reason that they are participating in this type of documentation and that is what will provide him with the best results for use in his class. His perspective emphasized the powerful shift that exists when you give students a stronger voice in the classroom. He commented: “[Pedagogical documentation] also builds in feedback – in a way, they are creating their own feedback. When they review the photos or videos they took of the process work or end products, they have this opportunity to objectively view and reflect and then revise as they see fit.” He finds that pedagogical documentation encourages metacognitive skill development in his students and that better prepares them as they continue through their education. All of the educators involved throughout the camp saw clear benefits to their participation. Whether there had been exposure to concepts, like pedagogical documentation, prior to the camp or not, there was clear growth and development by each stakeholder involved.

Phronesis

In this last stage of Davies’ (2011) framework, where both competence and wisdom of best practice are achieved, there were emergent signs from each of the educators. Regarding the digital tools, the teacher candidate shared: “Through the camp, I was able to identify a variety of curricular areas where coding had a purpose, allowing me to establish its place in my future class.” The teacher candidate also explained that prior to his involvement in the camp, he had no experience with any of the technologies or how to implement them in the classroom; however, as a result of his involvement he learned the technologies and began using them (specifically MaKey MaKey and Scratch), along with the inquiry-based approach in his practicum placements and later work. In terms of his experience with pedagogical documentation, the teacher candidate shared, “It was really amazing to see what [the students] were doing and how they as individuals were evolving with [their work through the reflection process]. This is how students should be learning. This is how I want my students learning.” In sharing his insights on the value of reflection and iterative process work, the teacher candidate demonstrated an emergent understanding of maker practices and the central importance of the reflective process.

For the in-service teacher, the experience in the maker camp, combined with a variety of other similar experiences with inquiry-based education have impacted his classroom based practice. In his words, they “have shifted the way I teach. They have provided me with new ways of thinking, new approaches and new tools.” This affirmed

that it is through these repeated practical experiences that the groundwork for effective adoption of technology, and their associated pedagogies, is achieved.

For the M.Ed. student, the pedagogical documentation aspect of the camp proved particularly helpful in understanding how to meaningfully integrate makerspace pedagogies: “There are metacognitive skills that are fostered through this type of process. Students are making these decisions and can reflect on them because they can continue to interact with that moment. Whether it is a ‘why did I even bother with that?’ or a ‘wow, I missed that the first time,’ it empowers students to adapt and change the way they are learning and interacting with their learning environment.” As the reflection/revision process and the concept of learning to learn are large components of the production pedagogies approach, the inclusion of pedagogical documentation enabled the educators to clearly understand the process and its value. This educator’s insight highlights at least a degree of emergent competence as she articulates the how, why and educational impact of this process.

While the camp may have been too short a time period for the educators to fully realize Davies’ (2011) phronesis stage, it provided them with the authentic learning environment necessary to become aware of makerspace technologies and best practices. It also allowed the educators to learn some of the tools, and to experiment with the production pedagogies approach through mentorship. In a controlled, yet hands-on environment, the transition from novice to one who exhibits signs of competency is made smooth.

Considerations

This particular group of students were primarily considered learning exceptional on the “gifted” end of the spectrum. As a result, their willingness to engage with the tools and in the project/problem based learning environment may have come from a previous familiarity with this approach to learning. The students may have also come in to the study with a good foundational knowledge of things like circuits, making the troubleshooting an easier process if compared to a group with no previous knowledge in this area (i.e. this group may have had a foundation from which to work or contextualize the new information/tools). Finally, because this was a March Break camp, the overall tone and expectations coming into the camp were different from a classroom. Most of the students chose to attend, so they had at least a baseline interest in the tools and activities. However, as with most technology, time needs to be set aside at the beginning for students to simply play with and get used to the technology. In our experience, this step is necessary for the students to move past the “novelty” and entertainment stage. While the participants eventually settled in to using the iPads and GoPros as documentation tools, for example, there was the initial excitement and distraction with the tools’ various features – most notably the PhotoBooth filters and the timelapse feature. Though, interestingly, after playing around with these features at the beginning (and as a result becoming familiar with them) some students later used them in their documentation effectively. One student used the timelapse feature to record an entire day at the maker camp and then

condensed it down to a few minutes. This provided a captivating overview of the events of each day and the progression of the week.

With respect to the in-service and pre-service educators highlighted in this paper, both showed signs of what might be considered an “open-minded” and “reform” approach to education as opposed to a “close-minded” or more “traditional” approach, so their level of receptiveness to the makerspace and pedagogical documentation may have been slanted in favour of the aforementioned.

Conclusions

This study emphasizes the importance of exposure to new teaching and learning methodologies regardless of level of experience in the field of education. The March Break Maker Camp afforded all stakeholders the opportunities to work with motivated students, explore novel technologies and tools, and familiarize themselves with a novel means for documenting student and professional learning. Participation encouraged the educators to expand and challenge their preconceptions of teaching and learning in the 21st century.

Connection to the themes of the assembly

Students Voice in Teacher Education

This study provided a unique opportunity for educators to observe and interact with students who were engaging in pedagogical documentation in a way that is not commonly seen in traditional education settings, by using tools like the GoPro cameras and iPad recording apps. Since campers were introduced early on to the idea of being framed as a researcher, they were able to provide a deeper insight into the aspects of projects and lessons and where they felt their time was best spent. Additionally, this provided them the opportunity to reflect not only in an interview or video diary entry, but through playback and reviewing of the content they captured. This metacognitive growth afforded students the opportunity to explore where they felt deficits existed and better explain why through the use of the artifacts (videos, audio clips and images) that they collected. They were more deeply engaged with the learning process that they were involved in and were empowered to make a difference for future campers and students. This in turn allowed the educators involved to reframe their perspectives of students needs in the classroom setting and challenged them to improve their practice as they move forward.

With regards to the teacher candidate volunteers, this study provided a platform for them to voice their opinions on ways to better their own learning experience. Since they were engaging with students in a non-traditional education setting and tinkering with the tools that were available to the students, they were able to widen their understanding of education practices beyond the theoretical realm. The teacher candidates were able to take what they had learned from their time in the camp and apply these practices and ideas into their future practicum placements, as outlined

by the case above. Some of the teacher candidates who participated in the March Break Camp have moved on to further their knowledge surrounding technology in education and have continued to work within the area of problem-based learning and makerspace education.

Improving the Quality of Learning

The production pedagogies approach places students at the centre of his or her authentic learning experience. By embracing this teaching practice, teachers are inherently changing the way that the classroom is managed and in turn will help to improve overall quality of learning. Individualized instruction allows for differentiation of information to better provide students the opportunity to grow and thrive in their learning environment. By encouraging students to engage in personally meaningful and relevant activities while still leveraging technology and meeting curricular expectations, we as educators are better preparing our students for the technology-driven workforce that they will be entering upon graduation. The 21st century skills such as metacognition, problem-solving, collaboration and learning to learn are inherent in the production pedagogies approach. By addressing these competencies early on in education, students are better prepared to use them both within the academic setting and more generally in their everyday lives.

Teaching in the Digital Era

As outlined above, the 21st century skills and competencies that are often associated with makerspace learning environments and production pedagogies approaches, act to better prepare students for active participation in the world outside of the classroom walls. Through fostering these in a classroom, teachers are better able to keep pace with the lived experiences of students, including their interaction with technology in everyday life. This mindset will encourage students to educate themselves in line with the direction in which the workforce is moving (i.e. coding and computer programming skills as an emerging job requirement). In order for teachers to engage students, create meaningful learning opportunities and foster development of habits of mind (perseverance, problem-solving, collaboration, etc.) and the technical skills they will require, these students must develop agency and a desire to succeed both personally and professionally.

Teacher Education and Professional Development

Oftentimes content is covered on a theoretical basis in university-based programs, but seldom do we see these brought to life in the classroom. The study provided a number of teacher candidates the opportunity to simultaneously be exposed to theory and accompanying practice in a novel teaching and learning environment. Their time in the makerlab and March Break Camp challenged what they had been taught in theory and exposed them to both affordances and constraints of bringing those theories to practice. By offering these teacher candidate volunteers the experience to engage in authentic learning with hands-on and real time support with technologies,

there was a clear improvement in their understanding of the nuances involved in these pedagogical approaches. Maker and production pedagogies encourage students to explore concepts more deeply, and by participating in this type of environment these candidates and the in-service teacher were able to do the same. They were exposed to a problem (how do we teach with these pedagogical approaches) and the opportunity to work through it by participating as instructors in the camp. This facilitated metacognitive reflection from the participants and allowed them to come to terms with what they were learning at their own pace and in their own unique way. The camp acted as a way to bridge the gap between theory and practice and attempted to do so in a safe and supportive way. This is the kind of on-site, just-in-time, hands-on professional development that researchers like Kiili et al. (2016) espouse.

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CHALLENGES IN THE OBSERVANCE OF ETHICAL STANDARDS:INSIGHTS FROM STUDENT TEACHERS IN TWO PRIVATE TEACHER TRAINING COLLEGES IN ZIMBABWE

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This paper argues that although the issue of teaching has been explored in several researches, very little research has been done on ethical challenges surrounding teaching practice on the African continent. As such, this paper explores prevailing ethical conceptions on teaching practice as part of the development of teacher professionalism. Nevertheless, the main objective of this exercise is to explore ethical challenges that affect student teachers on teaching practice. In its conclusions, the paper indicates that student teachers in most cases choose to engage in unethical ways mainly for strategic reasons. The paper therefore proposes to bodies responsible for the training of teachers, including government departments, mandate to oversee the development of teachers to rethink the ways in which student teachers are treated in the process of training as one way of regaining teacher professionalism, specially in the midst of growing concerns that Zimbabwean professionals “are motivated by self interest to exploit their clients to their own advantage” (Makuvaza, 2008:31). In our view, we also argued that the nature of remuneration for the teaching profession hugely compromises the desirable and expected grounds for maintaining ethical conduct in the teaching profession amongst other things.

This paper makes its case by reflecting on qualitative data that was generated from a sample of 64 participants comprising 35 student teachers, 15 administrators, 10 college lecturers and 4 teaching practice coordinators who were purposively drawn from two private Teacher Training Colleges.

Introduction

As Ngindi and Sibaya (2003) and Marais and Meier (2004) argue, teaching practice is a vital component of student teacher professionalisation. The crucial process imbues requisite skills through real time teaching (Manion, Keith, Morrison & Cohen 2003; Perry, 2004, Makura & Zireva, 2013). Anangisye (2010) reminds that, in their practice, student teachers are expected to observe guidelines and ethical standards, which by definition draw limits to what is expected of a professional teacher. These standards, as has been shown by Norberg and Johansson (2007) and Mahomey (2009) are frequently dependent on policy and training college of choice.

As they undergo training, student teachers encounter an array of ethical problems which require contestation from them. These ethical problems manifest themselves in the classroom and in the manner in which individual student teachers conduct themselves (Shapira-lishchinsky, 2011). In Zimbabwe, with its rich tradition of teacher training, ethical standards guiding the teaching profession are propagated in Public Service Commission policy documents (Gwati & Chasokela, 1995; Zvobgo, 1999). What Makuvaza (2008) describes as 'professional ethics' which define normative behavior for members of a specific profession. While these guidelines and ethics are propagated, the degree to which trainee teachers experience the same standards as set by the responsible authorities remains unclear. This paper arises to address this concern, specifically looking at the multiple and strategic contestation of these ethics by student teachers and the reasons for that.

In terms of methodology, this paper proceeds by way of a case involving two teacher training colleges in Masvingo province. Fifteen (15) school administrators within the two colleges' catchment area were randomly selected, together with thirty five (35) students who had just completed teaching practice. In addition, four (4) teaching practice coordinators were purposively sampled including ten (10) lecturers from the two teacher training colleges. For triangulation purposes and within the tight budgetary constraints, key informant interviews were held with teaching practice coordinators and administrators from the two teacher training colleges, questionnaires were administered to trainee teachers in addition to documentary analysis. However, a lot of relevant data could have been acquired if more respondents were drawn from other teacher training colleges. This would have allowed comparison of data.

To attempt to address the ethical issues in education without philosophical analysis would be incomplete. This study is therefore, informed by Kantian ethics which presupposes that, education should consist of discipline, culture, discretion and moral thinking (Ozman & Cravor, 1986). Others have proposed that professional training in Zimbabwe should embrace Afro-Kantian ethics informed by unhu/ubuntu philosophy which emphasises on principles of tolerance, love and respect for humanity (Makuvaza, 2008). As such, education should be concerned with the teaching of learners to think according to principles rather than engaging in random behavior. Therefore, student teachers on teaching practice are expected by their community to be role models of moral uprightness because they have attained a higher level of

academic and professional qualification. Hence, they should know what is good and bad in and out of the classroom. Student teachers are expected to be the torch bearers who guide learners and members of the community into the limelight of socio-economic development.

Literature on Ethics

Teaching, like any other profession, has its own principles of professional ethics guiding the behaviour and practice of those involved in it. Teacher conduct is known to have significant influence on their practice (Carr, 2000). Society largely believes that teachers are moral agents and as such, their ethical conduct has ramifications for their profession. This includes, impartial treatment of all students, maintenance of a proper student and teacher relationship and among others appropriate relationship with the public. Buzzelli and Johnston (2001) further add that the whole enterprise of education and classroom interaction are moral in nature. Ethics in education require that, a higher sense of responsibility be exuded by teachers who society has privileged and entrusted with teaching and mentoring the young. The relationship between professionalism and ethics is thus, crucial in teaching and learning endeavors.

Professionalism and ethics in any discipline, be it medicine or teaching is defined by the society in which it is practiced. As public service employees, teachers hold special positions of trust and exercise powers that have a strong bearing on the lives of learners. Thus, stakeholders expect them to use these powers professionally. The expectations of government and the community in terms of the student teachers' practice in Zimbabwe are enshrined in the Public Service Regulations document (Government of Zimbabwe, 1992 and 2000). These ethical codes prohibit, among other things, improper association between teachers and pupils, public indecency and corruption. These regulations seek to resolve ethical issues teachers may encounter in the course of their discharge of duty.

However, in the literature on ethics, teachers are principally believed to be ignorant of the consequences of their own actions and their practice in general (Husu & Tirri, 2007; Tirri, 1999). Shapira-Lishchinsky (2011) notes a number of ethical dilemmas which can arise in the teaching profession and can militate against proper discharge of duty. Such dilemmas include, among others, the need to meet societal expectations which may be at variance with professional demands. For instance, some community members force teachers to attend political gatherings, yet professionalism requires them to be apolitical. Others have proposed that professional training in Zimbabwe should embrace Afro-Kantian ethics informed by unhu/ubuntu philosophy which emphasises on principles of tolerance, love and respect for humanity (Makuvaza, 2008). Trainee teachers maybe expected to understand the plight of learners from disadvantaged family background, by allowing them to be in class without payment of school fees. However school administrators may regard such a move as disrespect of authority and lack of professionalism. In addition, their support for vulnerable children may be viewed as partiality by other learners.

In some Zimbabwean schools for instance, student teachers are not entitled to receiving locally based incentives provided by schools. Contrary to the nonpayment of incentives, the principle of justice as equality, which appears to be logical and favourable to enforce schools to award these incentives to student teachers, given that they are bound by the same professional code of conduct as that which binds qualified teachers (Chakanyuka, 2002).

In addition, there seems to be contexts which suggest that student teachers must learn values, intellectual honesty and moral concepts specific to the teaching profession in the course of their learning rather than first encountering them in regulatory terms (Strike & Strike, 1990; Barrow, 1992). As Anangisye (2010) rightly puts it, no individual is born moral, teachers must therefore learn the moral rules prescribed by their profession and society. Student teachers ought to abide by the ethical codes of conduct within the teaching profession as a way of helping them to grow professionally.

Mentors and administrators should take a leading role in assisting student teachers to become effective professionals. In support of this, Elliot, Elliot and Kratochwill (1993) highlight that, human activities are rooted and learnt not in isolation but with the assistance of others. Mentors should, therefore, not throw the student teachers in the deep end. Nilsson and Van Driel (2010) share the same view and note that, it is through the support of mentors that student teachers can develop meaningful reflective abilities and understanding. Mentors, therefore, ought to be objective, fair and unbiased.

When student teachers are exposed to unethical behavior from graduate and experienced teachers, they are unlikely to behave professionally. Since they will be learning from the significant others, there is a danger that they will emulate outrageous behaviours from their mentors. This can be detrimental to the teaching profession and standards of education in general. Although virtue can not be taught, student teachers are expected to be virtuous men and women who are able to shape the lives of learners society trusts them with (Roochnik, 1997). Similarly, MacIntyre (1985) observes that teaching should be informed by the good it serves, in this case, the good of the learner and the community.

There is a growing body of evidence globally showing that student teachers, like their colleagues in the profession commit misconducts (Anangisye & Barret, 2005). In addition teacher training courses in many countries have been found wanting (Dinham, 2013). It should be however noted that, the existence of ethical standards of behavior in the teaching profession does not necessarily stop individuals from violating the prescribed professional standards. As aptly described by Smith in Gurney (2007:89):

“All teachers do good things some of the time and all good teachers do bad things some of the time...the differences among teachers lay not only in the proportions of the good and the bad, but also in their awareness of the effects of what they are doing...”

This implies that, there is no way one can be a spotless professional teacher, even those who are already qualified and experienced are bound to err. Thus, professional blunders by student teachers are not committed out of ignorance but for calculated and strategic reasons.

It has been observed that, student teachers' unethical behaviours tend to vary in their nature and magnitude. In one very absurd case, a school head forced all students in her school to regularly have hair done at her salon at school (Tshuma, 2009). The school heads' action was a direct violation of statutory instrument N0:1 of 2000 of the Public Service Commission which prohibits the undertaking by its members in any other employment or service for remuneration without the written consent of the Commission. At worst, the unethical behavior could permanently jeopardise the life of the school head who might lose her job and that of learners who are socialised into unethical behaviour at any early age.

The next section of the paper presents and discusses the findings of the study. In particular, the section examines ways in which student teachers violate professional ethical standards and their reasons for doing so.

Findings and Discussion

The discussion is largely organised around key themes related to research questions. The study sought to answer the questions how student teachers violate ethical standards and to explain why student teachers violated prescribed ethical codes of behavior.

Violation of Professional Ethical Standards at the Work Place

With regards to professional standards guiding student teachers, all 35 (100%) students expressed their awareness of the ethical code of conduct prescribed by the Public Service Commission of Zimbabwe in terms of appropriate dress, daily conduct and duties in and outside the classroom. No doubt, student teachers were familiar with the expected code of conduct because these were clearly spelt out in the teaching practice handbooks produced by their colleges and are also taught under professional studies syllabus B. In spite of this knowledge, however, student teachers deliberately continued to strategically fraught the rules for varied reasons.

In terms of dress, some student teachers chose to wear casual attire, these comprised 11 (31%) of the respondents. Their reasons were wide-ranging, for example, some cited the hot weather as prohibiting the putting on of a neck tie and formal shoes, though this got them into trouble with the school administration who in most cases reprimanded them. Others argued that, personal interests at times override the call for professionalism, thus, they found it logical to ignore professional dress code when it was convenient for them to do so. However, others expressed that, their social background was a hindrance to the acquisition of formal clothes which they found expensive and unaffordable, given that, most of the attire is purchased in large departmental stores which tend to be exorbitant.

Results also indicated that, student teachers cheated on scheming, lesson planning, marking, lesson delivery and evaluation. On scheming, 16 (46%) students reported cheating by either copying from their mentors or other colleagues so as to minimise the time required on scheming. In addition, duplicating from experienced teachers

enabled student teachers to produce quality work without much effort. Student teachers cited the scarcity of resources, lack of practice, knowledge on scheming and excessive work load as their reasons for cheating. However, 19 (54%) student teachers reported being always professional in their execution of duty. Such a response, however, maybe an exaggeration since no student teacher can fully be perfect in their discharge of duty.

Ko and Rosen (2001) have noted that plagiarism is a worldwide phenomenon especially through the internet and such practices need to be brought to a halt. Thus, if student teachers internalise such nefarious practices at an early stage, they are likely to continue with them even after graduation and will not grow professionally. The implications of such malpractices on the type of education to be offered in schools cannot be over emphasised.

In Zimbabwe, for instance, teachers are known to engage in private business during working hours neglecting their duties. This has often led to clashes with stakeholders (Maponga, 2012). It was observed that some student teachers were involved in deviant behavior as a means to supplement their meagre salaries. If unethical practices are left unchecked among student teachers, they are likely to have negative consequences on teacher preparation.

Similarly, in marking, 28 (80%) student teachers were honest while 7 (20%) student teachers cheated by putting their signatures on work marked by mentors. They even asked their learners to mark using a pencil and some even went to the extent of asking relatives or spouses to help them mark. Some of the comments made by student teachers were merely ritualistic given that, they were not informative and encouraging to the learners.

The major reasons why some student teachers were dishonest related to the heavy work load which kept them occupied most of the time. In some cases, student teachers had to teach up to eleven subjects. Such a workload was not in tune with the quantity of subjects student teachers were expected to handle. The student teachers were not only supposed to teach but were also expected to conduct other duties within the school. For instance, some student teachers reported that, qualified teachers often delegated them extra duties, such as, supervision of learners during co-curricular activities, leaving them with little time for them to effectively attend to their work. In most rural schools of Zimbabwe, learners are involved in cleaning up the school because responsible authorities lack adequate financial resources to hire sufficient labour.

Fulfillment of college requirements in terms of documentation was expected from student teachers which they had to balance with their social life. Some of the information in the student teachers' scheme book and plans, such as, audio – visual aids were ritualistically placed there as a requirement and never to be used or referred to during the lesson. The same observations were made by both school administrators and college supervisors who noted that, student teachers did not mark corrections or would simply put a big tick to acknowledge work. Some discrepancies were also noted where wrong answers were marked correctly. It was also noted that, some

record books showing the learners progress were not updated. These unethical practices reflected lack of thoroughness and commitment to work on the part of student teachers. Thus, student teachers acted in an unprofessional manner to survive in a system that seemed insensitive to their plight.

In terms of planning, it also emerged that student teachers did not plan for what they considered to be 'minor' subjects, such as, physical education, guidance and counseling and music among others, because learners were not examined in these subjects. Some of the student teachers planned after teaching, or recycled the same lesson plan as reported by 14 (40%) of the student teachers. This was common in cases where student teachers had realised that supervision was irregular, both internally and externally. Similar remarks were made by college supervisors and school administrators who noted copying and reuse of lesson plans. Supervisors and administrators also expressed the prevalence of irregularities such as, repetition of topics which student teachers had mastered. Topics were normally repeated in the presence of supervisors in order to earn attractive grades and leave a lasting impression upon the supervisors. This was discovered when the supervisors compared pupils' books and the schemes of work.

In trying to impress the supervisors and obtain good grades, some student teachers strategically cheated by secretly instructing all pupils to raise their hands whenever a question was asked. Those who knew the answers were instructed to lift up their right hands, while those who were unsure raised their left hands. This was done to dupe the supervisors into thinking that the class before them was a super class.

Equally, student teachers were unethical in their evaluation of learners' work which was largely informed by their expectations rather than actual performance as expressed by 7 (20%) students. Lesson evaluation was usually done in retrospect, never genuine and diagnostic. They cheated on evaluation because in their view, it was difficult to evaluate a lesson soon after its delivery when events were still fresh in their minds because their tight schedule did not leave room for it. In addition, student teachers wanted to give the impression that they were hard workers. This was evidenced by the introductory statement that "The lesson was successful...." for almost all the lessons. From the study 8 (53%) administrators, 3(30 %) college supervisors noted false evaluation by student teachers. Although these cases of unethical practices appear minor they nevertheless indicate the level of unprofessionalism among student teachers in Zimbabwe. These unethical practices will have a negative impact on the quality of education which schools ultimately offer.

Ethical Violations in Dealing with Parents, Colleagues and Mentors

Students were called upon to describe their relationship with parents, colleagues and mentors (See Table 1. attached at the end).

The findings indicated that on the whole, student teachers largely maintained good relations with parents, colleagues and mentors. Data presented showed that, twenty-nine 29 (83%) students had good relations with parents. The good relations

were explained by student teachers' willingness to cooperate with the community in terms of activities held in the community. Some reported attending funerals, weddings and traditional functions held within the community. The good relations with parents could imply that parents respected student teachers and considered them to be in loco parentis. Six (17%) students reported bad relations with parents. They cited parents' negative attitude towards student teachers whom they viewed as incompetent to teach their children. They undervalued and doubted student teachers' competence. One parent was reported to have asked the school administrators to have his child removed from the class manned by the student teacher in preference of a seasoned temporary teacher. This gives the impression that, some parents do not want student teachers to experiment with the education of their children.

Student teachers responses showed mixed feelings towards their relationship with colleagues. Thirty –two (91%) students revealed that they had good relations with their colleagues. It may not be surprising that student teachers had good working relations with their colleagues because they needed each other. They assisted each other to meet the college and school demands. Student teachers were assigned work by their colleagues and in turn helped them survive. Three (9%) students indicated that they had sour relations with their colleagues who shunned team work. They refused to share data and material to prepare teaching and audio visual aids. It was observed that, those student teachers who refused to cooperate with others hid information for selfish reasons.

It is of the essence that student teachers work with those experienced to help them acquire and develop specific competences). A research by Mukeredzi, Ndamba and Weda (2009) on mentor- mentee relations exposed that, there was a friendly relationship between the two parties for they engaged in candid and professional dialogue. In this study, student teachers' relations with mentors were however not so good because of the antagonism between them. The 13(37%) student teachers who felt that relations with mentors were sour gave varied reasons for their responses such as that, mentors were monopolistic. For instance, some mentors were accused of wanting to teach all subjects which they enjoyed. At times, they could transfer their professional responsibilities to student teachers whom they gossiped about with parents. In response some student teachers did not fully cooperate with their mentors in their interaction with them. In some cases, student teachers refused to be delegated responsibilities which in their view were not in line with what their college supervisors expected of them. Similarly, studies in the United States and China have also shown that the mentor-mentee relationship does not always produce positive benefits for the trainee teachers (Wang et al 2008).

Mukeredzi and Ndamba (2005), and Ndamba and Chabaya (2011) also reveal bad mentor characteristics such as; negative attitude towards work, lack of commitment in performing mentoring roles and contempt for mentees and their abilities. Some student teachers indicated that their drunken behaviour was a result of the influence they got from their mentors, who were reported to attend lessons while drunk. Though flimsy their reason may appear to be, mentors' failure to be exemplary certainly had consequences on the behaviour of mentees. Such misconduct is not surprising in

some Zimbabwean schools (E Masimba, pers.comm). This was further supported by Murape (2012) who reports a case where learners were irked by the teachers' drunken behavior during working hours. It was also observed that some mentors were lazy to teach and others engaged in private business as a way of supplementing their meager salaries at the expense of school business (Chingombe & Chingombe 2012). Such mentors were also reported to be corrupt. In some cases student teachers bribed mentors by use of gifts in order to secure their support during critical moments. For example, mentors provided false information to college supervisors about the where about of student teachers in cases where they were caught unprepared or were away from work for illegitimate reasons.

Twenty – two 22 (63%) students highlighted that their relations with their mentors were good. They commended their mentors to have played a big role in their development. Student teachers revealed that they got some encouragement, support and nurturing from their mentors.

Harmonious relations with the mentors paved the most significant mediating avenue for the implementation of teaching practice. Elliot (1998) argues that, the type of relationship between the mentor and student teacher determines how much a student will develop during the process of mentoring. It was observed that, sour relations emanated from master servant relations at the expense of clinical supervision which promotes collegiality.

Relations between Student Teachers, School Administrators and College Supervisors

The relationship between the student teachers, administrators and supervisors is summarized in table 2 attached at the end.

In the study, it was observed that, in other instances, student teachers were found to be unethical in their dealings with their supervisors. For instance, in cases where friendship had been established between a student teacher and supervisor, there was in some cases, inflation of assessment grades in order to protect the established friendship and cheating on document supervision (Chakanyuka, 2002). In this regard, college supervisors failed to maintain the integrity of their profession (Meegan et al 2014). Thus, student teachers were known to commit various acts of misconduct ranging from dishonesty, improper association with pupils and fraud among others.

The relationship between student teachers and learners can be compared to that between a priest and a penitent. Such a relationship is a fiduciary one in the sense that, it is based on trust and confidence at the same time there are power differentials. Unethical student teachers may misuse their powers and trust by abusing learners. For instance, teachers are reported though illegally to solicit the help of learners in doing household chores for them.

While Zindi (1994) notes cases where some college supervisors took advantage of their positions to abuse and victimise student teachers; some student teachers have been reported to have sexually abused and harassed learners. Student teachers who

violated professional ethical standards were faced with an array of challenges. Unethical conduct has often resulted in the expulsion, suspension, deferment or even conviction of student teachers. Although student teachers were fully aware of the consequences of their actions, they nevertheless continued to act in an unethical manner in the hope that their behavior will go unnoticed and thus, unpunished. Some mentors and colleagues were reported to have withdrawn their cooperation from student teachers who acted unethically. The move certainly disadvantaged students who proceeded without much guidance, thus, largely defeating the purpose of teaching practice.

Conclusions and Recommendations

Our question was whether or not there exists contestation of ethical standards among those on the route to professionalization. From the study, no doubt small, it has emerged that student teachers, mentors, supervisors and school authorities strategically ignore ethical standards required of them by the teaching profession. The poor remunerations awarded to civil servants and allowances for student teachers are no doubt insufficient for their scholastic and social needs. Globally, national budgets are overstretched, this is especially so for Africa and other developing countries thus, governments are struggling to effectively and fully fund educational systems and as a result, there are shortages in all sorts of areas. Given such a scenario, students are tempted to resort to unorthodox means during their teaching practice in order to meet some of the basic needs to evade failure. This, in turn, leads to the observed contestation of ethics and standards, begging the question of what to do to both avert and control the problem. While not setting aside the need for moral education in institutions, the study recommends, at least for Zimbabwe which is stung by this problem, that government revisits the issue of incentives to reduce unethical practices and maintain the integrity of the teaching profession.

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List of Tables

Table 1. Ethical Violations in Dealing with Parents, Colleagues and Mentors.

Students were called upon to describe their relationship with parents, colleagues and mentors.

Relationship with stakeholders	RESPONSES				
	Good	%	Bad	%	Total
Parents	29	83	6	17	35
Colleagues	32	91	3	9	35
Mentors	22	63	13	37	35

Table 2. Showing relations between student teachers, school administrators and college supervisors.

Students were called upon to describe their relationship with school administrators and college supervisors.

Relationship with stakeholders	RESPONSES				
	Good	%	Bad	%	Total
Administrators	23	66	12	34	35
Supervisors	21	60	14	40	35

TEACHER SUBJECTIVE THEORY OF ASSESSMENT: A LITERATURE REVIEW

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This paper examined subjective theory as a strategy for understanding and explaining English as a foreign language teachers' assessment practices. Furthermore, it explored the benefits of using Biggs (1996) constructive alignment as a theoretical framework for understanding teachers' assessment practices. The review indicated the importance of assessment in the learning process, however, showed gaps in terms of planning and implementing effective assessment for learning. Furthermore, the review showed the effectiveness of using subjective theories and constructive alignment in explaining teachers' assessment planning and implementation.

Introduction

Interest towards assessment has significantly increased in recent years. Assessment has multi-purposes that ranges from serving information about student learning and progress, improving teaching and learning and upholding institutional accountability. Hence, the study of teacher subjective theory is critical in understanding and explaining assessment issues.

In this chapter, teachers' subjective theory of assessment is examined as a method for understanding and explaining assessment issues. It begins by illustrating the importance of teacher subjective theory and Biggs (1996) constructive alignment in the process of learning and then, outlined current ideas and practices associated with assessment for learning.

The paper concluded by highlighting the relevance of teacher subjective theory and constructive alignment and provided explanation as to how we can use subjective theory and constructive alignment in planning classroom assessment practices.

Teacher Subjective Theory of Assessment

Research on teacher subjectivity is proven to be an interesting way to approach educational issues which can be explained from the perspectives of teachers (Diaz, Martinez, Roa, & Sanhueza, 2010) and several studies draws attention to teachers' beliefs or conceptions and the results point to teachers' conceptions as one of the key factors that influence classroom decisions (Griffiths, Gore, & Ladwig, 2006; Sato & Kleinsasser, 2004). In general, conceptions consist of beliefs, attitudes, and intentions that people have (Brown, 2008) and are significant contributors to behavior (Ajzen, 2005). In this study, it is referred as teachers' subjective theory of assessment and is understood as teachers' understanding and explanation of assessment approaches used in the class.

Whether it is called capacity, literacy, or knowledge, subjective theories are people's explanation of phenomena present in their environment and in their own behavior and, generally speaking, they are considered helpful in improving academic teaching and learning as they are closely linked to practice (Pajares, 1992). Subjective theories presume that humans are autonomous and reflective beings, actively constructing the world around them (Hermes, 1999). Subjective theories include learner's and teacher's beliefs about teaching and learning. According to Rubie-Davies, Flint, and McDonald, 2012; Hoy, Davis and Pape, 2006; Wolf, Bixby, Iii, and Gardner, 1991) the ideas that teachers hold about educational process, teaching and learning, the nature of assessment tasks, and about evaluation criteria matter as they ultimately shape their understanding and practices of assessment and contribute meaningfully to actions that teachers take. The real impetus for changing classroom practices comes from teacher subjective theory. Hence, if the purpose of assessment is to improve learning, teachers' perceptions are crucial in explaining classroom practices, including assessment issues.

Research indicate subjective theory as useful in understanding educational issue as subjective theories are prone to revision and change. Therefore, they are ideally suited to classroom research and for making room for new innovations in any teaching situation (Hermes, 1999). This concludes that at this juncture, teachers' views are decisive in improving assessment practices.

Assessment

Assessment is an integral part of the teaching and learning process and understanding teachers' subjective theory underlying assessment is vital as assessment plays a central role in enhancing the learning process, yet, for many years, the word "assessment" was used primarily to describe the processes of evaluating the effectiveness of what has been learnt (Black & William, 1998). Scrivan (1967) claims that 'assessment' is a judgment of students' work or it is a process through which instructors obtain information about student learning or performance on academic tasks, where the information according to certain standards or criteria is judged,

and then decisions are made about learning based on that judgment. Remesal (2010) defines classroom assessment as a complex process of collection, analysis and evaluation of evidence of the teaching and learning process and its learning outcomes. In this study context, assessment is defined as all activities that teachers and students undertake to gain information that can be used to alter teaching and learning.

Bloom, Hastings and Madaus (1971) formally introduced the idea that assessment need not be used solely to make summative evaluations of student performance, arguing that teachers should include episodes of formative assessment following phases of teaching (Allal & Mottier Lopez, 2005). Consequently, assessment has been categorized as formative or summative depending on the functions they served (Dunn & Mulvenon, 2009). Bloom et al., (1971) defined summative evaluation tests or assessment of learning as those assessments given at the end of units, mid-term and at the end of a course, which are designed to judge the extent of students' learning of the material in a course, for the purpose of grading, certification, evaluation of progress or even for researching the effectiveness of a curriculum (pp. 117).

Shute (2008) uses the term formative feedback instead of formative assessment and defines it as "information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improving learning" (p. 154). The distinctions between assessment of learning and assessment for learning on the one hand, and between summative and formative assessment on the other, are different in kind. The former distinction relates to the function it actually serves, while the second relates to the purpose for which the assessment is carried out (Wiliam, 2011).

Black and Wiliam (1998) point out that one of the outstanding features of studies of assessment in recent years has been the shift of attention paid to testing as a form of assessment, placing instead importance on the interactions between assessment and classroom learning and moving away from aspects of assessment tightly embedded in tests that are weakly linked to the learning experience of students. Thus, nowadays, assessments are looked upon as methods seeking to understand activities that are intended to guide the learning towards the intended goal, and that take place during the learning process, as forms of assessment. Consequently, Scrivan (1967) asserts that since the process of assessment is a single process i.e., making a judgment according to given standards, goals and criteria, he concludes that therefore, both SA and FA are processes. It is possible for assessment to be uniquely summative where the assessment stops at the judgment. However, it is not possible for assessment to be uniquely formative without the summative judgment having preceded it (Taras, 2005). Black, Harrison and Lee (2003) identified four forms of formative assessment practices: (Questioning, feedback, self- and peer-assessment, and formative use of summative tests). The section below deals with a discussion on formative forms of assessment practices.

Questioning

Teacher questioning is a powerful tool in achieving effective classroom discourse. However, many teachers do not plan and conduct classroom dialogue in ways that might help students to learn. The key to overcoming such a disadvantageous situation is to create effective questioning sessions. Research studies have revealed that questioning is second only to lecturing in popularity as a teaching method and that classroom teachers spend anywhere from thirty to fifty percent of their instructional time conducting questioning sessions (Cotton, 1988).

Teacher questioning has a direct impact on students' cognitive processes (Chin, 2007 & Morge, 2005). Chin (2007) illustrates that questioning should be characterized by flexibility wherein the teacher adjusts his questioning based on student responses in order to stimulate higher order thinking in students. Roth (1996) states that teachers' questions should be open-ended and that their responses should remain neutral rather than evaluative, and they should be used to detect and expand students' ideas and scaffold students' thinking.

Although studies indicate that interpretative or reflective questioning techniques encourage detailed verbal responses and class interaction, several studies indicated that teachers frequently ask low-level questions with no logical sequence and that the majority of such questions are closed-ended and aim to recall details from memory, where only one answer is acceptable and seen as correct (Lucking, 1977; Black & William, 1998; Smart & Marshall, 2013) and these types of questions are often characterized by a low level of cognitive demand, requiring students merely to show that they remember subject matter presented to them earlier as revealed in a Czech study (Strakova & Simonová, 2013).

According to Alexander (2006) questions should be structured in such a way that it provokes thoughtful answers and these answers should further provoke new questions leading to a coherent line of enquiry. Aligning to this, Gonzalez (2010) investigated whether her questioning skills are effective enough to validate the spirit of inquiry and whether her questions actually develop students' abilities to probe into problems and solve them. The findings bring to light that developing effective questioning skills requires careful planning and practice, and requires students to take hold of and guide their own learning when given the opportunity to actively participate in the learning process.

Feedback

A wide range of education research support the idea that by integrating feedback into teaching, we can produce greater learning (Black & William, 1998; Bransford, Brown & Cocking, 2012; Gamlem & Munthe, 2013; Hattie, 2012; Voerman, Meijer, Korthagen, & Simons, 2012). In education research, feedback is understood as information given by an agent such as teacher, peer, book, parent, self, and

experience with regard to aspects of one's performance or understanding (Hattie & Timperley, 2007). In this study, feedback is explained as effective information provided by the teacher to monitor and scaffold learning.

Hattie and Timperley (2007) and Sadler (1989) claim that the main purpose of feedback is to reduce discrepancies between current understandings and performance and a goal. Positioning to this, Hattie and Timperley (2007) stress the need for teachers to provide more evaluative information in their feedback as a means of providing specific helpful information. This was further extended by Shute (2008) whereby she explains specific feedback as one that provides information pertaining to the accuracy of particular responses or behaviours. These elements are important when it comes to giving effective feedback.

Furthermore, Hattie and Timperley (2007) identify four types of feedback: feedback task, feedback process, feedback self-regulation, and, feedback-self. It can be understood that feedback can be effective if the first three types are given regularly rather than the feedback-self. Hence, following this, Clynes and Raftery (2008) suggest feedback should be constructive and not destructive in nature.

Research indicates the usefulness of feedback on student learning and the importance of teacher's understanding in delivering quality feedback. For example, Hattie (2012) pointed out the effects of feedback in his meta-analyses study on various strategies that have influenced student achievement. The effect sizes suggest that some types of feedback are more powerful than others. A central purpose of formative feedback is to bridge the gap between present performance and a desired goal when moving to the next step in learning (Hattie & Timperley, 2007; Sadler, 1998). Hattie (2012) points that it is possible only if it involves students receiving information about a task and how to do it more effectively, while lower effects were related to praise, rewards, and punishment.

Additionally, ScharTEL (2012) revealed that feedback should be delivered in an appropriate setting, focusing on the task and not on the individual and that it should be specific and non-judgmental. This is important because researchers point out that feedback leads to learning gains only when it includes guidance on how to improve, so that when students have opportunities to apply the feedback, they will understand how to use it and are willing to dedicate effort (Black & Wiliam, 1998; Hattie & Timperley, 2007; Kluger & DeNisi, 1996). Furthermore, Hoy and Hoy (2003) posit that "with older students (late elementary through high school), written comments are most helpful when they are personalized and when they provide constructive criticism" (p. 268).

In another video-based analyses of lower secondary classroom study have shown that quality of teacher feedback is essential for students' learning (Gamlem & Munthe, 2013). Although the lessons analysed were characterized by positive classroom atmosphere, feedback was found to be more encouraging in nature than learning-oriented. To consider feedback merely in terms of encouraging is impractical. Feedback should rather embody the effects it can have on learning.

For instance, in the case of praise, Dweck (2007) asserts that praise (process praise) related to effort puts students in a growth mind-set which results in excellent performance and improvement. On the other hand, praise related to intelligence puts them in a fixed mind-set, leading to poor performance since they have lost their confidence, resilience and motivation. Subsequently, Gamlem and Smith (2013) claim that the value of feedback varies in terms of giving, using, appreciating and seeking.

Although, effective feedback is critical in enhancing learning, both international (Gamlem and Munthe, 2013) and Czech-based research (Strakova and Simonová, 2015; Organization for Economic Cooperation and Development (OECD), 2013) calls attention to a number of issues with regard to teachers' feedback practices. For instance, feedback till date is found to be ineffective (Black & Wiliam, 1998; Kyaruzi, Strijbos, Ufer, & Brown, 2018), and teachers hardly ask quality questions (Black & Wiliam, 1998; Smart & Marshall, 2013) neither actively promote feedback seeing (Gamlem & Smith, 2013; Winstone, Nash, Parker, & Rowntree, 2017). Apparently, feedback is more general in nature than learning oriented, hence, teachers need more knowledge on quality aspects of formative feedback interactions to support learning (Gamlem & Munthe, 2013).

In the Czech Republic, effective feedback rarely occurs, even though students are tested by both externally-based examinations and ongoing formative assessments (OECD, 2013). Strakova and Simonova (2015) indicate that in Czech schools' feedback given to students was not immediate, and the types of feedback were often in the form of marks or brief comments. In addition, little emphasis is placed on providing effective feedback to students (OECD, 2013; Strakova & Simonova, 2015).

Recent studies indicated that although learning progress did not differ, feedback was perceived as more useful in the formative assessment condition, self-efficacy was greater, and interest tended to increase (Rakoczy et al., 2018). In another study, Skovholt (2018) examined the anatomy of a teacher-student feedback in upper secondary school in Norway and the finding showed that the teacher used questions to establish a basis to promote her own agenda and worked to optimise students' contributions by providing positive feedback and minimising critiques and disagreement while, the student approached the teacher's feedback with resistance. This indicates that both the teacher and students need to be taught how to give and receive feedback effectively and constructively as providing effective and explicit feedback is crucial in improving learning (Black & Wiliam, 2009). What is more, Jónsson, Smith, and Geirsdóttir (2018) revealed that the stronger the culture around formative assessment, the stronger the dialogue between teachers and students.

To sum up, research concludes feedback as an integral part of the educational process. However, till date there is a substantial gap in the way feedback is provided, received and experienced by both the teacher and students (Jónsson, Smith, & Geirsdóttir, 2018).

Self-Assessment

In recent years, learning based on self-assessment has received a lot of attention (Ross, 2006 and Taras, 2010). Research indicates that student involvement in assessment appears to be on the rise nowadays (Falchikov & Goldfinch, 2000). The reason for this is that self-assessment promotes learning to occur as students become more self-regulated in their learning (Andrade & Valtcheva, 2009) and engages the students in purposeful reflection of what they are learning and how they are learning it (Wong, 2014).

Self-assessment means more than just students grading or marking their own assignments. It involves the learners in the processes of determining what good work is in any given situation (Freeman & Lewis, 1998). Students can achieve a learning goal only if they understand that goal and can assess what they need to do to reach it. Hence, self-assessment is essential to learning as it helps in the development of learner autonomy and enables the learners to identify their needs, to set learning goals and to monitor their progress.

According to Andrade and Du (2007), self-assessment is a process of formative assessment during which students reflect on and evaluate the quality of their work and their learning, judge the degree to which they reflect explicitly stated goals or criteria, identify strengths and weaknesses in their work, and revise accordingly. Extending to it, Heritage (2010) discerns self-assessment as a complementary feedback process which encourages students to monitor their own learning.

Hence, if the purpose of assessment is to make learners accountable for their own learning, then, self-assessment is proven to be useful as it in a way promotes active participation of students in the assessment process, from decision making to overall evaluation by valuing their own learning and achievement on the basis of evidence from themselves and from others (teachers and peers) (Boud, 1995).

In a recent study by Bourke (2016) with a group of primary and secondary students who participated in a school-based assessment exercises demonstrated the benefits of involving students' in the assessment process. The study found that developing learner's ability to self-assess will lead to better understanding of themselves and their learning. Thus, learning to assess themselves more accurately and confidently through practice, students can move on to learn how to learn, and use the information gained through the self-assessment process to further improve their learning (Wong, 2014).

Peer Assessment

The overarching conceptual rationale for peer assessment and peer feedback is that it enables students to take an active role in the management of their own learning. Peer assessment is uniquely valuable because students will accept criticism of their work from one another that they would otherwise not take seriously if those remarks were offered by a teacher. Peer work is also valuable because the interaction will

be in language that students themselves naturally use and because students learn by taking the roles of teachers and examiners.

Peer assessment is an arrangement for learners to consider and specify the level, value, or quality of a product or performance of other equal-status learners (Topping, 2009). According to Topping (2009) peer assessment can be summative or formative. Summative is where the peers grade on the task, while the formative is in which the intent to help students help each other plan their learning, identify their strengths and weaknesses, target areas for remedial action, and develop meta-cognitive and other personal and professional skills (Topping, 2009). Thus, it is often claimed that peer assessment encourages students to become critical independent learners as they become familiar with the application of assessment criteria and develop a clearer concept of the topic being reviewed (Falchikov, 1995).

Li and Gao (2015) examined how peer-assessment and students' learning levels influenced students' project performance using two-way factorial design. Their findings showed that low and average-achieving students significantly improved in their performance immediately after the integration of the peer assessment model, while the model had a lesser effect on high-achieving students. On the whole, peer- and self-assessment practices encourage students to identify learning objectives and understand the criteria used to judge their work, with the function of increasing self-regulation (Andrade, 2010).

Formative use of Summative tests

The formative use of summative tests allows teachers to develop students' understanding beyond just assessing attainment because teachers used their creativity to implant formative value on to summative procedures. A more fundamental change is needed if assessment is to be designed to serve both purposes from the start. The overall message is that summative tests should become a positive part of the learning process and students should benefit rather than be the victims of testing, because tests if executed in a formative manner can help improve their learning (Black & William, 1998). However, apparently a test is used to assess how much a student has learnt at the end of a unit, chapter, quarter or semester (Dixon & Worrell, 2016).

Research points that the formative use of summative test results generally acts as a source of data that can be used as evidence to support educational decision-making (Zapata-Rivera et al., 2011). Hence, as far as possible teachers should use test with formative purpose as the test results can be used in translating into useful actions that support learning.

According in a study by Hopster-den Otter, Wools, Eggen, and Veldkamp (2016) investigating the types of actions users want to perform with the use of test results and the information needed to enable these actions. The findings revealed that in relation to desired uses, respondents mostly chose actions relating to the purpose of supporting learning, however, the test results were primarily used to evaluate

the learning process by determining the student's ability. This indicates teachers' practice of test is still summative in nature.

Hence, if the purpose of assessment is to improve learning, then, teachers need to consider the critical component of assessment is/as learning (how we learn) to broaden their ideas of assessment for learning (formative assessment) as recent study by Pla-Campas, Arumi-Prat, Senye-Mir, and Ramirez (2018) indicated that students who have been assessed using formative assessment practices achieve higher marks than those who had not been assessed in this way. Hence, it can be concluded that both tests of summative and formative nature should be promoted simultaneously.

Constructive Alignment

This study is guided and shaped by a constructive alignment paradigm grounded in the principle of constructivism. Constructivism is a theory about knowledge and learning describing both what knowing is and how one comes to know (Fosnot, 2005).

This study decided to use Biggs (1996) constructive alignment as its theoretical framework as it is grounded in the principle of constructivist theory and so provides a set of classroom improvement practices revolving around learner centeredness. Accordingly, Creswell and Clark (2011) associated constructivism with qualitative approaches and works from different world view. Consequently, the understanding or meaning generated through participants and their subjective views make up this world view. Thus, this framework is ideal for our study as it contributes to the removal of the traditional way of teaching and assessing learning that still dominates Czech classrooms (Santiago, Gilmore, Nusche, & Sammons, 2012; Strakova & Simonová, 2013).

According to Biggs (1996) 'constructive alignment' has two aspects. The 'constructive' aspect refers to the idea that students construct meaning through relevant learning activities. That is, meaning is not something imparted or transmitted from teacher to learner, but is something learners have to create for themselves. Teaching is simply a catalyst for learning. What matters most is what the student does in determining what is learned rather than what the teacher does (Shuell, 1986).

The 'alignment' aspect refers to the situation when the teaching and learning activities, and the assessment tasks, are aligned to the Intended Learning Outcomes specifically referring to what the teacher does, which is to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key to this system is that the components in the teaching system, especially the teaching methods used and the assessment tasks are aligned with the learning activities assumed in the intended outcomes. In setting up an aligned system, the teacher specifies the desired outcomes of teaching in terms not only of topic content, but in the level of understanding that they want students to achieve. They then set up an environment that maximises the likelihood

of the students' engagement in the activities designed to achieve the intended outcomes. Finally, the teacher decides on assessment tasks that will convey how well individual students have attained these outcomes, in terms of graded levels of acceptability.

The framework relays four prospective steps:

1. The intended learning outcomes (ILOs) needs to be defined;
2. Teachers must choose teaching/learning activities likely to lead to the ILOs;
3. Assess students' actual learning outcomes to see how well they match what was intended;
4. Then, arrive at a final grade.

When we teach we should have a clear idea of what we want our students to learn and also how to assess their learning effectively. We need to provide challenging yet supportive learning environments catering to students with diverse academic needs. What is more, constructive alignment ensures this through the shared language of construction, alignment and collaboration.

Constructive alignment approaches teaching with the aim of knowing what the intended outcome of that teaching will be rather than what the teacher is going to teach. It allows teachers to design teaching and assessment methods that will best allow them to achieve that outcome and to assess the standards at which the outcome has been achieved (Biggs, 2003).

Larkin and Richardson (2013) talks about the benefit of CA and reported the results of applying constructive alignment principles to explore student outcomes. The findings provided evidence of improvement in student satisfaction and academic grades as a result of implementing constructive alignment.

Hence, what makes CA fascinating is that it embraces the principles of constructivism by placing importance on what students ought to be learning or what a learner should be able to do as a result of that teaching. Biggs (2014) makes it clear that his focus is on the constructivist side of the learning embedded in the key principle of supportive culture. He explains that alignment may be an engine of effective learning but "knowledge is constructed through the activities of the learner and through collaboration. Therefore, CA provides a structured reflective framework to anchor teaching decisions in achieving or assessing the intended learning outcomes (Biggs & Tang, 2007).

Moreover, teachers in the 21st century need to reflect in order to improve their own practices, which includes how to assess student learning which forms the core of student-centered learning. Along these lines, using CA represents immense benefits, as it would necessitate teachers in the Czech lower secondary schools to rethink their assessment practices from the point of view of traditional practices with a view to create effective and innovative practices for the benefit of the students.

Conclusion

The review revealed the importance of ST and constructive alignment epistemology and principles in creating STs of assessment and to improve the overall quality of classroom assessment practices.

Furthermore, review around formative assessment has shown that, teachers agree with the formative basis of assessment practices because it offers strategies for students to know why are they learning and where they are heading in terms of their learning. However, what has been revealed is the prevalence of summative ways of assessing learning indicating teachers' lack of formative assessment literacy. Hence, the review concluded by emphasising the need to include teacher perspectives in understanding and explaining classroom assessment issues as teachers are crucial individual in students' lives.

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THE CREATION OF A FOURTH SPACE IN NARRATIVE INQUIRY

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Clandinin and Rosiek (2007) describe the inquiry space as being three-dimensional consisting of the three common places of narrative inquiry; temporality, sociality and place which are investigated simultaneously. The synergy of the three elements creates the space within which to investigate lived experience. The three common places influence the degree to which that lived experience has, and may continue to have, an effect on our understanding of the present and responses to happenings in day-to-day life.

Part of my learning journey as an emerging narrative inquirer meant it became imperative that I examine my own narrative. Early in my research journey, I wrote a brief autobiography, “Uisge Beatha” (Gaelic: Water of Life), using the metaphor of water (Findlay & Jones, 2014). This experience helped me to understand the nature of the task I am inviting participants to undertake in telling their personal and professional stories. The self-reflection is important because it helps the researcher to have a deeper awareness of the underlying influences and assumptions which govern the recalling of life events and their influence on the interpretation of the present and possible future. For example, in writing my own story I was surprised to find that my antipathy to giving people labels was so strong. This antipathy clearly has arisen out of my childhood experiences and has influenced my reaction to giving students labels to define a condition rather than considering the child as a unique individual.

The writings of philosophers Dewey (1997), Sartre (1949), Bhabha (1994) and Lefebvre (1991) have influenced my thinking about the conceptual framework within which the telling of lived experience resides. Personal reflections of writers Maya Angelou (1997) and Adrienne Rich (1986) have spoken of real lives influenced by the three elements identified in the common places. The research journey has led me to rethink how the three elements of NI combine to form a personal narrative. They are not neat, self-contained elements but are like three separate rivers tumbling towards a common end. That end might be a deep, still pool or a dangerous whirlpool. The confluence of these rivers I have called the Fourth or Generative Space.

The narratives of the participants in my research are examined through this fourth lens to elicit how the three rivers have met and generated who each one is as a teacher educator today.

Introduction

Clandinin and Rosiek (2007) describe the inquiry space as being three-dimensional, consisting of the three common places of narrative inquiry; temporality, sociality and place which are investigated simultaneously. The synergy of the three dimensions creates the space within which to investigate lived experience. The three common places influence the degree to which that lived experience has, and may continue to have, an effect on our understanding of the present, and responses to happenings in day-to-day life.

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Context

In recent years, reports into the quality of teacher education (Donaldson, 2010; Carter 2015; TEMAG, 2015) have raised questions as to the place of universities in the education or training of teachers in Scotland, England and Australia respectively. Michael Gove, former Secretary of State for Education in England, seemed to have a mixed view on the status of teachers. On the one hand he stated that, “Teaching is a high status profession...” in a speech to the National College for Teaching & Leadership Annual Conference in 2010. In the same speech he stated that, “Teaching is a craft and it is best learnt as an apprentice observing a master craftsman or woman.” Are teachers professionals or crafts people with the difference in perception and qualification which the two imply? Or, is this raising a false dichotomy? What does this dichotomy of perception or definition mean for teacher educators? Who exactly are teacher educators? Are they academics providing a researched based academic foundation in education for prospective teachers or are they crafts people demonstrating and handing down skills to apprentices?

Literature is emerging about the quality of teachers and teacher education, with a common emphasis on national professional standards for teachers and accreditation of teacher education provision (McInerney, Smyth & Down, 2011; Santoro, Reid, Mayer & Singh, 2012). The issues include consideration of who teacher educators are, and how they see themselves in this era of governments encouraging fast track teacher

training by an apprenticeship model. The classroom teacher is a key player in creating a well-educated and knowledgeable society capable of operating in the 21st century. Teacher educators contribute to creating an effective school experience for students, by preparing future teachers to understand the complexities of learning by combining theory and practice (Gore & Gitlin, 2007).

In Australia, university teacher education programmes are subject to following the guidelines set by the Australian Qualifications Authority (AQF), the Australian Institute for Teaching and School Leadership (AITSL), the Australian Curriculum, Assessment and Reporting Authority (ACARA), and, in Queensland, our university must have programmes and courses accredited by the Queensland College of Teachers (QCT). It is within the context of this matrix of demands and constraints that teacher educators must negotiate a pathway for our future teachers to receive a high quality pre-service and continuing professional development learning experience, to equip them to become educators to meet the needs of our school students in the 21st century. Since 2000, research into the lived experience of teacher educators has been undertaken with respect to a number of changes in the professional lives of teacher educators (Clarke, 2011; Esposito & Smith, 2006; Hargreaves, 2000; Hokka, Etelapelto & Rasku-Puttonen, 2012; Imig & Imig, 2007; Zeichner, 2005; Kosnik, 2007; Murray, 2008; Murray & Male, 2005; Sachs, 2001). This body of research focussed on the following main thematic areas: identity of practitioner to academic/teacher educator; impact of policy; impact of changing university culture and structures.

Literature exists which provides commentary on the professional lived experience of teacher educators from the standpoint of individual researchers. While Clegg (2008) interviewed 13 teacher educators in her study and Klecka (2008) studied the e-portfolios of 14 teacher educators, both focussed on the issue of professional identity. What is missing from the literature is the voice of the teacher educators on the broader spectrum of their professional lives. There exists potential, therefore, to explore what experienced teacher educators have to say about their unique professional lived experience. Swennen, Jones and Volman (2010) observe “the teacher educator is recognised as an important instrument for the education of future teachers, and with this recognition there is now an emerging, but still limited, body of knowledge about teacher educators” (pp. 131–132)

The study addressed the lack identified by Swennen, Jones and Volman by listening to what teacher educators have to say. The overarching research question was: How do experienced teacher educators express their unique professional lived experience?

Method

Clandinin and Connelly (2000) contend that, “For us, narrative is the best way of representing and understanding experience. Experience is what we study, and we study it narratively because narrative thinking is a key form of experience and a key way of writing and thinking about it” (p. 18). The telling of stories is one specific feature that marks humans apart from other life forms on the planet. We read the

narratives of our ancient forebears in the cave paintings of cultures across the world. The oral traditions of tribes, mobs, clans and other social groups remind of how our ethnic and cultural heritages have passed from generation to generation. Knowledge and understanding of how different societies work and our relation to the land of which we are a part, come from the deep dwelling place of collective memory. A BBC local reporter in Ethiopia commented on the death of an Elder, thought to be about 160 years old, that in an oral society like the Oromo, “every time an elder dies, a library is lost” (Ademo, 2013). Narratives have been, and are, the international common currency of communication. Narratives span history and cultures and take many forms both written and visual (Barthes in Ribiere, 2008). The complexity of narratives is examined by Brophy (2009) who contends that since the world which each of us inhabits is not static, neither is our personal life narrative. The changing context of our narrative means that “the meaning of each nuance itself alters, develops, takes on new, perhaps greater, perhaps lesser, significance” (p. 34). What was once seen as of considerable importance, indeed almost life-changing, can lose its potency as other events or further changes intervene. For example, a change in a curriculum structure or content causes disruption until the change becomes the norm and fresh curriculum changes are imposed.

The three common places of NI were identified by Clandinin and Rosiek (2007) as being temporality, sociality and place. They require to be examined individually as well as how they combine to form a palpable force in our lives. Each element has a unique influence on our life story as well as being part of the whole experience. Clandinin (2013) reminds us that as narrative researchers we are involved in our participants’ lives as we explore with them their lived experiences. It is a personal journey in which we have a particular relationship with the participants. Working alongside our participants to elicit their narratives, we are “in the midst” (p. 43). During the research journey I am a part of the story also. The research participants are fellow teacher educators with whom I have worked or are currently working alongside. As such, I am in the midst of their daily working environment. We share the same joys and frustrations with bureaucracy, students and each other. All of us are classroom teachers who have morphed into academics in a variety of ways and for a number of different reasons. Finding out about the professional lived experience of my colleagues was a transformational experience for each of us as we shared thoughts and attitudes in a way not possible before this research study. The relational nature of the study, therefore, is very clear from the outset. As well as being in the midst of the participants professional lives, I am also in the field with them. I have inside knowledge of the professional environment within which they, and I, operate on a daily basis. A deep experiential understanding of the common professional environment meant that the composing of field texts became a truly iterative process. The term “field texts” within the context of narrative inquiry, was coined by Clandinin and Connelly (2000) as a way of expressing the unique nature of data collection through the use of personal narratives. The term “data” has connotations of hard facts whereas narratives are the individual telling and interpretation of lived

experience. Interpreting our lived experience emerges as an amalgam of three specific commonplaces: temporality, sociality and place (Clandinin & Rosiek, 2007).

The first field text was composed through the transcription of an initial conversation with each participant. In this conversation I outlined the nature and purpose of the study and gave some background detail on how narrative inquiry works. Each participant was very comfortable with the conversation being recorded. For me, this was extremely helpful because it meant I was not distracted from the flow of the conversation by having to take copious notes. During this first conversation with each participant, we shared our educational backgrounds, teaching experience and what drew us into teacher education. For example, Tom shared that he carefully planned his career so that he had broad experience in the classroom in preparation for becoming a teacher educator. Lily shared that she moved into tertiary education to enable her to do her PhD and further research. The initial conversations were transcribed and became our first field texts. Everyone had the opportunity to read their own narrative as composed at that point. This initial field text became the basis for our second conversation which happened about two months later. The time gap was necessary for a number of reasons:

- Time for each participant to read and think about their emerging narrative;
- Time for us to meet during a busy teaching semester;
- Time for me to absorb what each had shared and to consider how I might encourage in depth conversation on issues that were emerging.

The second conversation built on the first and the second field text emerged through the transcription of the conversation. The second field text allowed deeper consideration of issues such as the expectations of research output and the credibility of teacher educators in relation to currency of practice and classroom management. This text was also shared with the participants each of whom, in informal conversations with me, (for example through telephone conversations, email or face-to-face chats) revisited what was recorded and amendments were made to the text to closer reflect the intent of the spoken word. The sifting of the conversations through the memories and minds of the participants was crucial in the reflection process. Each experience recalled takes on the patina of time and “recollection of experiences...are already *transformations* of those experiences” (Van Manen, 1990, p. 54). With both field texts having been scrutinised by the participants and discussed with myself I used them to construct a draft version of the interim text. This was done by taking the salient points from both field texts and crafting a narrative which reflected what the participants had shared. Each draft interim text was woven with direct quotes from the respective participants and provided a text which was subject to further scrutiny and discussion. The conceptual framework was used as a filter through which the interim text was refined. This was then shared with each participant. The ensuing iterative process resulted in the co-constructing of the final research texts through further refinements in language used, events covered, the feelings expressed, some additions to the text and some deletions. The research text was not considered final until both the participants and I were agreed that it properly reflected our conversations – both formal and informal.

While we were known to each other, the opportunity to converse about the issues raised was a new experience for both parties. Clandinin (2013) emphasises that those involved in narrative inquiry that it is “a relational methodology” (p. 135). The relationship between the researcher and the participant is crucial to the success and quality of the final research text. Ethical considerations and approval required by individual universities are crucial before any research involving individuals can take place. The relational element of the narrative inquiry approach taken in this study requires that personal ethics play an equally crucial role.

Pseudonyms were used throughout the narratives. I asked each participant to give themselves a name with which they could identify. The name could perhaps be a childhood nickname given by family or friends. In this way I tried to give a sense of ownership of the process to the participants. They could more easily identify themselves with the pseudonym because it has a special meaning for each one and not just a name thought up by the researcher. We used the pseudonyms throughout the research process.

The deepening understanding of themselves as an educator can provide an opportunity for the knowledge acquired by each to be such that it “returns again as power” (Upton, p. 81). For example, Fred commented in his narrative (Chapter 5) that through the process of our conversations and the co-construction of his final narrative he was able to review the events which had caused him continuing stress and deal with those events finally and completely. Fred realised that his past lived professional experience was no longer able to control how he felt about his job. He had taken back the power to control his own destiny. The professional life story he had constructed was able to be challenged and changed. As Okri (1997) expressed, “If we change the stories we live by, quite possibly we change our lives” (p. 46). Fred has done just that through being a researcher into his own professional lived experience and realising that past experiences and stress no longer had the power to affect his daily life and his view of himself as an educator.

Conceptual framework

Leading a person to delve into how their present is affected by the past can be a journey of pleasant recollections on the one hand but can, on the other hand, lead to wading through a maelstrom of past hurts and anguish which deeply affect our reactions and attitudes to current events. The deeper I have travelled into my learning journey about NI, the more I have realised the complex and often disturbing reality of creating a life narrative, albeit a narrative of professional lived experience. The image of the river of life became a natural way to envisage my own lived experience and capture the essence of the three common places.

Figure 1 illustrates the way in which I visualised the common places. The three dimensions are represented by three rivers flowing towards a confluence. The confluence can be a deep still pool giving life to the life within it or providing a restful watering hole for travellers passing by. It may, however, be a whirlpool which causes

distress to any life within it and a potentially dangerous stopping place for any passers-by. The confluence is dependent on many factors such as: wild weather, high winds, excess snow melt from the hills, torrential rain, and storms. In a similar way our lived experience is influenced by the way the three common places act on our experience.

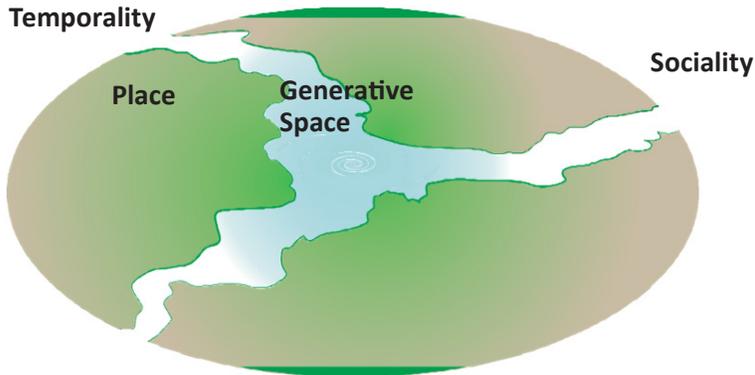


Figure 1

The meeting place of the rivers can be a generative space from which we can engage with our life experiences to inform the present and transform the future. Tennyson (1899) saw experience in this vein,

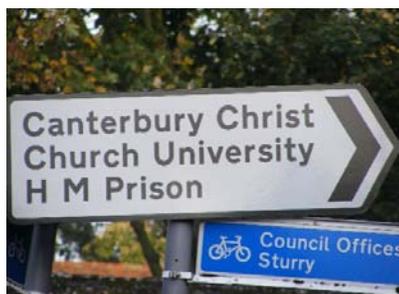
“Yet all experience is an arch wherethro’
Gleams that untravell’d world, whose margin fades
For ever and for ever when I move.” (Pp. 78–79)

In this new image, each individual element of the common places is represented by a river. Scotland is a land of rivers and mountains. Standing on the banks of one of the rivers, you soon become aware of the flotsam that the river has gathered on its journey from mountainside to the glen through which it is flowing out to the sea. Some of the flotsam becomes a dam behind which the waters build up and eventually burst through. The water may, on the other hand, forge a new channel and make its way around the obstacle. Our personal river of temporality may cause a dam behind which we build up tension and allow past events to block progress on our life’s journey. Or, like the river, we find a way around the obstacle, not letting it be a block but allowing it to direct us onto a fresh path, a new way of thinking.



Our river of sociality takes us on a journey during which we meet many people in many different contexts. Sometimes we make long lasting friendships; other times people come and go like wisps in the air. Our perceptions of self can be coloured by the comments of others who look in on our lives and make assumptions

about who and what we are. A good example of this is found in the way we categorise national and or cultural groups. The image of the pipers is a common one for my homeland except there is not a kilt to be seen. The fact that pipers can be ordinary people going about their daily lives, working in the trades or professions is not what most visitors to Scotland might expect. Our river of sociality flows through our personal landscape and leaves us with other people's images of who they think we might, or should be. It can be difficult to shed the labels that others would pin on us. Silberman (2015) casts aside the labels given to children and adults on the autism



spectrum. The pathologising of those exhibiting behaviours which are considered to be on the autism spectrum is anathema to Silberman and he encourages us to see each individual as simply that – an individual with a unique way of thinking. He illustrates his point with stories of remarkable scientists and mathematicians who, with their unique way of thinking, have brought about some of the most amazing scientific advances in our time.

The physical environment within which we find ourselves living and working has an effect on our sense of wellbeing. The juxtaposition of the two institutions on the signpost in the photograph can bring a wry smile to the face. It does, however, neatly illustrate the point of how the work environment can affect our wellbeing and self-efficacy in our day-to-day work life. The space we inhabit in our work place is considered by Lefebvre (1991) as socially constructed to meet the utilitarian needs of the employer. For example, at university we each have our offices within which we tend to work on our own. There are communal meeting spaces for recreation and business discussions. On the whole, we can personalise our office to suit our own personality and create an ambience suited to how we want to work. Not all workers have that opportunity. The workers on a factory production line have no choice in ambience, but need to adapt to noise and other factors of their work environment. Our river of place includes the physical structures we inhabit or pass through. We remember the landscapes of our favourite places associated with positive memories, the places where we found ourselves less comfortable, the places of painful memories. Place also exists in our inner being; the spaces of our minds which gather images from our travels through life. In our mind are light spaces of happy memories and dark spaces into which we would rather not enter.

The confluence of the three rivers can produce a deep and peaceful pool in our innermost being or produce a whirlpool of memories and emotions which causes us to



feel unsure and unsettled in ourselves. As a narrative inquirer I needed to be sensitive to the emotions and memories that my research method can evince. It is both an unavoidable and an enriching experience in itself. The confluence becomes a generative space in which both participants and researcher can move forward in the light of having explored and carefully considered their lived experience. Throughout the conversations with the participants, the researcher inevitably forms a relationship with the participants, and “neither researchers nor participants walk away from the inquiry unchanged” (Clandinin, 2013, p. 51). The participants become researchers into their own professional lived experience, and as researcher, I became a participant by recalling, mostly silently, parts of my own professional lived experience.

Participants’ voices

The narratives belong to the participants. “... individual’s narrative authority forms, is informed, and reforms through the continuous and interactive nature of experience” (Olson, 1995, p. 123). Life is not static and we realise, on reflection, that the past, present and future are interdependent. The future very quickly becomes the past and melds with all our other life experiences. Bhabha (1997) contends that “The past-present becomes part of the necessity, not the nostalgia, of living” (p. 30). There is fluidity in considering the temporal nature of our lives. For one participant in my research study, Pru, being a mother and grandmother has impacted most on her becoming a teacher educator. Her professional lived experience is wide and varied from secondary teacher, to nanny, to exchange teacher in Canada, to dot com web designer and account manager. Many rich life experiences coming together in the realisation, through her own family, that what we do as educators is “*critically important for children*”. Pru has worked in areas of dire need in an inner city school and became acutely aware of the simple physical needs of her students. Needs which required to be met before any learning could happen. She also worked with wealthy, in the monetary sense, late teenage girls who were troubled in a number of ways. They were sent to an outdoor pursuit centre in Canada in an attempt to modify their behaviour. The girls still managed to find drugs and alcohol. They had everything money could buy, but were as needy as the children in the inner city school. Pru commented, “*Their lives were impoverished*.” The parents of the girls considered that money was a substitute for the care and attention which they should have provided. These professional lived experiences linked together in time to create in Pru a sense of social justice which permeates every class she takes. Pru’s passion for social justice permeating her teaching is an example of the generative influence of the meeting of the three rivers of temporality, sociality and spatiality.

Fred’s story reflects his own early years as being “*a particularly poor student as a primary school kid*” and as having had a “*reasonably difficult childhood I suppose and lived in reasonably poverty-stricken environments and so on*”. The affect on his view of the world and of teachers being able to make a real difference to the school experience of their students, has influenced Fred’s approach to his classroom practice and care of students in his class.

A male training as a primary teacher was somewhat unusual, but Fred was motivated by the realisation that *“lots of little boys didn’t have a role model – a male role model – in their lives”*. This part of Fred’s story illustrates the generative power of the confluence of the three rivers at the point where Fred was deciding what to do with his life. His home background and personal experience of a difficult childhood generated in him the drive to become a teacher who would be able to empathise particularly with the young boys with similar home backgrounds to his own. Fred was conscious of being a positive role model for the children in his care and of providing an educational experience which would encourage those students to have a positive vision for their own future lives.

Violet commented that she considered it critical that teacher educators have a background as a classroom teacher. While reflecting that many aspects of education have changed, such as the amount of data available and the role of teachers, nonetheless Violet commented, *“I still believe I had enough sound success as a teacher to make myself credible and feel credible as a teacher educator”*. The power of Violet’s professional experience as a classroom teacher gave her the inner confidence to adapt to the role of teacher educator in an ever changing education environment. The solidity of a sound background as a classroom teacher emerged as a theme from all five of the research participants. The cumulative experience of that background enabled each to move into the extended role of teacher educator.

The generative space

The space at the confluence of the three rivers I have called the “generative space”; a fourth space in the narrative inquiry process. The generative space I envisaged as being the space where the sum of all the lived experiences gathered by the three rivers is pooled and generates an understanding of how the present and possible future has, and may be, shaped. An understanding of where we have been, and who and what we have been, is essential in understanding our present *“...to say yes, over and over, to our integrity, we need to know where we have been: we need our history”* (Rich, 1986, p. 155). The output from the generative space is formed from the totality of our lived experience. The output can form a new river on our journey, which can lead us to nurture fresh fields of endeavour. The harnessing of the power of our life experiences can be used to generate new ways of thinking, which would not have been possible without the pause and reflection imposed by the dam wall.

Conclusion

Narrative Inquiry is essentially about people; real people with real lives and real stories to tell. What emerges from the conversations I have had with the participants is that there is no one entity that is the “teacher educator”. Each one brings their own life experience, as well as professional experience, to inform and shape who they are as a teacher educator. One label does not fit all. The perception of what that label says

to the onlooker is an important element in how the teacher educator sees him or herself. Maya Angelou expressed the humanity of the individual in her comment:

I write about being a black American woman, however, I am always talking about what it's like to be a human being. This is how we are, what makes us laugh, and this is how we fall and how we somehow, amazingly, stand up again.

(Van Gelder, 1997)

This paper has considered the three common places of NI. The fourth dimension – the generative space – has been added as the space where the three original common places come together. The synergy of the three common places creates this generative space where the total personal learning from experience moves each person on to the next step in their life's journey. Narrative "...is interested in cause and effect, in the consequences of actions and in explanations for what has been experienced and observed" (Brophy, 2012, p. 39). We are caused to consider then: Who are we as a person? Who are we as a professional? What life experiences have shaped who you are today? How will you use the reflection on the common places to create a fourth generative space for your future? To paraphrase Silberman (2015), if you meet one teacher educator you have met one teacher educator. All come with their own unique lived experience and cumulatively provide rich learning for the future teachers with whom they work.

(Note: *The names Pru, Fred and Violet are pseudonyms.*)

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INTERROGATING THE EFFECTIVENESS OF ADOPTING A VYGOTSKIAN SOCIO-CULTURAL APPROACH TO CLASSROOM PRACTICE: INSIGHTS FROM CLASSROOM PRACTICE IN SOUTH AFRICA

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The goal of this is to examine the effectiveness of adopting a Vygotskian socio-cultural approach to teaching and learning in the classrooms. Using a qualitative methodology the study thus adopted the focus group discussion as the data collection tool and gathered views from classroom practitioners from 5 South African secondary schools in the Gauteng region. Among the key concepts explored in the focus group discussions (FGDS) were the role of scaffolding as an aspect of mediated learning experiences (MLE), the use of situated learning experiences in the learners' zones of proximal development (ZPD), how the approach helps transform the learners' skills from lower to higher psychological functions through the use of material, psychological and semiotic tools in the classroom. The analysis of data followed a thematic approach, with emerging codes being clustered into code families. Among the key findings of the study was the view that adopting a multipronged strategy that includes the use of authentic learning conversations, learning tools (material, psychological and semiotic), and situated learning experiences goes a long way towards fostering effective teaching and learning in the curriculum. The study recommended that classroom practitioners do need to take into account and adopt the many and varied benefits that can be derived from an authentic socio-cultural approach to teaching and learning.

Introduction

The purpose of this study was to examine how adopting a social constructivist epistemology to teaching and learning enhances effective classroom interaction and ultimately promotes an equity pedagogy and caters for diversity Using views from

selected experienced classroom practitioners in South Africa, the study adopts a qualitative methodology and utilized focus group discussion as the data collection strategy and gathered views from a sample size of 20 secondary school classroom practitioners in the Gauteng province. The study thus explored through focus group discussions (FGDS) the role of scaffolding as an aspect of mediated learning experiences (MLE), the use of situated learning experiences in the learners' zones of proximal development (ZPD), how mediation helps transform the learners' skills from lower to higher psychological functions through the use of material, psychological and semiotic tools in the classroom.

Problem statement

John-Steiner and Mahn's (2008) work on cognitive justice and inclusivity in educational institutions highlight the challenges many classroom practitioners encounter in their quest to learners equality of educational opportunities in schools. In their views complete inclusion and equality of educational opportunity implies ensuring learners are treated in not only equal but also fair ways within their learning institutions. However, this often lacks in many of the multicultural educational settings the world over (Eisner, 2010). Among the many and varied challenges many classroom practitioners encounter in promoting complete inclusivity in their classrooms is a lack of ideal strategies to promote equitable learning. (Eisner, 2010) further asserts that it is important to note that the need for learning equity should not only be articulated through human rights declarative documents but also through educational policies and practices for schools. This essentially implies advocating non-discriminatory tendencies in the school, whether directly or indirectly against anyone on any of the following aspects; gender, sex, race, class, socio-economic status, culture or creed (Darling-Hammond, 2010). The tenets of equitable learning commonly lacking in many schools and classrooms as expressed in the Vygotskian socio-cultural approach to learning and development include the need to create a just, equitable, humane and democratic society (Kozulin, 2012). What many classroom practitioners fail to understand is that equity pedagogy entails not just affording learners' equality of educational opportunity but also ensuring that they are treated in just or fair ways within their institutions of learning (Magano et al. 2012). Equitable learning is therefore crucial in all multicultural educational settings if the education system is to ensure that learner diversity is catered for and becomes a reality in education. It is in this sense that the study sought the views of seasoned classroom practitioners in ascertaining how adopting a Vygotskian socio-cultural approach to classroom practice enhances effectiveness in teaching and learning.

Theoretical framework

Contemporary educational practice has adopted a paradigm shift from traditional '*jug and mug*' pedagogies towards modern progressive constructivist approaches that

foster learning equity in the classroom (Kozulin, 2010). Social constructivism as defined by Mutekwe et al. (2013) is an epistemology that foregrounds the social construction of knowledge through interactive teaching and learning activities in the classroom. It undergirds the importance of knowledge as a product co-constructed by the educators in meaningful interactions with the learners (Mutekwe et al. 2013). The pioneers of this approach to learning and development are Jean Piaget and Lev Vygotsky, whose cognitive and social constructivist theories respectively laid the foundation for what pedagogists now claim to be a formidable epistemology (Wertsch 2008). According to Mutekwe et al. (2013), social constructivism as a paradigm has the advantage of affording virtually all learners in the classroom an opportunity to participate in interactive learning activities since it emphasizes teaching and learning that draw from the learners' diverse sociocultural backgrounds (Kozulin 2012; Vygotsky 1987). It is in this sense that the approach is hailed for promoting equitable learning in the classroom. According to the Vygotskian sociocultural approach to learning and development, MLE describe learning situations facilitated by a go-between (mediator) who ensures that the learners understand the content at stake (Kozulin 2012). A mediator in the Vygotskian perspective is not only a human being such as a teacher, parent or more competent peer collaborator but it can also be the tool or tools used to enhance learner understanding of the concepts covered in the teaching and learning process (Wertsch, 2008). The concept of mediation is thus quite central to the Vygotskian sociocultural perspective, where it implies that all teaching and learning situations need to be facilitated or mediated in one-way or another (John-Steiner & Mahn, 2008). For Vygotsky (1987), there are basically three forms of mediators; material, psychological and other human beings (adult, parent, teacher or a more competent peer collaborator). The role of mediation in learning is therefore to scaffold and transform the learners' skills from lower to higher cognitive functions as the learner progresses from prior to new knowledge forms (Kozulin, 2010). Mediated learning experiences thus describe scaffolded learning activities where learners are taken through the paces (de Valenzuela, 2009; Wertsch 2008). According to Vygotsky (1987), mediation therefore involves the use of learning tools (material, psychological, semiotic and other human beings). The objective of all forms of mediation is to ensure that every function in the learner's cultural development appears twice: first, on the social level, and later on the individual level or between people (inter-psychological), and then inside the learner (intra-psychological) (de Valenzuela, 2009). It is in this light that the perspective has been adopted for this study.

Aims and objectives

The study was aimed at ascertaining how adopting a Vygotskian socio-cultural approach to classroom practice enhances effectiveness in teaching and learning. Pursuant to this goal the following objectives were formulated;

- To examine the effects of mediated learning experiences (MLE) as an aspect of the socio-cultural approach to teaching and learning in schools

- To establish the benefits, if any, of the socio-cultural approach to teaching and learning in the classrooms
- To explore the effectiveness of scaffolding learning in the learners' zones of proximal development (ZPD)
- To examine the benefits, if any, of learning tools in scaffolding learning in the classrooms.

Research questions

The following research questions guided the study;

- What effects do mediated learning experiences have on classroom practice?
- What benefits does the socio-cultural approach to teaching and learning have on learners?
- How does scaffolding learning in the learners' ZPD help the learning process?
- What role do learning tools play in scaffolding learning in the classroom?

Research methodology

Using the views of selected experienced classroom practitioners in South Africa, the study adopted a qualitative approach and utilized a case study as the design genre involving five schools. Data were collected through focus group discussions from a purposively sampled size of 20 secondary school classroom practitioners in the Gauteng province. The questions posed to the participants included the role of scaffolding as an aspect of mediated learning experiences (MLE), the use of learning tools and situated learning experiences in the learners' zones of proximal development (ZPD), how mediation helps transform the learners' skills from lower to higher mental functions.

Ethical considerations

To ensure that all the FGDS were conducted without disrupting the institutional tone or lessons, I identified days when the classroom practitioners had no busy schedules running concurrently. Each of the four focus group discussions was scheduled on a different day. The process was preceded by ethical clearance procedures in which as the researcher I first sought clearance from the Gauteng Department of Education and school authorities where the classroom practitioners were sampled from. This involved obtaining informed consent from not only these authorities but also consent to participate from the researched (Mutekwe, 2014). Would-be participants were requested to complete consent forms after the researchers explained the objectives of the study and the modus operandi it was to take. Other ethical principles made clear to them included guaranteeing them confidentiality, anonymity, non-maleficence and autonomy to voluntarily decide whether or not to participate in the FGDS and that they were at liberty to withdraw from participating without any strings attached should there be a need to pull out (Mutekwe, 2014). None withdrew from the study prematurely, however.

Data analysis

The analysis of data followed a thematic approach, with emerging codes being clustered into code families or what Nieuwenhuis (2016) calls super ordinate themes. The themes emerging from the focus group discussion sessions were as follows; the importance of fostering equitable learning in the classroom; improving access to learning through mediated learning experiences in the classroom; scaffolding learning through material, psychological, semiotic and other human beings; the role of learning conversations in enhancing equitable learning in the curriculum; how situated learning activities promote equitable learning in the curriculum and how adopting indigenous knowledge systems can advance the learning equity agenda. These themes thus form the basis of the discussion of the findings in the next section of the study.

The importance of fostering equitable learning in the classroom

In line with the notion of equitable learning as aptly described by van der Westhuizen (2009) and McGee Banks and Banks (2009) a process of empowering all learners by affording them not only equality of educational opportunity but also ensuring that they receive fair treatment in their educational institutions, many participants argued that through equitable learning many if not all learners will have an opportunity to enjoy parity in their learning processes regardless of race, sex, gender, religion, social class, ethnicity, disability, culture or creed. This view seemed to resonate with Eisner's (2010) assertion that equitable learning should prevent cultural discrimination. Asked to explain how as classroom practitioners, they can promote equitable learning, the following discussion ensued; the participants cited integrating all of the learners' socio-cultural attributes in the social construction of knowledge, refraining from viewing them as empty vessels, considering them equal partners with their educators in the co-construction of knowledge, adopting equity pedagogies in the school and classrooms and avoiding stereotypes, along such unreasonable grounds as race, sex, age, ethnicity, religion or disabilities. In their views, ensuring these aspects certainly enhances meaningful learning and improves learning attainment among the learners. These views are shared by Darling-Hammond (2012) in her contention that equitable learning as a practice, should regard all learners as equals irrespective of their diversities, differences or handicaps.

Improving access to learning through MLE in the classroom

It emerged from the FGDS that access to improved learning can be achieved through MLE, which describes scaffolded learning situations where classroom practitioners need to constantly explain, demonstrate, facilitate and scaffold learners' skills from lower to higher cognitive functions. For many of the participants, mediation should thus involve the use of learning tools classified as material, psychological, semiotic and other human beings (Vygotksy 1987). Consistent with the views of de Valenzuela

(2009), the objective of the mediation effort would certainly be to ensure that every function in the learner's cultural development appears twice, namely on the social and later on the individual levels or between people (inter-psychological) and then inside the learner (intra-psychological). The mediation process thus needs to occur at a point in time when learners desperately need the assistance for their skills to be scaffolded from lower to higher cognitive functions, which implies mediation in their zones of proximal development (ZPD).

Scaffolding learning through material, psychological, semiotic and other human beings

According to the views of the participants, it is clear that MLE enables the learners' lower psychological functions to be transformed into higher psychological functions. It also became apparent in the FGDS that if carried out within the learners' ZPDs, the scaffolding process is highly likely to yield heavy dividends in the learners themselves. Wertsch (2008) echoes these sentiments when he notes that mediating learning in the learners' ZPDs takes into account that every individual learner is perfectly able to achieve better with the help of a mediator, who can be a person, tool or semiotic aspect. It is in this light that in relation to MLE, the ZPD describes the difference between what learners can do on their own and what they can achieve with help of a mediator such as a teacher, parent, learning tool or a more capable peer (De Valenzuela, 2009). Drawing on the FGDS and the concepts lower and higher mental or psychological functions, the ZPD can thus be viewed as the distance between the learners' lower and higher mental functions, which they can overcome with the assistance of a mediator. From the FGDS, many participants pointed out that learning tools can thus effectively mediate learning in the ZPD to adequately transform the learners' prior knowledge to higher order cognitive levels (Wertsch, 2008). Asked to exemplify such material tools in their classrooms, participants cited the following; lecture slides, transparencies, posters, charts, worksheets and all other media that are used to enhance learner understanding in the classrooms. This view lends credence to Tudge's (2010) assertion that any physical artifacts (teaching aids) that classroom practitioners employ to enhance learner understanding in the classroom can be regarded as part and parcel of the material tools. Another category of learning tools identified by the participants as crucial in MLE is what Vygotsky (1987) termed psychological tools. These included common types such as gestures, counting fingers, casting lots, semiotics and other discourse markers. No wonder proponents of the Vygotskian sociocultural approach to learning and development (eg. Hardman 2004; Kozulin 2012; Wertsch 2008; John-Steiner & Mahn 2008) maintain that the learners' higher mental processes are functions of mediated learning activities. This implies that, for example, through language or discourses, gestures and counting fingers as used in scaffolding learning, the learners' knowledge base is transformed to a higher or superior level and this constitutes efficient and effective learning in the curriculum.

The role of learning conversations in enhancing equitable learning in the curriculum

Participants also pointed out that learning conversations as verbal social interactions in the school and classroom have the potential to foster equitable learning. Asked to state examples of how this can occur in the classroom, the following were cited; class discussions, group discussions, seminars, debates, role plays or drama. Such conversations mediated by the classroom practitioner thus need to be implemented in the classrooms if the learners from the diverse sociocultural backgrounds are to be assisted to enjoy meaningful learning equity and the benefits of true inclusivity. One classroom practitioner had the following to say in relation to the role of learning conversations in fostering equitable learning;

The current pedagogical thrust especially in the South African context of schooling is for educationists to embrace constructivist and multicultural educational practices in the interest of complete inclusivity in the educational classrooms

The above excerpt shows that carefully thought out learning conversations in the school and classrooms can go a long way towards promoting the goal of equitable learning. Some of the participants in the FGDS claimed that learning conversations are certainly amongst the most effective strategies for achieving inclusivity and equitable learning in schools. Their argument centred on the view that through such approaches they are able to first provide their diverse learners with the support base necessary for them to feel equally empowered and belonging and when motivated enough, they will then not only be able to do their best academically but will also start believing in themselves culminating in their being able to motivate others to follow suit. For Wertsch (2008) the above is in tandem with the premises upon which learning through chalk and talk awakens a variety of internal developmental processes that are able to operate when the learners interact and it is in such interactions that they co-construct knowledge with their classroom practitioners as mediators or facilitators (Kozulin, 2012).

How situated learning activities promote equitable learning in the curriculum

Drawing from the views of Lave and Wenger (1998) who have put forward an interesting account of how locating learning activities in social interactive activities helps learners develop some degree of social cohesion, which they describe as communities of practice some of the participants noted that whenever learning activities are located within familiar experiences, chances are that learners enjoy learning and maximize the benefits thereof. The participants' views were that one of the important ways through which diverse classrooms can become learning communities in which each participant makes significant contributions to the emergent understandings and knowledge of all members, despite having a diversity

of backgrounds is through social interactive activities involving the use of the learners' everyday experiences as the building blocks for their motivation. These views resonate with those of Brown, Collins and Duguid (2009) who examined the role of what they termed reciprocal teaching, an approach in which learners and their educators take turns leading discussions about shared texts to foster structured dialogues and authentic learning communities of practice. For Brown et al. (2009) such an approach enables positive conceptual changes in both the learners and their educators as they begin to share with each other well-defined tasks through questioning, clarifying, summarizing and predicting issues in order to, for example, co-construct text-based knowledge. These approaches thus exemplify two themes in the sociocultural approaches to classroom learning and development, the implementation of an educational program that allows for or encourages the co-construction of knowledge and the analysis of a learning programme that contributes to an understanding of classroom learning from a sociocultural point of view (John-Steiner & Mahn, 2008).

Other participants maintained that more often than not, in many modernized societies, situated learning experiences imply that learners operate in a variety of ways, including free play or interaction with other multi-ethnic, multi-racial or multi-religious learners, immersing themselves in and directly helping each other with work and communal activities. For these participants this essentially means they learn by experience, experimentation, trial and error, through independent observation of nature and human behavior and through voluntary community sharing of information, story, song, and ritual among others. Proponents of the situated learning approach to learning and development, for example Black (2012) argues that once learning is institutionalized and alienated from the learners' everyday experiences, both the freedom of the individual and his or her respect for the elder's wisdom are ruined. Pablo and Rogoff (2012) add that when the above occurs, family and community are sidelined as the classroom practitioner assumes all control over the learner.

How adopting indigenous knowledge systems can advance the equitable learning agenda

A couple of the participants pointed out that adopting indigenous knowledge systems (IKS) is one way through which the promotion of the equitable learning agenda can be enhanced. Their argument was that the teaching and learning of IKS ensures that the traditional knowledge, models, beliefs, norms, values, methods and content are imparted within the formal educational systems to the satisfaction of virtually all learners. This view is consistent with that of Semali and Kincheloe (2009) who contend that the growing recognition and use of indigenous education knowledge and methods can be a vehicle for promoting learner inclusivity and equity in education. Asked to elaborate on this view, the participants maintained that in fact adopting IKS in educational institutions is and should be a worthwhile response to the erosion and loss of the IKS as a consequence of the processes of colonialism, globalization and modernity. For them this partly explains why some learners in school appear

disinterested in the curriculum content. One participant literally drew on the views of Aikman (2003) and Sha (2014) to argue that adopting the IKS in the school curriculum has the potential to make indigenous communities reclaim and revalue their sociocultural traditions, languages, beliefs, attitudes and values and in so doing, improve the educational success of all learners, thus ensuring their respect, survival and integration into the global culture. Others claimed to prefer adopting collaborative learning experiences where the learners' IKS are used as prior learning experiences worth of recognition as part of their lower psychological functions to be transformed to higher ones through MLE. For them this has the potential to go a long way towards increasing the learners' desire for more interactive classrooms. The same view is shared by Odora-Hoppers (2011) and Magano et al (2012) in their contention that for educators to promote equitable learning through pedagogy, the learning conversations to be adopted need to draw from the learners' IKS so as to bring their existing IKS backgrounds to co-construct new forms of knowledge in line with the constructivist approaches emphasized in today's teaching and learning paradigms (van der Westhuizen 2012; Wertsch 2008). The aforementioned dove-tails with assertions by Pablo and Ragoff (2012) that where indigenous knowledge learning tools are used to mediate learning, the potential for social harmony is higher than where unfamiliar learning tools are employed. The reason for such a progress is because the learning styles that children use in their indigenous learning systems are the same as those that occur in their community context (May & Aikman, 2003). These indigenous learning styles often include observation, imitation, use of narrative or storytelling, collaboration and cooperation, as seen among African, American, Indian, Alaska Natives and Latin American communities (Sha, 2014). If adopted in line with the tenets of the social constructivist epistemology in the classroom, this form of hands-on approach of emphasizing direct experience and learning through inclusion has the potential to go a long way towards fostering the equitable learning agenda (Deyhle & Swisher, 2007). Under such learning approaches the learner feels that he or she is a vital member of the wider community, and is encouraged to participate in a meaningful way by fellow community members (Black, 2012). It was also alluded to in the FGDS that in many traditional educational societies, children often effectively learn skills through this system, without being taught explicitly or in a formal manner and this may differ from Western learning styles, which tend to include methods such as explicit instruction and testing and quizzing. This view resonates with Wilson's (2011) contention that creating an educational environment that is consistent with the learners' upbringing and the need for equitable learning, rather than an education that follows strictly a traditionally Western format, allows for learners to retain knowledge more easily, because they learn in a way that recognizes them as equals in society and this has a huge potential to yield success for them (Mutekwe, 2014; Verna, 2011).

Further to the above, participants also pointed out what proponents of IKS such as Odora-Hoppers (2011) and Sefa and Rosenberg (2010) assert when they note that the structure of classrooms meant to promote equitable learning by integrating IKS

need to eliminate the distinction between the community and classroom and to make it easier for the students to relate to the material. According to the participants, effective classrooms modeled along these principles should typically focus on group or cooperative learning strategies that provide an inclusive learning environment. According to the results of the FGDS, a key factor for successful equitable learning through integrating IKS education practices is the learner- educator relationship, which implies that classroom settings for promoting equitable learning thus need to be socially constructed in a way that the classroom practitioner is able to share the control of the classroom with the learners. Rather than taking an authoritative role, the classroom practitioner should be viewed as a co-learner to the learners and both categories need to maintain a balance between personal warmth and the demands for academic achievement (UNESCO, 2012). For example, in such a classroom learners should be made to use group work activities and even be let to move freely about the classroom while working in order to consult with other students. Taken together, it emerged from the FGDS that the ideas discussed below accrue to learners as a result of integrating IKS into their school curriculum. For indigenous learners and instructors, the inclusion of these methods into schools often enhances educational effectiveness by providing an education that adheres to an indigenous person's own inherent perspectives, experiences, language, and customs, thereby making it easier for children to transition into the realm of adulthood (UNDRIP, 2012). Consistent with the views of Cornel (2002) and UNESCO (2012) for non-indigenous learners and classroom practitioners, an education system that promotes equitable learning often has the effect of raising awareness of individual and collective traditions surrounding indigenous communities and people in general, thereby promoting greater respect for and appreciation of various cultural realities. Drawing on the ideas of Duane (2009) and Wilson (2011), in terms of educational content, the inclusion of indigenous knowledge within curricula, instructional materials and textbooks has largely the same effect on preparing learners for the greater world as other educational systems, such as the Western model.

Conclusion

The discussion of the findings herein has shown that there is value in integrating IKS in education in the public schooling system to help learners of all backgrounds to benefit from being exposed to IKS. Furthermore, it can contribute to reducing such social ills as racism, sexism, tribalism, regionalism and even nepotism in the classroom and increase a people's sense of community in a diverse world. There are many sensitive issues about what can be taught and by whom that require responsible consideration by non-indigenous classroom practitioners who appreciate the importance of integrating IKS into standard mainstream schools. Concerns about misappropriation of IKS without recognizing the plight of indigenous people and giving back to them are legitimate because in situations where many educators are non-indigenous and because indigenous perspectives seem to offer possible solutions

for current and future social and economic problems of equitable learning equity, it is important for virtually all classroom practitioners and agencies to develop curriculum and teaching strategies that promote not just equal opportunities but also equity in the interaction of learners and classroom practitioners in schools. It has emerged that certainly one way to bring authentic equitable learning to education is to harness the advantages of the learners' indigenous knowledge experiences into the classroom and to work with classroom practitioners in MLE so as to scaffold learners within their ZPDs using appropriate learning tools and learning conversations that foster an equity pedagogy in schools.

Recommendations

The findings in this paper have led to the following recommendations; all learning needs to be mediated if the learners' skills are to be transformed from lower to higher mental functions. Classroom practitioners need to be aware of the different ZPDs of their learners so as to be able to offer appropriate mediation at an opportune time. They also need to be sensitive to what constitutes equitable learning so as to avoid adopting a superficial attitude towards it. There are a variety of ways to promote equitable learning and these include the use of learning conversations, situated learning experiences, authentic communication and the use of IKS in the school curriculum and experienced classroom practitioners need to be circumspect as regards which approaches to adopt and when to do so.

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EVALUATING THE IMPACT OF PROFESSIONAL COMMUNITIES OF PRACTICE IN TEACHER EDUCATION: AN INTERNATIONAL CASE STUDY

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This paper is about the potential power of professional communities of practice (CoP) to create new knowledge, change practice, publish and impact on policy. The authors are all Fellows of the international MirandaNet Fellowship, one of the first online CoPs, established in 1992. The authors investigate the evidence of the resources and the papers published over the last 25 years in order to evaluate the impact on professional knowledge. Members are also asked to comment. Finally, the authors explore what has been achieved in terms of theory and practice by the members working collaboratively over the years, often in a version of an ‘unconference’, a knowledge sharing event that members call a MirandaMod. The authors conclude that this democratic approach to learning is the most valuable contribution that CoPs can make to the profession of teaching.

The changing paradigms of UK teacher education

The conventional model for teacher education in the UK used to be predicated on theoretical input at a department of education in a higher educational institution that incorporated periods of teaching practice in schools. When a beginning teacher had qualified and obtained teaching posts further professional development could be provided through short in-service courses provided by local education authorities, examination boards, subject associations or commercial providers.

Changes in education have tended to be driven by a number of factors: socio-political expectations, technological developments and, more importantly, ideological shifts in the expectations for, and of, education. These changes have had a dramatic impact on the previously fixed concepts of how initial and continuing teacher education could and should be provided. No longer are university departments of education seen as the main, or most important, element: indeed, what has come to

be seen as a distrust of theory has led to the role of universities being downplayed. Now various school models are seen as a significant provider of teacher education although in some cases this is in liaison with universities. At the same time this change from university educated initial teacher training to school trained teachers has been the result of a political neoliberal wind of change since the Coalition of Conservatives and Liberals took over from the Labour Party in 2010. John Galloway (2017) reviews a depressing book “Negotiating Neoliberalism” (Rudd and Goodson 2017) that explains the growing dominance of Neoliberalism as the hegemonic political, economic and social philosophy of our age, and its penetration into all aspects of our lives.

“An idea that, like a virus, has infected not just our commercial and public service structures, but our attitudes and approaches to our professional and working lives. It is a GERM, a Global Education Reform Movement, that has monetized education, at every level, making it a product to be sold rather than a developmental experience to be had (Galloway 2017 p1)”.

This political movement has coincided with the role of Local Education Authorities (LEAs) being phased out. In the same book, Philips (2017) comments on the changing role of the LEAs.

“Philips lays bare the sneaking privatisation of our schools, the blurring of the distinction between public and private interests that allows commercial organisations connected to the charitable trusts replacing local authorities as organisational entities across the country, to mop up lucrative contracts. With mechanisms of local accountability disassembled in order to allow market forces to operate (Galloway 2017)”.

During the initial introduction of computers in schools from circa 1985–2000 the role of LEAs in basic training and continuing professional development was crucial in the deployment of edtech where the schools needed far more than support than in other subjects. This is because there are three elements of edtech:

- the curriculum subject which is now called Computing in the UK;
- the increasing need for digital literacy, digital safety and digital citizenship amongst all teachers and students;
- advice on procurement of infrastructure and hardware that provides for a school’s administrative and pedagogical needs.

Much of this work was undertaken by the LEAs and most of the advisors gained their professional development and support from Nacce, professional organisation for advisers in computer education. These LEAs were also largely responsible for professional development for qualified teachers in policy, practice and subject areas and Naace members devised a series of resources for schools like the Self Review Framework (naace.org.uk).

By 2011 MirandaNet was recording the increasing fragmentation of the Information and Communication Technology (ICT) Continuing Professional Development (CPD) landscape and the replacing of many LEA professional development programmes with edtech company training that was more about skills than pedagogy and were

not accredited or validated (Pacher et al. 2011) – a trend that had started as far back as 1999 with the first national training programme for ICT in which companies, not universities or LEAs, were given the lead (Preston 2004). In fact, the small local training providers who knew the schools and the teachers had better results than the national company providers (Younie, 2002; Davis, Preston, Sahin 2009 a and b).

As a result of these developments the Naace CoP is contracting:

Naace, the UK professional membership organisation for those involved with learning and technology, is in the throes of a financial crisis. It's undertaking urgent measures to cut costs and transform itself online using its own volunteers (rather than full-time officers) and the digital technologies it helps schools with. The ICT crunch is here (John 2017).

Sadly, lack of political conviction about the role of digital technologies in education is the underlying reason for the malaise in the profession in England currently. The Labour government was convinced that ICT at the time was vital to teaching and learning (1997-2010). The dominant thinking was that ICT would be integral to the ways that young people thought, learnt and worked. The broad approach of ICT as a curriculum subject has been overtaken by the new Computing curriculum that makes coding compulsory and requires Computing Science graduates (Younie and Preston 2017 a). But the schools are finding they cannot staff the new curriculum. In fact, the schools no longer feel that they are obliged to offer technology especially now that funding is no longer available at the scale that is needed not only to provide technology but to maintain it and update it (Younie and Preston 2017b).

Questions about the impact of CoPs

Continuing development programmes should be a major element of a professional career in our view. Medical professionals are expected to stay abreast of the research and to document this: there is no such obligation in the teaching profession in the UK. Postgraduate study, for Masters and Ph.Ds, are a tough choice for teachers who are not given study time. A knowledge mobilisation project that attempts to provide research summaries for teachers is MESH (Mapping Education Specialist knowHow, www.meshguides.org), which was set up to make the profession evidenced-based, and to facilitate collaborative research with teacher practitioners (Jones, Procter & Younie 2015). But overall schools are not collaborative environments and the dominant, preferred, paradigm for much teaching appears to be still information transmission.

Nevertheless, all our research and practice in the MirandaNet Fellowship points towards collaborative learning through communities of practice. Carr & Kemmis (1986:221) discussed some years before the advent of Web 2.0 that it was possible for teachers to “organize themselves as communities of enquirers, organizing their own enlightenment”. These days online working makes collaboration easier and cheaper: there are no temporal and geographical restraints. A brief history of the value of ‘communities of practice’ in gaining influence on policy shows that the notion of

shared communal professional development is not new. For example, this trend began with the medieval trade guilds in Europe. Wenger point this out in his analysis of ‘community of practice’ (CoPs) with an underlying philosophy of ‘social interaction’ (Lave and Wenger 1991; 1999; Wenger 1998; Wenger, MacDermott et al. 2002; Younie, 2007). In this professional learning paradigm, all the participants who are given equal status are actively engaged in generating knowledge and knowledge exchange together.

In this paper MirandaNet Fellows are concentrating on the development of the international MirandaNet Fellowship community of practice (CoP) which was one of the first online examples. The organisation is free to educators who want to share their knowledge and practice about innovation. MirandaNet was founded in 1992 because it was clear that teachers needed more than one day’s training to embrace the implications of digital technologies in education (Preston 1999) In particular, we have developed a mode of practice-based professional development, called iCatalyst, based on our research findings (2004, 2009, 2011, 2015) in which the teachers act as co-researchers defining the questions they want to ask, collecting the evidence and deciding on the way forward (Younie & Cheema, 2015). In the absence of government and charity funds these programmes for schools are now supported by edtech companies who gain credible marketing copy when their products and services are researched (<http://mirandanet.ac.uk/home/associates/>).

However, the principles about the value of COPs (Younie, 2007), which we investigate here have similarities with other UK CoPs like the teacher professional associations of ITTE (IT in Teacher Education; www.itte.org.uk), Naace (national association for the advancement of computers in education; www.naace.org.uk) and MESH (www.meshguides.org). Over the twenty-five years of MirandaNet’s existence we have looked at the practices in many studies that we will draw on here to answer three reflective questions about the impact on professional learning of CoPs such as this. We have also drawn on the perspectives of forty members of MirandaNet who have been influential in the community. This method forefronts critical incident methodology (Wragg 1994) in which the subjects of the research present particular incidents that have made an impact. Although themes can be found in this kind of data not all the evidence can be reduced to patterns. Sometimes we believe in thinking about learning we should respect the individuality of the learning experience.

So in this paper we analyse the evidence we have collected over the years about the impact of MirandaNet on professionals across the globe.

Our first question to ourselves was does the CoP function effectively and what has been achieved since 1992?

Our second question was to ask how the members would describe the learning gains from belonging to MirandaNet.

Our third question was to consider whether the MirandaNet Knowledge Base is more than a resource. Have our members collaboratively developed new models for professional learning in a CoP as well as new theories about collaborative knowledge construction that take in the new affordances available on-line. This is a particularly

important consideration as we would like all teachers to be learning at Masters' level. However, in the UK few teachers have the time or funds to take a Masters course and therefore MirandaNet aims to help professionals develop theoretical insights through MirandaNet activities.

The methods we used to answer our own questions were to revisit through our reviewed papers in journals since 1992 and the articles by members we store in the MirandaNet Knowledge Hub. We have also asked forty long-term and active members about what they feel they have learnt from belonging to MirandaNet in order to gain an impression of what membership means.

Findings

MirandaNet achievements in 25 years

Our first question to ourselves was about whether the CoP functions effectively and what has been achieved since 1992. We then thought about the varied facets of this question and several sub-questions emerged.

- Have our members collated unique national and international information about teaching and learning with digital technologies?
- Are our publications and resources both national and international in scope and appeal?
- Do we produce collaborative studies that are influential?
- Does our financial model work? I.e. free to educators because technology companies support MirandaNet members by commissioning CPD and research with teachers as researchers?

We investigated our archives and our current resources and looked at the reading figures to find the answers:

- Firstly since 1992 we have established developed an international network of 1,000 educators in education futures and innovation in 80 countries. A MirandaNet website of teachers' publications and resources attracts 74,000 unique readers, increasing at 10% annually, who read an average of 7.5 pages. This network has won five international awards for a variety of activities that have had impact on the local community including a women returners' network in Bulgaria and an Anglo-Czech network (mirandanet.ac.uk);
- On the website are more than four hundred articles by teachers about their practice. These authors have been awarded MirandaNet Fellowships for sharing their ideas (<http://mirandanet.ac.uk/mirandanet-publications/>);
- In addition there are reports of innovative and change practice-based iCatalyst CPD programmes in the UK often in exchange projects including China, Czech Republic, India, Mexico and South Africa. The design of this iCatalyst programme has been based on our research and refined for each local situation working with the participants (<http://mirandanet.ac.uk/icatalyst/examples-of-icatalyst/>).

The first of these projects was The Toshiba Laptop pilot: the individuals who participated went on to become digital leaders and advocates in their schools and local authorities, and later, in research and teacher education. As a result of the pilot the DFE introduced a Portable Computers for Teachers project run by Harrison at Nottingham University (Preston 1995; Frost 1997). An analysis of the Anglo-Czech MirandaNet project indicates gains about learning with digital technologies on both sides as the Czechs were expert in Computing and the English brought knowledge about Digital Citizenship, Literacy and Safety across the curriculum (Preston and Mannova 2000)

- Many of the CPD programmes free to teachers have been funded by harnessing the enthusiasm of companies for practice based research. This approach provides the company with research and development knowledge and the teachers as co-researchers with free continuing professional development opportunities at certificate, diploma and masters level. Two of these were funded by Oracle and Promethean.
- The Oracle Think project: inter-school collaboration; international collaboration; digital publishing; students F2F with expert;
- The Promethean IWB project: collaborative exploration of the impact of the technology on pedagogy: local, national and international in China, Mexico and South Africa.
- Educators have participated in knowledge gathering meetings, called Miranda-Mods(www.mirandanet.org.uk), designed by the CoP in order to develop consultative and policy documents in response to requests for MirandaNet members' views (<http://mirandanet.ac.uk/knowledgehub/white-papers/>).

Professional learning in a CoP

Our second question was to ask how the members would describe the learning gains from belonging to MirandaNet. These members asked to comment on the impact of membership provided a varied list of comments that reflected the diversity of the membership, the different levels at which they work and the different kinds of knowledge that they value. Overall these responses illustrate the range of ways in which the members have responded to the activities as well as building a knowledge base for others.

We grouped the comments under themes and the first set below are about opening up professional horizons for teachers in schools:

MirandaNet has opened a network of specialists and similar minded professionals to myself and my students allowing good practice and future innovations to be shared.

MirandaNet has helped our school to engage in rigorous, academic, action-research that has enabled us to identify when and when not to use EdTech to improve teaching and learning and accelerate student progress.

The nature of my learning has been very broad. We have joined specific projects that were formal learning ones like the one we did in blended learning and also the project we did where

we moderated that forum for teachers. A lot of my learning also comes from the discussions via Mirandalink which has become an important talking shop amongst educators in the UK and abroad. For the past 10 years this has been my main source of learning far we discuss and pick through various topics which can prove very engaging, informative and helpful in shaping my thoughts on these. When we do meet up it helps cement the relationships built up over the years. So this is learning from others and discussions.

Open invitations to input into Mirandanet responses to public policy consultations meant I felt involved in these discussions rather than a passenger like most teachers.

Some liked the mix of professionals in the organisation:

In short, the professional learning that I have undertaken in MirandaNet has had a positive effect on my personal teaching and my work as a digital leader working with my own school and others. Communities of practice such as MirandaNet continue to influence a range of stakeholders and I particularly like the way that they try to get together industry suppliers, academic researchers, Teachers at the sharp end and policy makers.

In particular, the debates on mirandalink were mentioned often:

By providing access to a very broad range of knowledge, experience and expertise from across the education system, and from people in different roles, at different levels and in diverse locations mirandalink has presented ideas and opinions that I may not otherwise have been exposed to. Questions are asked of the community that provoke discussion and debate that offer approaches from many different angles, that revisit established understandings, and that reveal new ones. It is the diversity of questions and contributions that I value most.

MirandaNet has provided us with a robust audience of professionals who have since we set-up encouraged us; listened to us; coached us; criticised us and suggested solutions to problems. We have never been blocked or excluded; but nor have we been spoon-fed and offered an easy ride. In a world where knowledge is more fluid than ever before and where truth is manipulated to meet short-term goals and agendas we all need spaces where we can be open and honest amongst critical friends MirandaNet has provided such a space for our learning.

Teacher educators and trainers felt in touch with other systems and indeed many of the academics in MirandaNet have shared projects funded by the EU and other national and international bodies:

In terms of international collaboration. I got the unique chance to gain insight into other countries' education systems and universities through which I learned many different ways to approach the subject. Countries comprise mainly the UK (especially to Germany where I come from) but also the Czech Republic for example.

I met plenty of people working in education in different countries, and we established some exchange by mutually giving talks at our universities and institutions.

I think that especially in times of Brexit it is of essential importance to keep and strengthen the links between the EU countries and the UK. MirandaNet does an excellent job in bringing professionals together.

Membership of a CoP should be a professional learning journey and one teacher clearly explained his progress over several years from doing a MirandaNet practice based research model to becoming involved in theoretical considerations:

I became involved in MirandaNet after looking at research for a Best Practice Research Scholarship funded by the DfES. I found a fellowship of like minded people who were passionate about young people using digital tools to extend their learning and perhaps more! I eventually grew to understand that the community of practice (COP) that I had become part of was indeed now instrumental to my own CPD and affected those in other schools that I came to contact with through my leadership roles. I now lead a large One to One Digital Project in the South East (1700 iPads in one school and a number in primary schools). The email list has allowed me to participate in and read high level discussions on policy, practice and innovation

Participation in research projects challenged me as a practitioner to get involved at a more theoretical level.

This final comment about the journey to theoretical considerations led us to answering our third question.

MirandaNet's contribution to CoP theory and practice

Our third question was to consider whether the MirandaNet Knowledge Base is more than an information resource. Have our members collaboratively developed new practices for professional learning in a CoP? Have they presented new theories about collaborative knowledge construction that take in the new affordances available on-line?

Our investigation suggests that new perspectives on professional practice have been achieved in a variety of ways:

- the relationship between work, learning and professional practice with a particular focus on work-based pedagogies, assessment and self-evaluation strategies;
- the relationship between pedagogy, assessment and learning with innovative technologies;
- the role and use of new technologies (especially those of learners) across a range of curriculum areas;
- conceptualising and theorising the workplace as a site for learning, and the relationship with industry
- collaboration, partnership and innovation within and across institutions through personal learning networks.

However, in this paper we plan to look at one trajectory in particular, the MirandaMod because this has been the knowledge creation platform that has so often brought all the members together online wherever they are. What is important is the link between practice and theory that is possible in a CoP at this kind of event. Several ways of looking at collaborative knowledge building developed as the technology improved.

A knowledge creation event online

By 2007 written text alone was proving inadequate for the way MirandaNet members wanted to share their professional knowledge in ways that used Web 2.0 visuality. A key driver for developing a more interactive unconference mode of communication amongst members was the need to reach out to the 750 members at that time in nearly 80 countries for whom English is not always their first language. Visual and animated modes of communication have become embedded in communication modes since radio and television emerged. The latest Web 2.0 remotely authored technologies bring the chance of performance and interaction to those who are socially or geographically isolated from professional exchange of knowledge and publication opportunities. These real-time face to face and online knowledge sharing events, named MirandaMods (www.mirandanet.org.uk/mirandamods) are underpinned by a combination of free technologies requiring a low bandwidth that are internationally accessible.

The output from these events are websites publishing the latest resources in the informal and immediate modes of collaborative collections of knowledge shared on remotely authored concept maps, Twitter streams, video-streaming and video-conferencing. What also follows, when appropriate, are the reports and the consultation submissions that the delegates develop afterwards in order to share and publicise professional knowledge at the point of creation.

The MirandaNet team continue to experiment with new technology recently trialling a 360 degree camera used for classroom observation and research by Iris Connect (Younie, Preston, Belogaska 2017) and effective classroom microphones by LightSpeed (Younie, Preston, Turner, 2015). Both companies loan equipment and expertise to the enterprise and funded the practice based research professional development programme.

By harnessing these technologies the international MirandaMods encourage ‘praxis’ – the melding of learning theory, pedagogy and practice. This model for informal learning and impact reflects the complex, social, intellectual and practical process of professional learning (Cuthell 2005a: Cuthell 2005b: Cuthell and Preston 2007: Cuthell 2008).

Over the years, the MirandaMod has become more sophisticated and there has also been a seamless interaction between MirandaNet academics, teacher educators, teachers and leaders in schools, the technically able and company representatives at a variety of levels to include theory, policy and practice. In this mode MirandaNet Fellows have created a range of reports and resources that are published on the website for policy makers and practitioners.

The process of professional collaboration

But here we do not talk about the results but the process by which the membership is included in expressing new views on innovation and education futures.

The MirandaMod is important as an unconference that establishes and encourages professional voices. The old patterns by which those across education communicate have substantially altered.

Autonomous learning is now widespread, hence the importance of CoPs to promote collaboration.

The sense in which this event is derived from the unconference movement is that a MirandaMod is a more democratic environment for collaboration than a traditional conference or TED talks. In one respect MirandaMods are a form of unconference in which there is no audience. Here all the participant input is considered equal in value. Some experts might be invited to introduce the theme for about fifteen minutes. The rest of the participants have 5-7 minutes to make their case with the intention of reaching a general consensus by the end about the issues that matter. MirandaMods are held in many countries. Sometimes there are as many as 40 members joining in online from countries as diverse as Australia, Brazil, China, The Czech Republic, Pakistan and South Africa. Some just watch the video stream but others share their views by video link, ichtat, microblogging and the remotely authored concept map. The map is opened a couple of days before the event and stays open afterwards so more knowledge and resources from the community can be published.

However, a MirandaMod goes further than this – the theory is not just to listen to other experts but to engage in combining ideas that have been heard to create new collaborative knowledge. Those who engage also put a much fuller explanation of their ideas on the website and engage in using the collaborative tools that facilitate the exchanging of ideas.

In this mode we have learnt much about professional knowledge creation and sharing from the practical and the theoretical point of view. These are particularly important events as we would like all teachers to be learning at Masters' level. MirandaNet aims to help professionals develop theoretical insights through MirandaNet activities. The MirandaMod is one accessible way of doing this as one of our members observed:

The MirandaMod idea that allows us members build knowledge collaboratively is an academic legacy that I am proud of and I still think no other 'unconference' comes close to matching that mode of working.

Developing theories about collaborative knowledge creation

We call the digital space where the members communicate a shared liminal space. We use the term 'liminal space' as a focus for the effort of learning. The term was first used in anthropological studies to refer to the dissolution of order in the individual brain during liminality that creates a fluid, malleable situation that enables new institutions, new customs and new expressions of commonality to become established (Szakolczai 2009) MirandaNet work aims to extend understanding of liminal spaces and their contribution to the learning process. Evidence from participants from the United Kingdom, Europe, West Africa, the United States and Australasia was used

to estimate the value of such informal learning for professionals. The qualitative and quantitative research tools that record both the numbers involved in the different activities, levels of participation and the extent of the professional knowledge created were identified. The processes can be described as Bricolage (Levi Strauss 1962), in which people build new knowledge from what is at hand. Consideration is given to the long-term impact of building professional knowledge in a range of media that are not subject to conventional peer review.

In the context of bricolage it is important that our reader understands that what follows is not a literature review of theorists who have been working alone but about theory and practice being gradually pieced together from the evidence of the CoP process over many years. Because of this fact 'Fellow' has been added to the name of the researcher to indicate that this academic is working within the MirandaNet community to develop theory and practice. Most of the papers have been peer-reviewed, however, and published in established journals.

We started our journey through theoretical approaches with a consideration of 'liminal space', a concept that many academics have struggled with as they try to understand what thinking is and where it takes place. Liminal space could be conceptualised as being inchoate and chaotic as learners' misconceptions, misunderstandings or simply lack of knowledge clash and co-mingle. However, as it is proposed that individuals will progress from one learning state to another through shared liminal space, there must be elements allowing this to happen, including a sense of boundedness. Fellows Cuthell, Cych, Kuechel and Preston (2009) argue that social liminal space can be conceptualised as anthropological and contains semiotic elements that can be visual as well as written. Entry into communal liminal space can also be positive through a sense of power and possibility that is in part a release from prior constraints (temporal; spatial; personal; professional) and in part a reflection of the autonomy engendered by the de-stratification of existing professional power relationships of learning (*ibid.*).

The informal dynamic knowledge creation in collaborative contexts occurs as participants move from textual debate in a conventional mailing list to video conferencing, micro blogging contributions and collaborative concept maps. This collaborative technology can be seen as creating the liminal space – a passage, in which a person moves from one state of being to another. Participants in this liminal space are transformed by acquiring new knowledge, a new status and a new identity in the community. This change is of critical importance if learning is to be successful. Whilst remote and informal learning is largely is what has been understood about mobile learning, the concept can now be extended to include these informal spaces in which learning takes place – the liminal spaces that those who push the boundaries of digital possibilities now inhabit intellectually (Fellows: Cuthell, Preston and Cych, 2011).

When Jung (1916) was investigating the concept of liminal space he described three stages: the physical space where new ideas and concepts are introduced; the liminal space where they are processed in the mind against knowledge that has already been absorbed; and, the representational space where new ideas are expressed. Our

understanding of the theory of learning suggests that the MirandaMod may offer a new perspective on liminal learning. Not only does the struggle to understand concepts take place in the brain but also collaboratively in a shared liminal space.

In this context, research by MirandaNet Fellows has also been investigating the concept mapping representation of knowledge as the MirandaMod series progressed investigating the maps themselves about professionals learning behaviour (Fellows: Cuthell and Preston 2012). In terms of informal professional development and educators' learning, the visuality of using hand drawn maps to represent ideas has been an effective way of moving beyond linear text (Figure One).

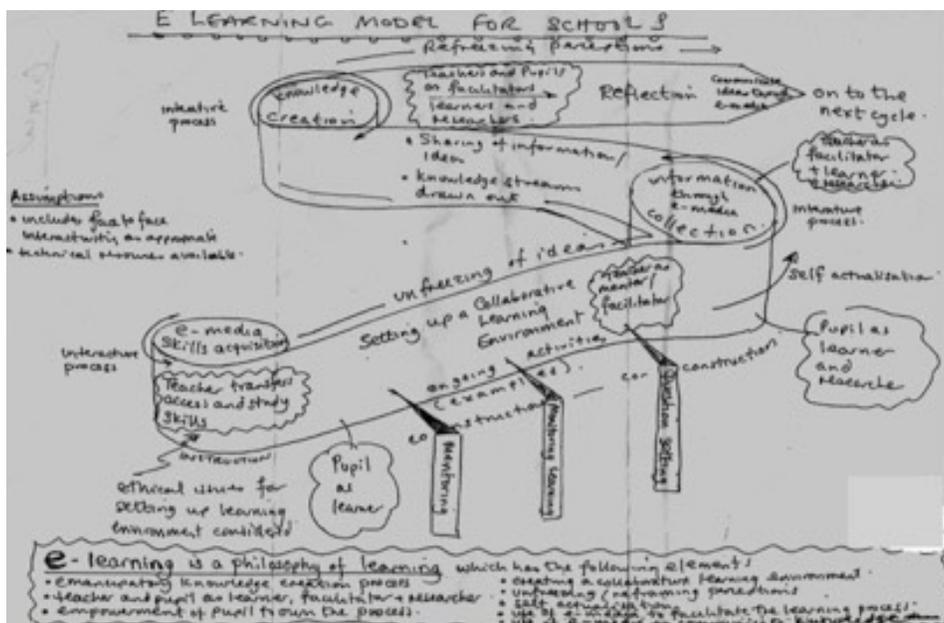


Figure One. A map about knowledge creation developed by a group at a MirandaNet Masters course.

The fact that map makers can add resources and extend the links exponentially has made the digital map a valuable tool in group work (Figure Two). But using digital maps can become very large and unwieldy – the branches can be collapsed to show the main outline in a journal paper, but the reader must use the website to gain the full effect of the layering. Figure 2 shows a thumbnail of a MirandaMod map which is better viewed on a screen where the size can be altered. Already the format of conventional journals is proving inadequate to illustrate these new ways of working.

Pedagogy and Education journal papers over the last 20 years. What is significant in their analysis of the papers is the emergence of the words 'community' and 'social' for the first time in the last of their three maps that represents recent years. These results accord with the recent focus on the educational potential and development of technologically mediated (online) communities and the emergence of social media that we also note here. One a closer examination of their final tag cloud we also found two new words that are relevant to this trend that have emerged in the last few years: 'knowledge' rather than 'information' – and the word 'collaborative' for the first time.

Since the early 1990s MirandaNet Fellows research extends into Braided Learning. This element of MirandaNet attention concentrated how digital technologies might be exploited to empower the professional voice in virtual spaces. Preston, the founder of MirandaNet and Holmes, an academic Fellow from Ireland developed the Braided Learning metaphor to denote the concept of ideas being woven together by individuals to develop strong intellectual argument in text. This paper establishing the theory of Braided Learning was quoted as part of an assembly by Haythornthwaite of six international online models that were establishing new ways of learning online (2007).

Preston and Holmes (2002) through their EU online learning project, showed how the quality of online textual interaction improved as members spontaneously learn how to enrich these braided texts. A three-dimensional process of learning and practice was revealed which entails coming to understand and participate in a creative, progressive 'braiding' of text, opinions, and ideas. These processes reveal how learning by professionals, for the purpose of strengthening both the profession and individual understanding, unfolds in the online context in textual communication. Three identifiable stages track the process whereby professionals in CoPs adopt and practice in their professional, online, learning. In the first stage the community engages in creating a braided text online that supports diversity and change of opinions. Some members voluntarily act as e-facilitators or braiders who help to shape the argument, provide interim summaries and change the direction of the discussion (Fellows: Preston and Holmes, 2002; Cuthell, 2005; Preston, 2008a). In the second stage, braiders demonstrate meta-learning by constructing braided artefacts, which re-interpret the online debate in different styles for different audiences, e.g. newsletters for their local communities, reports for their school senior management team and responses to government consultations. In the latter instance many voices can be braided together rather than just a few 'experts' representing the membership. In the third stage, accomplished community members take the initiative to set up working parties to explore a subject in more depth. This has resulted in journal volumes, newspaper articles and reports to governments that reflect membership experience. Many of these representations draw also on action research studies that have been developed on MirandaNet iCatalyst courses. In producing these authored artefacts the participants become active professionals, using collaborative knowledge to build new theories and policies that will impact their profession in the longer term (Sachs 2003: Fellow, Preston 2007).

Somekh, who was also an influential member of MirandaNet, developed Schön's action research approach (1987) with particular reference to professional learning in digital technologies, shared practice, collaborative learning networks and scholarly reflection on practice (Fellows: Somekh and Davis 1997). Somekh and Davis continued to contribute to the theory emphasising teachers' knowledge building role as they work together often across national boundaries (Holmes (Fellow), Tangney et al., 2001; Fellows: Leask and Younie, 2001). 'Action research' is central to this process of collaborative evidence collection although we now prefer the term 'practice based research' established by two Fellows, Pachler and Dady with Pickering (2011) which emphasises teachers as co-researchers sharing what they have learnt – a pedagogical approach that could be called 'communal constructivism'.

A pedagogy that empowers the professional

Fellows, Leask and Younie established the phrase, 'communal constructivism' in 2001 to explain the Braided Learning approach to learning from a more cultural and social perspective on the value of a CoP. Cuthell (2009), another founding Fellow, relates these theories to Freire's notion of the wider value of collaborative learning in social and cultural contexts for professionals who want to take charge of their own agenda. 'Transformation' is described by Freire (1978) in his definition of 'praxis' as the evidence that the professional as the agent has forged together theory and practice. Praxis is a high-level mode of professional operation where the practitioner possesses skills and deep knowledge and understanding of the theories that underpin practice. This can lead to a profound change in professionals' understanding of their professional identity, giving them the power to take greater control of their profession.

For the authors, this is the true nature of quality enhancement in teacher education. But when these understandings are established are there plenty of platforms where new discoveries about learning can be aired?

Conclusion

During this investigation we established that the members continue to develop a unique knowledge base on through longitudinal studies with a significant user base. Those just reading are increasing at 10% a year from more than 80 countries with a significant readership from Africa and Indian, Mexico, and Pakistan. Unusually Visitors read up to 7.5 screens. But this is a comment on the value of resources and publications. Most importantly the membership who contribute to this resource have also joined in active real time and asynchronous debates that have resulted in useful practice reports, influential policy documents and responses to government consultations.

Over the years the methodology for this CoP approach to teacher professional development has progressed from online discussion, through F2F sessions and the development of a freely-accessible knowledge base, into the use of concept maps to

capture and disseminate knowledge to the fluid and shifting methodology of the MirandaMods and liminal space. MirandaNet Fellows continue to refine the MirandaMod techniques for communication and a body of theory about professional learning is deepening.

By their engagement in this form of developing knowledge the MirandaNet academics observed that professional learners acquire new knowledge and a new identity in the community. The established view of the MirandaNet school is that this transformation is of critical importance if learning is to be successfully translated into professional action. Underpinning this mode of collaborative learning is not a trivial task but this collaboration in order to reach a consensus is a vital element in the processes of a democratic society to which the authors hope this paper will contribute.

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SUPPORTING TEACHERS TO BE LEADERS OF LEARNING: EVIDENCE FROM THE PALL PROGRAM

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This paper considers the impact of the Principals as Literacy Leaders program (PALL) on developing teachers to be leaders of learning in their classroom and for supporting reading development across the school. For this purpose it considers a number of elements of the Leadership for Learning Blueprint (LflB), a central feature of PALL, including how the principal supports professional learning, how teaching practices change in ways that demonstrated teachers leading learning in their classrooms and how shared leadership development was supported to enable that teachers, both individually and in teams, to take leadership for the development of reading in their schools. Qualitative data from six published studies and recent interviews clearly demonstrated that teachers were both willing and able to take on leadership responsibilities, both in classrooms and at school level, and that this had a positive impact on student engagement, student learning and measures of achievement in reading.

Background

In the early years of the new millennium data suggested that student achievement in literacy was a recurring problem in Australian schools (National Assessment Program: Literacy and Numeracy (NAPLAN), 2008, 2009, 2010; Thomson, De Bortoli, Nicholas, Hillman, & Buckley, 2011). In addition evidence suggested that students who fall behind in the early years of schooling tend to fall further behind over the course of their school education (Louden et al., 2005; Rowe, 2005). Simultaneously research findings suggested that factors such as the quality of instruction (Hattie, 2009); the quality of school leadership (Leithwood et al., 2006; Robinson, 2007; Seashore-Louis, Leithwood, Wahlstrom, & Anderson, 2010) and the impact of well-

designed Professional Development and support programs (Wei, et al., 2009; Hord, 1997) could have a positive effect on student achievement. With this in mind the Principals as Literacy Leaders project (PALL) was initiated in 2009 by the Australian Primary Principals Association (APPA) for schools in four states of Australia. It was funded by the Australian Government as part of its Literacy and Numeracy Pilots in Low SES Communities Initiative. The program was designed to provide principals (in later versions, other school leaders as well) with knowledge, practice and support for strategies that would enable them to support teachers in teaching reading more effectively, with the ultimate aim of improving student engagement and learning.

Since 2010, more than 1000 Government, Catholic, and Independent school leaders have taken part in a number of different programs to emerge from APPA's initiative: the pilot PALL program itself, Secondary Principals as Literacy Leaders (SPALL) and Principals as Literacy Leaders with Indigenous Communities (PALLIC). In recent years more specific programs have been designed to consider the Middle Years of School (where secondary schools and feeder primary schools work together on how to ensure that reading performance is not diminished by the transition from primary to secondary school) and one that considers how to improve parent and community engagement in the schools' attempts to improve reading. Programs have been offered in every Australian state and in some cases multiple cohorts of participants have been involved in a single state.

The Principals as Literacy Leaders Project (PALL)

The Project was designed on a foundation of the five following research-informed positions.

1. The PALL Position on the moral purpose of leadership
2. The PALL Position on learning to read
3. The PALL position on reading interventions
4. The PALL position on shared leadership
5. The PALL position on support for leaders' learning on-the-job

A more detailed outline of these five positions is provided in Townsend, et al. (2015a, p. 17).

The PD Modules of the PALL program were:

Module 1: A Leadership For Learning Blueprint

The synthesis of the leadership research culminated in a discussion about the elements of a Leadership for Literacy Learning Blueprint, illustrated in Figure 1 (Dempster, et al., 2012, p. 7) below.

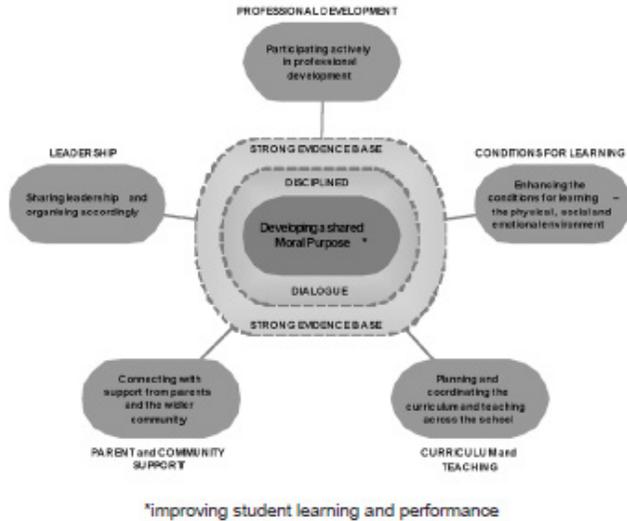


Figure 1. A Leadership for Learning Blueprint

Module 2: What leaders need to know about learning to read

Module 2 demonstrated the complexity of the reading process and identified the “BIG 6” elements of reading, namely,

- (i) Oral language
- (ii) Vocabulary;
- (iii) Phonological awareness
- (iv) Letter/ sound knowledge (phonics);
- (v) Comprehension; and
- (vi) Fluency.

Module 3: Leading literacy data gathering and analysis

Module 3 picked up the “sound evidence” theme highlighted in the Blueprint by focusing on the importance of evidence-based planning and decision making.

Module 4: Designing, implementing and monitoring literacy interventions

Module 4 defined the term “intervention,” reiterating the ultimate purpose of improving children’s literacy learning and achievement in project schools through intervention.

Module 5: Intervention evaluation and future planning

Module 5 took school leaders through three necessary steps in planning school based evaluations of the interventions they had implemented – defining the **purpose** of the evaluation, identifying appropriate data gathering **processes** and determining how to **use** the data.

The research program which accompanied the school-based work by PALL school leaders concentrated on the impact of the leadership actions undertaken by them back in their schools and the effects of reading interventions on teaching practices, student learning and achievement. A full description of the Pilot Project with its accompanying research is provided in Dempster, et al. (2012).

Other Research on PALL

Overall six studies were carried out over the period 2010–2014. Three of those studies, including the Pilot Program itself, the South Australian study (Australian Primary Principals Association 2013) and the Tasmanian Study (Dempster, et al., 2014) followed the research design of the original Pilot which concentrated on the program's effects on school leaders themselves. A further study, Principals as Literacy Leaders with Indigenous Communities (PALLIC), applied the general design of the Pilot research to ascertaining the effects of PALL as it was adapted for work with principals of schools with significant Indigenous communities (Johnson et al., 2014) also included some case studies. The last two studies in Tasmania and Victoria in 2014 (Townsend, et al., 2015a and 2015b) were designed as case studies in order to get a deeper understanding of the leadership effects on student learning. A detailed description of these research activities and the findings from them are contained in Dempster, et al. (2017)

The 2016 Case Studies

In late 2016, five case studies schools were visited, three that had previously been visited in 2014 and two that had been identified by the Victorian Principals' Association as successful PALL schools. Each of the schools was visited once and the school leader and/or the leadership team (in most cases this was the principal and deputy principal), as well as a group of teachers involved in the reading intervention activity, were engaged in a conversation about PALL. The key questions to be considered were:

- How has the focus on PALL been sustained since it was first introduced?
- How have elements of the Leadership for Learning Blueprint been used to support this progress?
- What impact has PALL and the BIG 6 approach had on the school?
- Is there any evidence that there have been improvements in student performance in reading?

The current paper considers the findings related to one area of the larger range of data collected in the initial six studies, namely the impact that PALL professional learning had on school leaders' ability to support teachers to become leaders of learning. It will use the findings from the six studies but will, additionally, consider new data collected at the end of 2016 from the five case study schools. The purpose

of the most recent case study research was to investigate schools where the learnings from PALL (and the use of the BIG 6 of reading) were still being used more than three years after the school leaders had undertaken the PALL program. The aims of the new study were to establish what impact PALL was perceived to have had on improved student learning and achievement and to consider the factors that might have led to the use of PALL-related learning to have been sustained over time.

Results

The data from the first six studies identified a number of areas in which teachers had become more proficient in their practice, in effect becoming leaders of learning in their own classrooms and, in conjunction with others, taking on a leadership role for determining curriculum and pedagogical directions in the future. (Dempster, et al., 2017) identify a number of elements that might be considered in this light:

- Valuing and (re)calibrating professional learning;
- Use of the Literacy Practices Guide (LPG);
- Putting the lens on assessment processes;
- Moving from evidence-based research to prioritizing and planning;
- Moving from prioritizing and planning to everyday reading instruction; and
- Approaches to reading intervention: Waves 1, 2, & 3.

Professional Learning

The PALL program consistently focused on improving teachers' existing knowledge and practice through professional learning. PALL provided school leaders with evidence-based research about the teaching and learning of reading and it was continually highlighted that all in-service teachers required ongoing access to quality professional learning. This helped school leaders to become not only more confident, *Because of my own learning in Module 2, in particular, and knowing what teachers needed to know, I have taken more leadership of professional learning – my confidence is higher. I am more of an instructional leader. I know more about literacy,* but they were also being seen as being more knowledgeable *Presenting PALL materials to staff built the principal's credibility as an educator* which in turn allowed them to become more focused on improving what happened in the classroom because this confidence and knowledge *has improved the quality of professional conversations.*

For some this was a change in the way in which they led the school ... *this is the first time I have been involved in everything that teachers have done. I know 200% more about literacy and can now supervise with authority.* But the professional learning that occurred by focusing on the BIG 6 using the PALL processes also changed the way in which teachers went about their work... *After involvement in professional development related to the BIG 6, our staff are more confident about teaching these skills as part of their literacy programs and ... teachers are growing and learning together.* Principals were not only more involved in these professional conversations themselves, but provided innovative approaches to

support their teachers to “buy-in” to the approach, such as having them visit other schools *...teachers visited another school with the BIG 6 operating and then they were happy to make the changes* or to consider ways in which working together with other teachers might improve teaching practices by *sharing the “best” lessons that they had developed with the whole staff.*

The outcome of this heightened approach to professional conversations about teaching and learning was *...a dramatic increase in teachers’ teamwork and joint, explicit planning as well as the building of trust as teachers came to know each other better.* Perhaps even more importantly, common approaches, a common vision and a common language started to emerge whereas... *Before PALL, our vision was a list of different people’s views.* One interesting response from one of the 2014 case study principals was that:

Staff realised they were unconsciously unskilled and needed to change their teaching patterns; they displayed a level of panic. The BIG 6 provided a framework that helped teachers to overcome this panic. The leadership team used a staff survey later in the year to document where staff felt they were on the continuum from unconsciously unskilled (don’t know what they don’t know) through consciously unskilled (they now know what they don’t know), consciously skilled (able to do things) to unconsciously skilled (where things come easily for them). They found that staff were at different places on the continuum and designed strategies to enable those who were skilled to support those less skilled.

It is clear from these comments that teachers recognised the role that professional learning played in any improvement effort and that the PALL project had helped them to focus on professional learning activities specifically directed to reading improvement.

Literacy Practices Guide

In the PALL program the Literacy Practices Guide was presented as a means for principals to develop an understanding of classroom literacy activity by observing what was happening. Specific domains addressed included classroom environment, and in the teaching of reading, evidence of instruction in phonological awareness and letter-sound knowledge, vocabulary prompts and reinforcement, fluency and comprehension strategies. Aspects of each of these which lent themselves to observation were included in the LPG which was presented in the form of a checklist and an aide to reflection. This was perceived by school leaders as being one of the most successful and useful elements of the program. It enabled them to reflect with their teachers on aspects such as classroom organization, program planning, and instruction. It *... enable[d] principals to observe practices more astutely and to engage more directly in their leadership for learning role.* Initially it was clear that such an activity as using the LPG in teacher’s classrooms could be confronting, with one principal noting *Not all teachers are happy about the more focused professional learning conversations we are able to have, especially using the Literacy Practices Guide,* but it was nevertheless seen as a valuable tool *to help teachers question their current practice and make alterations as needed.* However, it became

something that was seen as valuable by teachers as well. When one principal asked “*Look, did you find that useful and beneficial about observing?*” the teacher’s response was “*I find that really useful, it hasn’t been done enough the whole time I’ve been here.*” Clearly such a tool, used well and in a climate of trusting support, can provide new learning for both school leaders and teachers, and after being used, the knowledge gained by teachers about good literacy practices can be taken by them as a means of improving their own leadership of learning in the classroom.

Assessment

The PALL program spent one of its five modules on considering the collection and analysis of data about reading using what PALL called “disciplined dialogue”, where the question “What do we see in the data?” is fully considered before moving on to the subsequent questions of “Why are we seeing what we see?” and “What, if anything, do we need to do about it?” Using such a process back at their schools led to *teachers [are also] becoming more discriminating in the way they collect and use data*. Schools consistently reported that they were *continually collecting and analysing data with a shared understanding of how this informs future teaching practice* and using *... disciplined dialogue amongst staff members to assess evidence on children’s progress and to forward plan*. Principals suggested that teachers were *Knowing what data to gather and how to use the evidence more effectively* and were *...more strategic about what data we collect and how we use the results to direct improvement in both teaching practices and student learning*.

This approach has led to a *big shift [that] has been rather than trying to make excuses for the data now it is really being pulled apart and saying this is the reality, what are you going to do about it* which in turn has made *...teacher reviews [are now] more enjoyable, both for the teacher and the reviewer, whereas this was previously a bit of a negative space. Teachers are now much more able to use and discuss data ... if these are your top two and bottom two kids, prove it to me ... show me the data*. Teachers were also positive about the changes *Data collection was more compliant [previously]. Now we use it with a purpose* leading a principal to comment *the school and the staff now work smarter and use the data to focus attention*. These comments suggest that teachers are much more prepared and much more capable of analysing the data put before them, interrogating it fully with others, and then making decisions that will lead their students to higher levels of achievement.

From Evidence to Prioritisation and Planning to Instruction

Although the intervention component of PALL meant that for some schools there was a need to tweak already existing processes, for other schools it signalled something more substantial. *All staff agreed that the PALL project had made it clear that there were many areas where the children may have had gaps or needed to have intervention*. The outcome of this process was that some schools focused on something quite specific, such as developing oral language skills for students in the early years, others chose a more comprehensive approach where *planning [for each of the BIG 6] is now more focused and none of the areas are*

allowed to slide and that this was occurring across the school... *the use of the BIG 6 to guide the reading curriculum is now embedded right across the school* and even encompassed other people in the school as well, such as one school where *Everybody, including the specialist teachers, has the BIG 6 in their planners*. Perhaps the change in direction is summed up by one principal, who said:

...previously [there was] no consistency – everyone was on their own adventure. Now we have a clear literacy policy in place that outlines elements of literacy across all year levels. [And] previously the staff worked hard but a lot of what the kids were doing was busy stuff, so it was necessary to work smarter and now the focus is that every minute of every day counts.

This has led to a change in the way teachers plan for reading, sometimes for the first time in many years:

The research base allowed the leaders to challenge the way in which teachers had been planning and teaching, sometimes for many years. If teachers disagreed they were invited to provide their own research that justifies their old way of teaching.

Planning for literacy, in many cases, is now done on a whole school basis and is strongly focused on the area of priority that has been identified:

Our staff now engage in collegial dialogue re literacy practices across the K-10 continuum, when a few years ago there was a clear obstacle based on ignorance, self-doubt and lack of shared responsibility for literacy.

There is recognition that *it is not enough to tell someone this isn't best practice. You actually need to give them something else* and this has led to *active encouragement and support for teachers to have a go at trying new PALL practices, with school leaders letting teachers know that "we don't care if you fail, but try."* This focus on improving teacher practice for individual teachers has also been supported by whole school practices, such as for the oral language program at one school:

Talking time is run twice a week with two sessions where children are broken up into Preps to Grade 2 and Grades 3-6 in groups of 6-8 children. All of the teachers including the specialists, the aides and the school leaders take a group and the children have been tested on their oral language, are grouped accordingly, and then there is a special focus for that group.

A Focus on Interventions

As mentioned above, some interventions selected by schools were for groups of students and focused on a specific element of reading and for others the chosen intervention considered change at the whole school level. The use of interventions in reading also helped to significantly change teachers' beliefs, understandings and abilities when it came to teaching reading in their classrooms. As one principal said, *some thought that intervention with these children always happened outside the classroom*. But intervening from a definitional point of view is simply doing something different from what you are currently doing (since doing the same thing as you have always done but expecting a different result may not see improved student learning). Whereas

some schools focused their attention on specific components, for one school, something bigger was required. As the Assistant Principal said *I had been running around doing interventions and the base was no good, so the number one intervention had to be good teaching. . . Specific interventions were not appropriate when the fundamental teaching was not being done as well as would be liked.*

Regardless of the intervention eventually chosen, what was clear is that PALL was influential in helping schools to identify what type of intervention was needed and to focus on one whole-school approach, rather than a succession of “quick fixes”.

The data collected from the six initial pieces of research indicate that PALL was influential in assisting school leaders that undertook the program to instigate a number of activities that supported teacher learning in ways that allowed them to become much more capable and active in their own classrooms and also to start working with other teachers on school-wide changes.

The 2016 study

The 2016 study in five schools that had been using PALL and the BIG 6 for more than three years added to the data previously described, first as it related to the value of PALL in general and then more specifically about developing teachers as leaders of learning. Principals’ responses to the value of PALL included the following comments:

PALL has made all the difference to this school. When I did it, it was like a light came on. It provided an overall framework for how to go about teachers teaching reading and also for me to assist them to do that well.

Look, it’s hugely important. To me, it’s that framework for success. One little bit doesn’t make a big difference without the other. And I think the whole way the program was done with that evidence-based and the research-base of it was just so powerful.

... undertaking PALL, it was very clear to me ... first of all that it was a bigger job than I thought and that I needed even more friends along but also that this was going to provide an excellent framework for explaining and reinforcing a coherent staff approach for the development of literacy across our school

... it [PALL] just probably connected leadership to classroom practice a lot more closely. . . I think it probably gave us the strong basis to be able to be in teachers’ classrooms, challenging them and in really running a change agenda for our literacy in our school and that – it empowered me personally and maybe I felt a lot more confident

PALL/BIG 6 has become embedded in the approach to teaching and learning that the school uses. It is now part of the way in which the school operates.

So this is just our work – we just do this stuff now. It is part of what we do. It’s our assessment. It’s our analysis of the kids where they are. It’s our planning of what happens in the classes. It’s the way we operate.

It's changed the way we work. It's changed the way we were getting jobs done. It's very different to the way it was.

...teachers know now what fluency is ...and what they need to do to increase that in their students ... it's all in a nice neat package for them, whereas that may not have been the case before.

The changes undertaken in the school have also had an impact on student achievement. Although in a number of schools, with the focus of the intervention being on the early years of school, it is still too early to get accurate measures of the progress of students through the National Assessment of Literacy and Numeracy (NAPLAN), which only starts in grade 3, the trends of student improvement are positive for both Grade 3 and Grade 5 students, if we look at changes between 2012 (before principals undertook PALL) and 2016. The NAPLAN data also shows that the majority of schools in the study have higher proportions of students having high growth and lower proportions of students having low growth between grades 3 and 5 than previously and many are now better than state or national averages.

That being said, what was clear in all the schools was that the school leaders and staff were prepared to set themselves challenging targets for improvement and that schools were prepared to measure these targets with both internal and external assessments. In addition, schools were using a range of other measures to judge improvement as the comments below indicated:

Our kids are doing better. Our kids' learning is distinctly better than it was in 2012 before we started. If you go right through it, our processes, our teachers, our collaboration ...the biggest result is our kids are doing a lot, lot better and there are high expectations for our kids and our kids are rising to meet those high expectations.

...we used to have for example, 30 children in prep at the end of the year. You would've had at least half of them not reaching benchmark. Now, out of a group of 30, you might have one or two that are just below... you have kids in grade one who are working at – basically a grade three level in their reading... we're lifting the bottom cohort, but we're also pushing the top cohort more...

...we've lowered the lower than expected growth and raised a higher than expected growth and the middle's where it should be.

We achieved:

- *Every child in the Junior School achieved goals.*
- *100% Grade 2 students achieved 46/46*
- *80% Prep students achieved Grade One standard 36/46*
- *89% Grade Ones achieved 46/46*
- *23% Prep students achieved 46/46*

However, there were many signs that teachers had improved their capabilities, as teachers, as members of teams and as people taking leadership responsibility in the school. In many cases, this is seen as something different and can be tracked back to the school leaders undertaking the PALL program.

Three words. Frameworks, professional learning and the third word, guidance, instruction, direction, future.

...we work together as a team and that's been the big thing that we've been trying to work on, stopping people doing little bits here and there, and different – so working as a team to drive improved outcomes for our kids.

...we came to agree that every single child can learn because too many times parents will say or teachers would say, "Yeah, we did really well except for little Johnny. You know what his home is like." We then came up with our shared mission and our shared vision, the vision being what we want our school to look like, and we've gathered around that since those early days... So it is embedded into our culture. It's in our newsletter. It's in our school council meeting every time we have one.

The focus on data and how to use it was reinforced by the most recent study. Teachers are now much more aware of the value and use of data:

...we talk about individual kids and their growth. So, what we want to see is the 12-month growth on an annual basis. So, teachers see the changes and they talk about kids.

We're all involved in looking at the data and making decisions in deciding how to best help students that require the help. So, no one's by themselves worrying about their little cluster.

I guess it's about just refining the data, isn't it, making sure you're not just collecting data for the sake of collecting data. It has to be purposeful and to make that difference.

Professional learning and development of teaching and leadership skills continues, and the role that PALL/BIG 6 plays in that is identified:

...when presented with the research, it was very clear that there were things missing from our pedagogy and practices, and I know myself. I'm a grade six teacher. I never taught vocabulary and the way I taught comprehension maybe wasn't the way that research was saying it should be. So I think for everyone – it was a good chance to reflect on our own practice.

...staff do a lot of PD for each other... well, today, we're working on vocab. Vocab fits into the BIG 6 like this, the BIG 6 fits into the highly reliable school model like this. So, everything explains where everything else fits, so people can see this is our mission, this is our vision, this is the model

I think things like the vocab and the fluency are now in practice because I know myself, I wasn't doing them four years ago. Before the PALL, we didn't teach vocabulary. It came up here and there and but it wasn't that explicit teaching, and it's an important thing for students to grasp and understand and keep learning. So, I think pedagogy has changed, and we've incorporated especially vocabulary and fluency.

Teachers in the case study schools are now taking responsibility through the use of teams and professional learning groups.

I think within teams we're doing it well. So, individual teams – level teams, cross school teams. It's probably happening more there even than from staff meetings

So, preps, one, two, three, four, five, sixes – the year level teams. They have a shared understanding of this is how English will be taught. These are the strategies, the pedagogy we're using, and within that, you can probably see the BIG 6 going right through all the teams. We've got that shared understanding.

In the first year – the moral imperative was driven by the research, but of late, it's driven by the teams themselves through what they call binding agreements, where they've made an agreement as a team, "This is the way we teach. This is the way we teach vocab in our level," and they get built into the planner.

However, professional learning is not just through either external or school based formal programs, it also occurs on a day-to-day basis, through professional conversations and observations:

...we've got sets of teachers here who have been with us since the start, who have come on board sort of halfway through the journey, and then we've got some that are new. So it's just keeping them all together, supporting each other, making sure that they're aware of what the literacy intervention plan is – what is it that we need to do to implement the BIG 6 in my room? What are the needs of my students?

I think collegiate and leadership observations and feedback have to be a part of that and that's where you learn about the teachers' skill sets and you can provide – almost differentiated professional learning from there.

...it does come back to really working together, inquiring together – and even though we probably haven't had a set model for the way our staff inquire together, they've done a really good job with that.

In the end, all this school and teacher-level activity needs to be translated into classroom practices and classroom environments, and the data collected suggested that classrooms were very different places now than they were just a few years ago.

This might be the physical environment of the classroom:

We rejuvenated all our classrooms, brought in a new gallery and shared spaces. We've upgraded furniture and I know that sounds like minor things and a lot of people would say they actually don't have a huge effect but I think that it did.

...our classrooms have been de-cluttered. And now we have the important stuff there. Every class has certain anchor charts within it, so areas of literacy, and numeracy.

The walls have changed a lot... There's not things covering windows... the rooms were kept really open... Everything's labelled so kids know where things are... What's in the classroom tends to be more relevant things that you're actually using – anchor charts or things that are specifically helping the learning that you're doing at the time.

...the conversation I had with them, actually turned towards the classrooms and the displays on the walls, and what the classrooms looked like everywhere because they loved how open they were. They loved how clean and tidy they were. They all said that they weren't cluttered.

Resources for reading (both formal reading and reading for enjoyment) were increased:

...some classrooms will have a couple of hundred books in there, and some will have more, and so, a large range of fiction and non-fiction books.

You would see different learning materials... And wordless books.

In many cases the classroom environment is calmer and more focused:

Our classrooms are different places. They're calmer. They're more focused. We've taken away the issues that the teachers have that were stopping them from teaching and that was behavioural issues within the classroom.

More individually focused, more structured in terms of sticking to a programme, more consistent across the board and probably more engagement.

I think our student relationships are really, really positive and nurturing and encouraging... we have a focus on kids now.

So there's a consistency across the learning in classrooms, which means we've had a transition from grade to grade, or teacher to teacher they are not starting again... there is a continuation of the language that's being used, it helps pedagogy so it's far better for the kids because it's familiar and they know what's happening, they know the process, they know how things are going and they are not going to go to another teacher next year who just does it differently and call them all different terms.

This focus on a common language is now accepted in all the case study schools and it also has an impact on student understanding:

They'll be able to tell you what they're learning.

...they [students] are able to actually to articulate where they are on comprehension, I am good at this or I need to do that more on that or the BIG 6 has helped you to do this

And students are learning the language too. They are saying for example, comprehension. They're using the technical terms, whereas a few years ago, they were not comprehending things exactly.

In the end the need for a continued focus on the goal means that there needs to be some way in which new teachers are chosen and inducted. The case study schools were able to articulate a number of non-negotiables when it came to hiring new staff:

The non-negotiable thing would be that they can behaviour manage, carry out a positive school-wide model in their classroom teaching all the time, they have to be doing Big 6 or at least be willing to learn.

We always ask questions about teamwork. That nobody here works alone, that it's teamwork. We always ask about what influences their planning... So what we really look for is – are they doing planning because they like a topic or because they think this needs to be done?

And then when they do the teaching then what happens after that? How do they know that the kids have been successful? And how do they know if they haven't? And what are you going to do if they're not successful?

One of the questions we ask is what does a good morning of teaching and learning look like in your classroom... another question and is around working in a team and collaboration and planning together.

...one of the other must-haves is they really enjoy sharing their methods with their level and other levels.

"What would the literacy lesson look like in your classroom?"

At the end of the report, a number of elements associated with school leadership seemed to be common across the case study schools, as below:

- an absolute commitment to improving student reading and a passionate way of sharing this goal;
- the ability to develop positive trusting relationships across the school, fostering leader-teacher, teacher-teacher and teacher-student relationships based on communication, and mutual support;
- the leader has remained in the school since the project commenced, but has enabled much of the responsibility for what happens to be passed over to others, thus ensuring that the whole school is part of the process, thus enabling it to become embedded. To paraphrase the words of one teacher, the BIG 6 „is just the way we work here now“. Leaders and teachers both agreed that there would be no change to the way in which they thought about how to teach reading, even if there was a change in leadership at the school;
- the ability of the leader to „let go“ and allow others to take responsibility for some of the work done. The case study schools could be considered exemplars of shared leadership;
- leaders see themselves as fortunate to have a staff that was willing to have a go and are willing to try different ways of working, test them out and to „play with things“ for a while in order to move towards best practice.

Conclusions

Clearly the role of the school leader has not diminished, but what the data from all seven studies indicate is that the principal cannot undertake the task of improving reading achievement alone, nor can it be fully successful if a hierarchical model of decision-making is used. As discussed above, supporting the development of teacher leadership in reading gave teachers many opportunities to lead, both in their classrooms and beyond, but also raised some challenges for leaders. Although the benefits of teacher leadership were many and varied, helping the sustainability of the program and improving teachers' capabilities for teaching and assessing reading,

some principals found that, despite being willing to share leadership in the school, getting teachers to take on this responsibility was a challenge, and consequently the speed with which this occurred varied greatly.

One element in the success of the PALL Program was the growth in shared leadership amongst teachers. It was made very clear in these studies that the role of the principal was critical to the way in which interventions were accepted and implemented in a school. Our judgement is that evidence from this study supports that of Robinson et al. (2009). They indicate that where school leaders are actively involved with their teachers in discussions, the development and (in this case) the implementation of activities to support reading improvement, this will lead to higher levels of success for students than in schools where leaders are not actively involved, even though they might indirectly support the developments being proposed.

Principals also clearly indicated that, when it comes to improving teaching and learning, teachers, more often than not, are willing to take on new responsibilities related to researching, developing, implementing and evaluating new approaches, if they have been presented in a way that makes sense to them. The implication of this is that leadership opportunities, especially in curriculum, should continue to be offered to teachers, to improve their own leadership abilities but also to improve the quality of teaching. In other words, it is very clear that principals must continue to lead their schools by remaining actively engaged in literacy improvements through involvement in teacher learning activities and by promoting a distributed model of leadership for learning for classroom peer-engaged support.

Overall, the PALL Program, at its base, is a program about leadership. It seeks to improve school leaders' abilities to engage with others in the leadership of reading as a shared activity. PALL was an illustration of learning about oneself as leader, leading others for learning and leading the organization for learning. These three aspects are helpful reminders that professional learning sustains, and must be seen as a necessary component of leadership work.

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STRATEGIC LEADERSHIP TO IMPROVE THE QUALITY OF EDUCATION

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This paper considers the impact of the Principals as Strategic Leaders program (PASL) on the ways in which principals lead their schools in innovative ways. The principals, sometimes with support of others in their leadership team, were all leaders from Queensland's Independent Public Schools (IPS), formed by a policy designed to provide additional levels of autonomy to the public school system. The four-module program, conducted over nine months, focused on strategic thinking, strategic execution and entrepreneurial leadership and supported school leaders to develop both a statement of strategic intent and an implementation plan for the priorities identified within it. The data included school leaders' perceptions of their own strategic thinking, strategic leadership and entrepreneurial behaviour and teachers' perceptions of their leadership teams' strategic leadership and the entrepreneurial nature of the school. Data from an analysis of the schools' statements of strategic intent and implementation plans will also inform the paper.

Background

The term "school autonomy" masks a range of possible implementation options on the continuum from complete centralisation where all decisions and processes are controlled by the central department of education to complete decentralisation where all decisions and processes are decided locally. The argument for local input or even local control of schools in Australia is not new. As far back as 1934 the Victorian Education Department made the point 'It is considered that schools will do their most satisfactory work when they function as community centres, and generally share in community life'. However, it is only in the past 30 years that various systems around

¹ School Based Management trialled in the late 1970s and rolled out in the early 1980s
² Grant Maintained Schools (and Locally Managed Schools) commenced in 1988

the world, such as the Alberta school system in Canada¹, the UK², New Zealand³, Victoria in Australia⁴, Hong Kong⁵ and the USA⁶, to name just a few of many, implemented forms of school autonomy, none of which was like the other. It could be suggested that the nature of the autonomy provided ultimately reflects the values of the government at the time in which it was created, but all the examples had the same underlying aim, to improve student achievement.

The Queensland government specifically identified strategic decision-making and innovative approaches to learning as goals of their IPS school policy to enable them to “have greater freedom to find their own strategic direction and make decisions which will directly benefit their students” as part of their commitment to “providing state schools with greater autonomy in decision-making and increased capacity to work in new ways to maximise learning outcomes”⁷. The concept of strategic leadership has been identified in educational policies in other states of Australia as well^{8 9 10} as a means of addressing the knowledge that schools are now facing increasing complexity, diversity and rapidity of change.

However, what is common in any form of school autonomy is the need for school principals to change their role, from one of managing decisions made by others, to leading the school in ways that establishes vision and direction, and uses processes and practices that encourage others to be more involved in developing and then realising that vision. During the moves towards the higher levels of school autonomy discussed above, many educational leadership theories have been developed and tested, some of which seem to lend themselves more to higher levels of school autonomy than others. Four major educational leadership theories of the past thirty years are instructional leadership, which focuses attention on leadership factors that improve student outcomes (Hallinger & Murphy, 1986), transformational leadership, where the leader transforms the school by inspiring the school community, thus developing a commitment to a common identified vision (Leithwood & Jantzi, 1990), distributed leadership, where the leader encourages other members of the school

³ Tomorrow’s Schools Today commenced in 1989

⁴ Schools of the Future commenced in 1992

⁵ School Based Management commenced in 1993

⁶ Charter schools started in 1991

⁷ Independent Public Schools, Department of Education and Training website, downloaded 14/09/2015

⁸ Department of Education and Training (Victoria) (2016) Strategic Planning: Improving School Governance, at <http://www.education.vic.gov.au/Documents/school/principals/governance/strategicplanningph.PDF>

⁹ Department of Education (Western Australia) (2015) High Performance - High Care: Strategic Plan for WA Public Schools 2016-2019, at <http://www.education.wa.edu.au/home/redirect/?oid=SiteProxy-id-16981120>

¹⁰ Fleming, R. (2015) How to write a NSW School plan using the 5P strategic planning template at <https://blogs.msdn.microsoft.com/education/2015/02/25/how-to-write-a-nsw-school-plan-using-the-5p-strategic-planning-template/>

community to accept leadership responsibilities (Gronn, 2002; Spillane, Halverson, & Diamond, 2001, 2004), and leadership for learning, where the relationship between leadership and learning is explored and where human agency becomes central to promoting the idea that everyone in the school becomes a critical part of a learning community (MacBeath, 2006). Leadership actions, such as those described above might be considered as the “what” of school leadership (it is what leadership does), however, nothing identified in these theories indicates the “how” of school leadership, that is, how the leader goes about the business of leading. Implementation strategies such as instructional leadership or leadership for learning can be seen as two different ways of carrying out the same set of actions (MacBeath & Townsend, 2011). Townsend & Bogotch (2008) argued the case that it is only when the “what” and the “how” are brought together that school leadership finds true success. The aim of the PaSL research was to expand our conceptual understanding of collaborative successful leadership within the context of semi-autonomous schools. It looked at “how” school leaders go about the task of leading after undertaking a professional learning program sponsored by the Queensland government.

The Principals as Strategic Leaders (PASL) professional learning program was a four-module program, conducted over nine months that focused on strategic thinking, strategic execution (Pisapia, 2009) and entrepreneurial leadership (Covin & Slevin, 1986; Pisapia, et al., 2016) and supported school leaders to develop both a statement of strategic intent and an implementation plan for the priorities identified within their schools. Principals from 26 schools, sometimes with others in their leadership team, making a total of 45 people in the cohort, undertook the program. The program commenced in August 2016 and was completed in February 2017. The program contained four modules:

- Module 1: Strategic Leadership Theory and Practice (held on August 1, 2016)
- Module 2: The Strategic Leader Methodology (held on August 2, 2016)
- Module 3: Exploring Strategies to Implement the School’s Intent (held on October 10, 2016)
- Module 4: Innovation Evaluation and Future Planning (held on February 4, 2017).

Due to unexpected changes to the program (with one of the two key presenters passing away after module 2), the number of schools that completed all four modules of the program was 15. The overall expectation was that each principal/leadership team would work with their school community to articulate a statement of intent (purpose, aspiration, values, and priorities) to transform their organisation/team. Then each school was charged with finding and exploiting opportunities to make their intent a reality, with a focus on a specific area of student learning and using an innovative approach to improving learning. Of the final group of 15 schools, 10 schools completed and submitted a Statement of Intent and from this three schools offered to be case study schools for the remainder of 2017.

The study aimed to establish relationships between principal strategic and entrepreneurial capabilities and how this led to the promotion of innovative teaching practices leading to improved student learning. The following research objectives were identified:

1. Do IPS school leaders think strategically?
2. Do IPS school leaders act strategically?
3. Do IPS school leaders use entrepreneurial leadership?
4. Have IPS school leaders established innovative approaches to school improvement (focused on improving student learning)?
5. Has IPS policy increased principals' autonomy?

The research used quantitative methodology to analyse principals' and other school staff's perceptions of principals' strategic and entrepreneurial capabilities. Qualitative methodology was used to collect data from 3 case study schools, visited on two occasions, to develop a fine-grained understanding of the leadership practices that facilitate innovative practice in IPS schools.

The quantitative data included assessment of the program participants' level of strategic thinking (STQ, Pisapia, 2009), their strategic leadership skills (SLQ-self, Pisapia, 2009), their personal entrepreneurial dispositions (EDS, Pisapia, et al., 2016) and the entrepreneurial orientation of the school (EOS, Covin & Slevin, 1986), all collected through self-reporting. Participants were also asked to identify a selection of staff from their school, including leadership team members and teachers, to enable data to be collected on their perceptions of the strategic leadership skills of the school leadership team (SLQ-other, Pisapia, 2009) and the perceived entrepreneurial orientation (EOS) of their school.

Qualitative data included Statements of Strategic Intent (SOI, Pisapia, 2009) that participants developed during the program and wished to use for their school in 2017 and copies of Implementation Plans for putting these into practice. In addition, qualitative data was collected from three case study schools that were tracked as they implemented their statement of intent over the course of 2017. Case study schools were visited twice and principals, other school leaders and teachers were interviewed. In one of the case study schools, where improvement of school-family interactions and relationships was the aspiration, parents were also interviewed.

Results

Quantitative Data

The Strategic Thinking Questionnaire asked respondents to consider how often they used a particular skill when they had difficult decisions to make. The skills aligned themselves with three categories of thinking, systems thinking (thinking about the big picture), reflecting (considering actions already undertaken) and reframing (putting things not understood a different way so that they might be better understood). The results for the group of 48 participants in the PaSL program are contained below:

	Systems	Reflecting	Reframing
PaSL (n=48)	4.02	3.99	3.77

Table 1: Results of the Strategic Thinking Questionnaire for PaSL participants

A comparison with previously conducted studies indicates that both systems thinking and reflecting is stronger in the IPS group than in other studies conducted in the USA, Asia and Europe, both from those completed by school leaders and also those with business executives. Reframing was at a similar level to that in previous studies. This suggests that IPS leaders, have strong sense of the necessary connections, both within and beyond the school, one the one hand, and on the other that reflection, notable in the educational literature as an important skill for both teachers and leaders, is also well developed in IPS school leaders.

The Strategic Leadership Questionnaire asked respondents to consider how often they used a particular skill when they had difficult decisions to make. The skills aligned themselves with five categories of what Pisapia called leadership influence actions, Transforming (leading to initiate change), Managing (leading to ensure stability), Bonding (leading to relate to others in the organisation), Bridging (leading to reach out to other groups) and Bartering (leading through the use of negotiation). The results for the group of 40 participants in the PaSL program and for 61 teachers that completed the survey online are contained below:

	All IPS leaders (n = 40)	All IPS teachers (n = 61)
Transforming	4.41	4.50
Managing	4.12	4.21
Bonding	4.27	4.50
Bridging	4.08	4.17
Bartering	3.73	3.80
Overall	4.12	4.23

Table 2: Results of the Strategic Leadership Questionnaire for PaSL participants and Teachers

The results show that the perceptions of both school leaders in the IPS program and teachers from their schools are very similar for all of the dimensions measured, although teachers overall saw their leaders as actually using the strategic leadership influence actions at a slightly higher level than their leaders saw themselves as doing. A comparison with previous studies showed that the PaSL group's self-reflection on their leadership actions was lower than that in previous studies of school leaders, but similar to that of previous studies, for managers, executives and non-profit leaders.

The Entrepreneurial Dispositions Scale asked respondents how frequently they used a particular action when they performed their role as a school leader. The responses to the questions aligned themselves with three dimensions (risk taking,

proactiveness and innovativeness) reflected the Entrepreneurial Orientation Scale, used for organisations. In addition, respondents were asked to consider a fourth dimension that asked their view of their own, and their schools', autonomy to make decisions. The results for the group of 48 leaders in the PaSL program are below:

	All IPS leaders (n = 40)
Risk Taking	3.58
Proactive	3.53
Innovativeness	3.75
Entrepreneurial Disposition	3.75
Do You have Autonomy?	4.24

Table 3: Results of the Entrepreneurial Dispositions Scale for PaSL participants

The data show that school leaders involved in the IPS program only saw themselves as being moderately entrepreneurial. The mean scores for each of the dimensions show that the most common responses were 'undecided' or 'agree' for risk taking and proactiveness, with a slightly higher score for innovativeness. However, school leaders generally agreed with statements associated with autonomy with all results being between 'agree' and 'strongly agree'. This suggests that although school leaders generally feel that they have autonomy, that they are still not as comfortable with actually using the skills associated with entrepreneurial behaviour.

The Entrepreneurial Orientation Scale asked respondents to consider on a seven-point scale a series of statements about their school that reflected a continuum of entrepreneurial activity. The responses to the statements aligned themselves with three dimensions, risk taking, proactiveness and innovativeness. The results from school leaders in the program and 59 teachers who completed the online survey are below:

	All IPS leaders (n = 40)	All IPS teachers (n = 59)
Risk Taking	4.46	6.36
Innovativeness	4.76	5.15
Proactiveness	4.73	4.79
Overall	4.63	4.89

Table 4: Results of the Entrepreneurial Orientation Scale for PaSL participants and teachers

The data indicate that teachers of IPS schools saw their leaders as being more entrepreneurial than their leaders saw themselves. Although teachers and leaders had similar mean scores for proactiveness, teachers were significantly higher in their agreement that their leaders were risk takers and were innovative.

In summary, those involved in the PaSL program often used systems thinking and reflecting, but less often used reframing, when anticipating changes and then articulating a way forward. Both school leaders and teachers saw school leaders use transforming and bonding actions as their key strategic leadership influence actions, with bartering the action that is used least often. PaSL leaders saw themselves as having a good level of autonomy, but despite this, did not see themselves as very entrepreneurial, however, teachers did indicate that they saw their leaders as being both risk takers and innovators.

Qualitative data

Statements of Intent were received from ten schools. Each Statement of Intent contained a statement related to the context of the school, a Vision, a Statement of Purpose, Core Values, an Aspiration, and a Priority or Priorities. Although there was a common template for putting together the SOI, each school had responded to this in a unique way. The mission or vision statements of the schools, fell into three main categories, support for student learning, a focus on teaching practices and teacher development and a focus on leadership and the environment in which students were learning. Student support was identified either through achievement statements or through the development of other skills. In addition to the mission or vision statements, schools were asked to identify the values that they held for their community. The values expressed included those associated with student achievement measures, but also included a number of other social, community and personal skills. Mission, vision and values statements were then translated into statements of aspiration, which again focused on three areas, student-based aspirations, aspirations about the school environment and aspirations about the way leadership would be developed. Specific priorities reflected the various statements and values referred to above. Some focused quite specifically on student achievement issues, in many cases in the literacy or numeracy areas.

From the Statements of Intent, schools then developed implementation plans that would enable them to achieve the intent identified. Examples of priority actions included:

- Literature search to identify evidence-based approaches for teaching mathematics.
- Feedback sessions regarding teacher interest in engaging with new ways of teaching mathematics.
- Consideration of existing teacher self-efficacy about teaching mathematics
- Professional development program for teachers in the use of neuro-science based teaching strategies.
- Consideration of options that teachers feel open to testing as they apply to teaching mathematics

Some schools went further, considering the various leadership influence actions necessary to ensure that the priorities identified were implemented successfully.

In summary, schools identified specific issues with student learning and achievement, with two schools having a focus on Reading and two on Numeracy, however, others

focused on improving the school environment, developing student well-being or promoting 21st Century learner skills. Yet other schools had more general approaches, with one focused on improving the use of data across the school, another focused on distributing leadership more widely across the school and a third focused on developing improved trusting relationships between teachers and parents. Every school identified something that was specifically of interest and value to their school community and had developed a plan to ensure that the focused objective was achieved.

Case Studies

To establish a much more nuanced understanding of how school leaders went about implementing their chosen intervention, data was collected from three case study schools. Each school was visited twice, in May and November and data was collected from the principal and other school leaders, from teachers and, in the case where the school had identified building a stronger relationship with parents as the intervention, with parents as well. The schools also supplied documentation that supported the implementation activity.

School 1 is a primary school about one hour west of Brisbane. The school's chosen innovation is to improve teacher and parent understanding of the role that each played in the development of highly successful students and to further develop the relationships between home and school in ways that will support improved student engagement, learning and achievement. In summary, school 1 was an excellent example of both strategic thinking and strategic leadership. Strategic Thinking started from the data related to a changing demography, with changing expectations, and the leadership team identified the need to enhance the relationship between teachers and parents in ways that created a partnership approach to improving student outcomes. Other data told the school leaders that attendance was a problem and that this contributed to some students not achieving. Two major entrepreneurial initiatives were undertaken, the Performance Pact and the Latte Lounge, the former to address, specifically, attendance issues and the latter as a means of communicating what the school was trying to do with parents. The performance pact was an agreement between the school and families that if your child attends the school for 95% of the time, and is not succeeding, that the school will provide additional supports for the child to bring them up to expectations. The Latte Lounge both enabled the school to inform and engage parents, but also enabled parents to raise any issues that they wanted to have addressed. Strategic execution of these two main avenues towards higher levels of student achievement involved transformation (the culture of the school changed), management (expectations were identified and enforced), bridging (connecting teachers and parents in different ways) and bartering (higher levels of teacher-parent interactions during the year meant that annual student reports could be simplified). The leadership team recognised that bonding, especially reaching out to teachers to support them through this ongoing process, was an issue that needed additional work.

Overall, however, school leaders, teachers and parents alike, were positive about the steps that the school had taken and were confident that what had been accomplished in 2017 can be further built on in years to come.

School 2 is P-12 College about two hours north of Brisbane. The school's chosen innovation is the development of improved teaching and learning of reading right across the college as a means of improving student achievement in all subject areas. In summary, school 2 had identified a focus on reading as being a key strategy for moving the school forward and the plan developed supported a literacy coach for teachers, a professional learning program (Tactical Teaching Reading) for secondary teachers and the development of Professional Learning Improvement Committees as specific actions to support the achievement of their identified goal: "All students will be able to read in all classes at the desired level to meet their individual learning needs." In addition, funding was allocated to take teachers offline to plan and to assess their data. Strategic execution of these two main avenues towards higher levels of student achievement involved transformation (new whole school focus based on the 2020 Vision), bridging (building connections between the primary and secondary sections of the school, to parents and to other early years agencies), bonding (through a book club and active cross school involvement in professional learning) and bartering (providing the resources to enable higher levels of teacher interactions). However, teachers saw management actions being used less than school leaders did and there was a tendency for the principal to do things himself (like drafting the SOI and implementation plan) because it was easier than to get others to do it. Data collected from the head of the junior school and from the literacy coach indicated that there had been progress made in the primary school, with one project, where two teachers creatively grouped their two classes at times, seeming to deliver the desired goal. There was also evidence that those involved in Tactical Teaching Reading, designed to further support reading development for middle school students, had benefited from the activity and had improved their teaching skills. However, the evidence suggests that teachers from a number of discipline areas had not chosen to be involved in this activity and that some heads of departments were also less than willing to promote the approaches identified. Progress has been made, but only by those that have chosen to be involved. This suggests that further school-culture based discussions are necessary to ensure that the school develops, promotes and implements a shared moral purpose that underlines the need for a consistent and continuous focus on reading.

School 3 is a primary school about three hours north of Brisbane. Their chosen innovation is to move the school culture from being "data rich" to being "data and research informed and responsive" in ways that would support improvements in student achievement. In summary, school 3 had identified the need to use data better as a means of encouraging higher levels of student engagement, learning and achievement. It was not that there was not enough data, in fact there was possibly too much, but the use of that data was minimal and superficial. The principal was faced with a compliant staff that simply wanted to be told what they needed to do,

so what was required was a cultural shift that would see teachers taking more responsibility and be more actively engaged in decisions about looking at data and using it to make decisions about student progress. The development of teachers as reflective practitioners became a focus. The Strategic Thinking results showed that school 3 leaders were strong system thinkers, but less likely to be reflective or to be able to reframe things. To put this whole school approach in place, the leaders developed an innovative way of connecting identified goals, approaches and strategies and underlying pre-conditions through the use of disciplinary-based tree diagrams. These became a focus for professional conversations and for targeted professional learning. These were used as a starting point for the development of reflective practices, including steps towards a deprivatisation of teaching in the school. Specific actions that took place included a quite focused approach to improving teachers' abilities to use data and the employment of replacement teachers to enable staff to be taken offline to have these data-based conversations. School leaders used the strategic leadership influence actions, transforming (changing the school culture towards a more deprivatised practice), managing (making sure that other leaders were empowered to carry out responsibilities), bridging (reaching out to make staff comfortable with change), bonding (building relationships through listening and getting feedback) and bartering (providing resources to enable the teachers time to build the skills being asked for), as a mechanism for establishing a cultural change in the school, one that had changed the relationships between teachers, had made them more data conscious and reflective, and had seen increases in student engagement and enthusiasm with the likelihood of improved learning outcomes in the future.

Findings

Finding 1: Do IPS school leaders think strategically?

The data indicates that systems thinking was generally the most highly rated skill, although there were no statistical differences between that, and reflecting, for IPS leaders. Reframing was seen to be less likely to be used by IPS school leaders. A comparison with previous studies indicates that both systems thinking and reflecting is stronger in the IPS group than in previous studies, collected from both school leaders and business executives and that reframing is similar to that in previous studies. The case studies identified many instances of where the strategic thinking approach had been used to develop statements of intent. The finding is that IPS school leaders think strategically at about the same level as has been found in previous studies and in the case of the current study, strategic thinking has been used to identify and articulate statements of intent and specific aspirations that are appropriate to their school.

Finding 2: Do IPS school leaders act strategically?

The data shows that although the PaSL group used leadership influence actions that are congruent with previous studies, although did not to the same extent as studies

that previously targeted school leaders. Except for the management actions, they do use transformation, bonding, bridging and bartering actions more than leaders in business or community agencies. Both transforming and bonding actions are particularly strong. Data collected on the perceptions of teachers from their schools are very similar for all of the dimensions measured, although teachers overall see their leaders as actually using the strategic leadership influence actions slightly more than their leaders see themselves as doing. The case study data showed that each of the schools investigated had used each of the five leadership influence actions as strategies for implementing the statement of intent. It was clear that the strategic leadership actions were consistently applied to enable the best chance of success for the goals that each school had identified. The data from the secondary school in particular indicated that developing the skills of bonding, bridging and bartering is critical if transformation is to occur.

Finding 3: Do IPS school leaders use entrepreneurial leadership?

The data suggest that school leaders involved in the IPS program only saw themselves as being moderately entrepreneurial. They were most supportive of themselves as being innovative but were less sure about their level of action as risk takers or in being proactive, even though they saw themselves as having the autonomy to be so. However, teachers of IPS schools saw their leaders as being more entrepreneurial than their leaders saw themselves. Teachers saw their leaders as risk takers and being innovative, although they had similar scores for proactiveness. The case study data showed that whereas the primary schools had been innovative that those that tried to be innovative in the secondary school had experienced push-back and some levels of frustration. This suggests it is necessary for leaders to be proactive and since this was the entrepreneurial skill seen by teachers as the one used least often perhaps further work in this area might be considered.

Finding 4: Have IPS school leaders established innovative approaches to school improvement (focused on improving student learning)?

The data show that the development of the statements of intent supported schools to consider a range of possible aspirations that supported student learning in a variety of ways. These fell into three main categories, support for student learning, a focus on teaching practices and teacher development, and a focus on leadership and improving the environment in which students were learning, including working with families. Each school had a different aspiration that reflected the needs of their school community, but all had the underlying purpose of improving student learning. In turning these into practice, the case studies demonstrated a number of innovative approaches (referred to above) that focused on their three specific aspiration statements, “to build positive partnerships and parent engagement” (school 1), that “All students...will be able to read in all classes at the desired level to meet their individual learning needs” (school 2) and to transform “the school from a data rich culture to a data informed and responsive culture” (school 3). The importance of

sharing strategies for supporting change in an innovative environment is clear. School leaders don't need to start over again. Sharing stories may help school leaders to establish patterns of leadership that work right across the system.

Finding 5: Has IPS policy increased principals' autonomy?

The data suggests that school leaders generally agreed with the statements associated with autonomy and this scale received an overall mean score of 4.24 on a 5-point scale. This indicates that they saw themselves as having a moderate to high level of autonomy under the IPS system. However, the interview data highlighted that the IPS policy was more about authorising principals to show autonomy that they previously may have had, rather than giving them anything new. When the data that looks specifically at autonomy are compared to the data that looks at entrepreneurial behaviour, it could be argued that even though principals see themselves as having autonomy, that at this stage, it may not be being utilised as much as it might be. It is also the case that teachers see their school leaders as being much more entrepreneurial than school leaders see themselves, especially as it applies to risk taking and innovation. The overall finding is that the IPS policy had provided principals with more autonomy because they felt they could now do things they couldn't do previously, without consulting someone outside the school first. This did not mean that they still didn't use the services of regional and central leaders, it just meant that it was their choice to do so, rather than having to do so previously.

Conclusion

The implementation of the PaSL program and the subsequent research demonstrated that school leaders in IPS schools in Queensland used strategic thinking at slightly higher levels than in previous studies but used the strategic leadership actions to about the same extent as those found in previous studies. In terms of strategic thinking, IPS leaders had a strong sense of systems thinking and leaders used reflection at higher levels than previous studies. The least used of the strategic thinking elements was reframing, the ability to put things in a different light in order to enable additional people or groups to understand the importance and perspective of what is being considered. Given that school leaders need to work with a number of different groups in the school, including teachers, students, parents and members of the wider community, this skill perhaps needs to be further developed in the future.

IPS school leaders had similar results to those in previous studies when it came to using the strategic leadership influence actions of transforming, managing, bonding, bridging and bartering. However, teachers saw their leaders using these actions at slightly higher levels than did their leaders. Those that were used most often were the transforming and bonding actions, with managing and bridging actions being used at a slightly lower level. Of the five actions, bartering was one that was used least often. The case study data reinforced what was found in the qualitative data, where both school leaders and teachers alike highlighted the actions being taken to transform the

school and the efforts that school leaders had made to bond with various groups, both inside and outside of the school. It may be worth considering further support for school leaders to develop ways in which they might manage the process of transformation, and to build their negotiation skills, with teachers, parents and the community, to ensure that the Department's goals of improving student learning are achieved.

It was less clear from the quantitative data that school leaders were behaving entrepreneurially. School leaders saw themselves as having autonomy but were not yet using it to the full extent. They saw themselves as being proactive and innovative and to a lesser extent they took risks. However, their teachers had a different opinion. From their perspective, their leaders were risk takers and innovative but were less likely to be proactive. Such a result may stem from moving from what may have been seen as a hierarchical culture to one where more decisions are made locally. For school leaders, being innovative and proactive is not seen as taking risks, but for teachers, who may be pushed out of their comfort zones, any innovation might be perceived as a risk to their way of doing things, something reinforced by the case study data. This suggests that further work needs to be done to support school leaders and teachers through the change process. There perhaps also needs to be further consideration given to how a culture of innovation can be facilitated within schools that do not have the IPS banner to support them.

The statements of intent from schools and the subsequent implementation plans developed to bring them about provided testament to each school being capable of identifying its own priorities and working through the issues that need to be considered in order for them to be undertaken, which was one of the main goals of the IPS policy. It could be argued that the aspirations identified by each school involved, could equally well be aspirations for all other schools in the system. Some were focused on student learning, others on data development, others on changing teaching practices and yet others on building relationships with parents. These are all issues that every school must deal with at some stage or another. The benefit of the PaSL program was that it gave each of the schools a common approach to deal with their identified aspiration.

In conclusion, the Principals as Strategic Leaders program made an impact on those schools that have followed through on the materials and strategies identified in the program. The three case study schools have provided a rich collection of information about how principals, and their leadership teams, have gone about the process of strategically identifying, articulating, planning and implementing a change in their school that would impact positively on the students they taught. As the case study material describes, each school had very different needs, very different circumstances and came up with very different ideas as to how to improve their school. Two of the three schools are well on the way to achieving their aspiration and the third school identified a particular issue that the Education systems around the world may wish to work through, namely, how does one embed innovative change practices across the system as a whole and how does one ensure that discipline teachers at secondary level also responsibilities to students beyond their discipline area?

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CAN TEACHER EMPOWERMENT CONTRIBUTE TO BETTER LEARNING?

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Empowerment in education is often recognized as teacher effectiveness. This paper focuses on the question if teacher empowerment also will contribute to better learning? The assumption is that teachers who freely design and control their daily work are more effective than teachers who feel vulnerable and powerless when they face challenges in everyday work. Empowerment may provide increasing awareness of useful methods and strategies for teaching. To achieve this, teachers need to reflect on their situation and learn from other teachers in order to find new solutions in dealing with unwanted behavior. Reflecting Team has proven to be an effective method to start reflective processes and collaboration among teachers. By increasing their skills in communication and the teachers will find new ways of teaching, aimed at better learning and greater fulfillment of education goals. Discovering new perspectives may lead to a difference that makes a difference (Bateson, 1972)

In this article, we wish to discuss whether mentoring using reflecting teams can help to raise awareness of teachers' possibilities to develop and strengthen their competence and talents in their teaching. Research shows that the relationship between teacher and student is crucial to the learning process. This means that the teacher is one of the most important factors in relation to student learning (Hattie 2009, 2012). In order to succeed, teachers should be able to use all sides of themselves in their teaching. The academic level should be high, but so should the teacher's belief in combining knowledge dissemination with cooperation, management and care skills and other skills in the learning process. Whether or not a student succeeds at school could also depend on the teacher's perception of himself and his competence. In addition, the teacher must be strong enough to use all his qualities and skills in such a way that the teacher's ability to use his qualities influences the learning environment. In a postmodern society (Bauman, 1991) where education and the authorities' requirements as regards school results could be very important

to a positive development, it may be a dilemma that the teacher's tasks are becoming increasingly academic (Meland, 2011). The risk that the primary task of the educational system becomes to produce results could force teachers to use instrumental solutions to teaching-related problems rather than combining reflection and knowledge and making considered use of all their skills to provide education adapted to the needs of all their students (Klemp, 2013). In this article, we look at how teachers' opportunity for further development of their competence and qualities through mentoring contributes to empowerment (Chally, 1992; Segedin, 2011) and allows for sufficient freedom of action to create change where necessary and help to justify good practice, which is also part of the empowerment philosophy discussed in this article.

The school system is evaluated and measured by political authorities that use target figures to distinguish between schools (Prenzel, Kobarg, Schöps & Rönnebeck, 2013). It is debatable whether this helps to promote learning or whether such pressure to produce results is harmful to learning processes, for example when a focus on target attainment is used to justify financial sanctions if targets are not met. In Norway, there is also a system that highlights individual teachers in schools who, in addition to their teaching duties, are required to function as resource persons above and beyond what is expected of other staff at the school. Teachers normally have a heavy workload with strictly defined duties and areas of responsibility. This can cause stress and contribute to negative unease in the workplace. Empowerment can act as a counterforce against the factors that draw attention away from the teacher's most important tasks (Ginnodo, B, 1997). Heavy workloads in combination with increasing demands for focus on results is a drain on energy and could affect interaction in the learning process. The idea behind strengthening empowerment in teamwork is to boost ideas and create the energy required to achieve better learning.

There could be reason to examine whether peer mentoring (Midthassel, 2003) can help to make the teacher even more competent and thereby benefit both the teacher's teaching and students' learning. The teacher specialist initiative entails a risk of dividing the staff into different classes rather than promoting solidarity and collective solutions.

In this article, we look at how a research group at Østfold University College, in collaboration with primary school teachers, has cooperated on reflective processes in mentoring, both in relation to challenges faced by individual teachers and in relation to cooperation in a team of teachers (Sträng, Sørmo & Navestad, 2016). Reflective processes take place over time and develop through systematic reflection aimed at stimulating good ideas and creating learning, both between teachers and in terms of the children's freedom of action. Mentoring allows for a new way of thinking about teaching. On this basis, we wish to find out whether reflecting team mentoring can contribute to promoting empowerment in a school, so that teachers can increase their cooperation and teaching capacity and help to create a better learning environment.

From therapy to mentoring in an education context

Reflecting team mentoring is part of a process of reflection (Andersen, 1987). This process is about time and about how teachers, through communication and reflection, can arrive at expedient solutions. Schools often tend to find individual interpretations and explanations for things that are perceived as problems or undesirable challenges. If a child is perceived as difficult or as having learning difficulties, the prevailing view has often been that learning difficulties and restlessness at school originate with the students themselves rather than in the system of which the student is a part (Eriksen, 2008). In this way, students' socio-emotional difficulties and individual challenges are linked to diagnoses; something that the children somehow carry with them (Ogden, 2002; Sørli, 2000).

We use the term socio-emotional challenges to describe children and young people who have a tendency to fall short of their family's and society's expectations of adequate behaviour due to various social or emotional stresses (Befring 1997). According to Befring, such behaviour is also described as restlessness and learning disorders, and is often most common in boys. There may be reason to ask whether the present school system is less suited to the present situation than it was when only a small percentage of the population received an education or whether there is something wrong with children and young people who cannot cope with the social and emotional challenges of being together in such groups for a long time. Such behaviour can give rise to concern and have a disruptive effect. Is there reason to see this as a deviation or disease that requires diagnosis and treatment?

Opinions differ about everyday experiences in kindergartens and schools. Sometimes, different cultures exist where individuals are perceived as more or less legitimate leaders. Some of them are more dominant than others. This could contribute to a culture characterised by sub-cultures that prevent good teamwork and good solutions, both in planning and teaching (Blase, 1991; Sträng, 2011). In such cases, language can also be part of a domination technique used to control other people's views and thoughts (Hargreaves & Dawe, 1990; Glasø, 2008). The parent group is also an important part of children's overall system, both in kindergartens and at school. As a result, the leadership role is challenged in a new way that was unknown a few decades ago. Since society is changing rapidly, the same applies to kindergartens and schools.

Understanding change and keeping up to date professionally is crucial in such a change culture. It is equally important to question what is happening and how actions and attitudes influence everyday life. Mentoring using the reflecting team method provides opportunities for thinking differently and finding new ways forward in a complicated world (Andersen, 1991)

Empowerment – the opposite of paternalism

It is difficult to find a Norwegian equivalent for the term ‘empowerment’; it must be explained on the basis of the context in which it occurs (Page & Szuba, 1999; Zimmerman, 1981). In our context, we often use the word to mean to strengthen something that is weak or give power to someone who is powerless. It can also be used about giving people back power of decision and responsibility for their own lives. In healthcare, it can be used about motivating patients to find their own strength and will to get well (Perkins & Zimmerman, 1995). In an organisational context, it is often used to describe taking active action as opposed to resignation and powerlessness when faced with everyday challenges (Askheim & Starrin, 2007; Yukl & Becker, 2006).

Another term used as an antonym to empowerment is paternalism (Grill, 2007). Paternalism is based on the idea that people don’t know what is best for them. Empowerment is about reclaiming this power or authority. Empowerment enables people to create change and experience the mastery that is necessary to face challenges and problems.

The term empowerment is also linked to language and how it is used (Klopper, 2002). This is not about different linguistic categories, but about the content of the words chosen to express an emotional or mental state. The words are linked to the person’s thoughts. By choosing between the different words available, thoughts are structured into a meaningful form. In the empowerment context, encouraging and constructive words can of course have a different meaning from words that limit activity and freedom of action. This can be crucial in a mentoring situation, particularly when the mentee wants to talk about setbacks and adversity. In mentoring situations focusing on empowerment, the goal of the mentoring is to identify opportunities and look for concepts and actions that promote empowerment. In school, this is about bringing about changes in practice, better teaching and better learning (Lazarova, Sträng, Jensen, & Sørmo, 2016).

Instrumental or reflective teaching?

The opposite of an instrumental approach to actions is a process of reflection (Andersen, 1991). A classroom teaching session can be carried out according to a template without taking into consideration how the teaching is perceived or whether learning actually occurs. A lesson can be planned based on a structure and goal without thinking through the significance of professionalism and its relationship to the learning situation. The teacher can perform an act without asking himself whether he is successful or whether what he is teaching is being understood. The teacher’s own view of the structure of the lesson and the way in which it was taught could be that it was well executed, without considering quality or other assessment criteria. If this form of teaching is unsuccessful, that it not because the teacher has failed the students, but because the students are poor students, lack concentration or ability,

or were incapable of following the structure and plan for the lesson. The teacher might perhaps argue that the lesson was perfectly taught and that he followed the textbook to the letter?

A teacher who is familiar with learning theory from educational science will start a thought process about the challenges presented by the teaching and the topic long before the lesson starts. He thereby initiates a reflecting process, an action that will develop into quality over time. Such a process can nevertheless have several qualities and be part of the process of developing the students' as well as colleagues' competence. In our context, we have linked this process to mentoring, where the reflecting team method is used to continue work on improving the quality of teaching. A mentee could get many ideas from mentoring. These ideas must be processed, and then selected and tested. This process is a process of reflection aimed at creating the best possible learning arena and a good learning environment for all kinds of students, including those with special learning-related and behavioural challenges (Sträng, Sørmo, & Navestad, 2016).

Mentoring using reflecting teams promotes empowerment

Reflecting team is a method used in different contexts (Skjerve and Reichelt, 2009). It is used both in psychological therapy and family therapy as a tool for bringing out different opinions and points of view. Tom Andersen's (Andersen 2005) idea concerns how the language and words people use in reflecting mentoring can help people to clarify and understand their own thoughts. They could be ideas or events that the person has not been aware of before. Through mentoring, the mentee is challenged to identify justifications and voices that the mentee has been unaware of. Others sit and listen, and can provide feedback on what is said and ask questions and reflect on how the words are presented. This provides new perspectives and helps to strengthen the mentee's empowerment. At the same time, such a conversation gives ample opportunity to listen to one's own thoughts and also to check how others perceive them. In this context, it is therefore possible to adjust the impression given to arrive at as correct a version as possible of the conversation.

We all have many words to choose from when we speak, but people have to make choices in order to get their meaning across. Meaning is created when words are combined. Such reflection focuses on mastery and on coping well with everyday challenges. By listening to answers to open questions, the mentor tries to identify what should be discussed more and what things are less important (Anderson & Jensen, 2008). Kierkegaard claims that the ability to listen and try to understand what is in another person's thoughts can be a challenge and a precondition for understanding the other. This is seen as an undisputed truth (Pedersen, 2007).

Through such reflection, many voices inside the mentee will attempt to make themselves heard. The reflecting team provides an opportunity to listen and reflect on everything that is said. The thoughts can be confused and disorganised but, by putting them into words, they can be tidied up so that the words help to create

meaning. The person talking can hear himself think (Andersen 2005). In a therapy setting, this provides an opportunity to understand oneself and one's own experiences in a new way. Thoughts become words that express both frustration and positive emotions. This makes it easier to face such a reality with new strategies that enable the talker to understand and act according to a different or new pattern. This could be a road to empowerment for the mentee.

The reflecting team's task during such mentoring is not to solve other people's problems, but, through reflection, to help the mentee to find his own solutions. The team's mission is to pay positive attention to the words spoken, the meaning behind them, what it might be wise to talk more about, and to be supportive of thoughts that show a shift towards new and different ways of thinking. The team's job is not to discuss and arrive at new solutions, but to actively support the mentee in finding them for himself. Since the team is also placed behind an imaginary curtain, they are present without being present. They only communicate with the mentor. The team is placed in such a way that they do not distract the mentee, which makes it easier for the mentor to have the mentee's undivided attention. Since the reflecting team cannot communicate with the mentee, the mentee has the opportunity to listen and reflect in peace on how the others perceived the mentee (Andersen, 2005). This, in turn, could facilitate further clarification of what the mentee really means. When there are many people present during a mentoring session, it could be crucial to ensure that the conversation is on as equal terms and as balanced as possible. This balance can easily be disrupted when many are present. The invitation gives the team an opportunity to wonder and comment on every aspect, from the practical and physical level to the metalevel. The mentoring concludes with a summary and concrete measures, and often with a schedule for follow-up, if any (Skjerve & Reichelt, 2009).

It is a natural idea to use reflecting teams to strengthen the philosophy of empowerment (Somech, 2005). However, unlike understanding and finding a way out of a difficult life situation, this is about assessing and understanding one's own professional actions and planning new ones with a view to improving one's actions. It is about fresh thinking and giving the teacher confidence that he is on the right path or is planning in a constructive manner towards the next learning arena. It may also be important that such mentoring allows the mentee to see connections in a new and systematic manner. The mentor practises listening to what is really being said and is challenged to interpret this into his own notions and contexts (Sørmo & Sträng, 2015). Awareness of the difference between hearing or listening and hearing and listening attentively could be crucial. The mentor listens for connections and what it can be useful to talk more about and what will not be productive. Listening is part of the mentor's observation. Body language and tone of voice can help to confirm or refute statements to which attention is drawn that could form the basis for new questions. For example, the mentor can ask why the mentee is happy or sad when he touches on a certain topic, or why the mentee sighs or shows signs of restlessness during a conversation. This is precisely why the

analogue language of a conversation has a completely different quality from the digital written language, which consists of signs alone. Summarising, paraphrasing, confirming and asking questions help to get to the real meaning of the conversation. This way of working converts the therapeutic element of the conversation into a teaching aid that contributes to empowerment and fresh thinking.

Reflecting team – a method that promotes empowerment

The reflecting team method originated in the field of therapy, where it has been developed into a useful tool in family therapy (Andersen 2005). However, since the school system does not engage in therapy, the issues will be different. We view this method as a tool for strengthening and justifying work processes, and we will return to how this is done below. Through our way of envisaging the method being used in an education context, we convert it into a mentoring tool for teaching practice. Our experience so far has yielded interesting information about whether this is possible (Sörmo & Sträng, 2015). Even in therapeutic contexts, the method is primarily used as a mentoring method that place the mentee at the centre for the mentoring with a view to promoting empowerment (Skjerve and Reichelt, 2009). It is not the mentor's help that is important here, but how the mentee finds a way of resolving his own challenges based on input from others.

The invisible curtain – furnishing for reflection

Skjerve and Reichelt (2009) refer to different ways of doing this, both by the team proposing possible solutions and by the team being located in another room. In our context, it has been important to emphasise how the mentoring room is furnished and where the different participants are placed during the mentoring session. In order to emphasise the importance of the mentee relating to the mentor, we have placed them opposite each other. We have often placed a table between them to help them feel comfortable and to respect their personal space. Originally, the reflecting team was placed in another room, from which they could see and hear the mentoring. This practice is still used in some contexts (Skjerve and Reichelt, 2009). In our model, we have brought the team into the same room and placed it in such a way that it does not distract the mentee more than necessary. The mentee can hear the team, but cannot talk or discuss with them. In a way, an imaginary curtain is drawn between the mentee and the team during the session. The mentor has the mentee's undivided attention. It is also up to the mentor to involve the reflecting team once the mentoring session has progressed so far that it can be interesting to hear their observations and thoughts about what has been said. The 'curtain' is then drawn aside, and they are all together in the same room (Andersen 2005). During this conversation, the mentee has time to listen and hear how what has been discussed in the session so far has been perceived, but still without being allowed to talk to the reflecting team.

Use of reflecting teams by school management

The most important aspect of practising the teaching profession is to create meaning, both for the students and for the teachers who contribute to learning. It is easy for teachers to become dispirited when their workload is increasing, the freedom of action to deal with restlessness is limited, and it feels uncomfortable to ask others to intervene or help. The road from dispiritedness to burnout and despondency may be short. It is important to students to have a teacher who is capable of using all his qualities, both his professional expertise and his ability to create good relations and working conditions for the students and himself. That is why the teacher needs confirmation that what he is doing is helping the students in their learning and that the boundaries that he sets are in line with the rules for behaviour and manners that the authorities expect. It is the school management's job to facilitate such opportunities and to take responsibility for it. This could mean facilitating cooperation between teachers and putting together functional teams. If such cooperation is also concerned with creating a basis for preparedness by fostering empowerment, the teacher team can use the reflecting team method to develop this. This could in turn relieve the school management, which is responsible for the schools' educational activities.

Time-related obstacles

What obstacles can a school encounter when working on fresh thinking in its day-to-day activities? The school system is tailored to a pattern where time is a dominant factor. The students have their allocated time for teaching and other activities, and the teachers are bound by the duties defined in their employment contracts. Teachers are often alone with a large group of students and have little opportunity to create room for reflection and mentoring. Many teachers find that they do not have time for tasks other than those for which time has been allocated within the available timeframe. Most teachers are also allocated preparation and assessment time, which is tailored to the working hours at their disposal. Teachers often feel that further and continuing education and cooperation with parents and other public agencies must take precedence over new ideas and reform work. The time factor is often cited as a stressor in relation to all the duties that a teacher's day-to-day work involves. For the school management, it is also a matter of finding time for mentoring and follow-up of the school's many challenges. The school owner expects reporting and contributions to school development. In addition, time is also needed to deal with parents and guardians and to resolve conflicts between students, their families and school staff. The pressure from the school owner adds to the pressures of day-to-day challenges. There is a considerable risk that the school manager will end up in a kind of hostage situation, caught between these forces (Sträng, Sørmo, & Navestad, 2016).

Conclusion – strengthened professionalism

On the basis of observation, logs and interviews, we see that participants have benefitted considerably from these processes in terms of empowerment (Sørmo & Sträng, 2015). Participants in individual mentoring sessions and reflecting teams claim that the reflection and mentoring have enabled them to meet new challenges and strengthened their professionalism (Sørmo, 2015). Experience from the reflection process expressed during mentoring has strengthened the participants' confidence that they have developed their teaching more than before and contributed to openness and cooperation in their own work team. Some have also stated that it feels liberating to have the opportunity to talk about their work situation and hear their colleagues talk positively about the things that are important to them in their day-to-day work. All the participants consider the experience a positive one, even when they have touched on challenging and emotionally stressful topics. In the logs, they also show that they have gained in terms of personal strength from being asked about their own opinions and that this has helped them to be braver and think more professionally. The logs also show that the teachers feel that their students end up with better a teacher at the end of the project.

According to Bateson, everything is communication (Bateson 1972). Not all communication is equally expedient, however. In this context, we see that communication can also represent an obstacle if it causes anxiety and misunderstandings. Bateson's famous words that information is 'a difference which makes a difference' also means that some differences are more important than others (Andersen, 1991, 2005). Communication that expresses what the mentor really intended therefore makes a fundamental and significant difference. Using the reflecting team method can make it easier to find the strength to justify actions that have been taken and to plan future measures in an adequate manner. This opens up opportunities for fresh thinking, which in turn helps to strengthen the mentee's professional role in kindergartens and schools. We have seen that this helps teachers to regain confidence in their own strength and find new solutions and possibilities, and enables them to plan and execute teaching activities and function well as part of a team. Based on our material from projects carried out in primary schools, reflecting team mentoring appears to have a beneficial effect on such stressors (Sørmo 2015). The teachers find that they are facing the same challenges, and the mentoring is therefore very helpful. Time is about organising their days so that a mentoring session is possible. In light of our experience that reflecting mentoring promotes empowerment (Sørmo & Sträng, 2015), it would be interesting to see whether such mentoring would also be effective during students' periods of teaching practice in terms of strengthening the students' confidence that they can do even better in the teacher education programme and, eventually, also in the teaching profession.

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THE INFLUENCE OF DISPUTED LEADERSHIP ON TEACHER LEADERSHIP IN SCHOOLS IN NIGERIAN PUBLIC SECONDARY SCHOOLS

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This multiple case study explored the influence of disputed leadership on the practice of teacher leadership in public secondary schools. It aimed to identify the factors of disputed leadership in the context of Nigerian Public Secondary Schools (NPSS). The research participants included nine teachers, three principals, three vice-principals and an educational administrator in an Educational District in Lagos, Nigeria. The study used semi-structured interviews and an analysis of Nigerian education policy documents to generate data. The study revealed that the distribution of leadership positions based on political or socio-cultural and religious affinity and not based on established criteria leads to leadership being disputed by organisational members. The study further reveals that disputed leadership creates conflicts, leads to low morale among members and it is also seen as a violation of rights of members. The study recommends that promotion should be based on established criteria, efficiency and effectiveness of members as this will boost their morale. In addition, a conflict resolution mechanism as well as a good succession programme should be put in place in schools as this will enhance teaching and learning. This will, benefit the school, teachers, students and the community. Moreover, the influence of disputed leadership could make or mar the progress of a school and individuals in achieving educational goals. Adherence to ethical standards and professionalism must be ensured in the conduct of promotions in schools. The study contributes to the discourses on teacher leadership practices in schools.

Introduction

Over the last 50 years, much has been written about ideas, methodologies and theoretical approaches that explore organisations and leadership phenomena. As such, new theories and methodologies in the field of leadership continue to evolve (Ayers, 2006:3–4). Burns (1978) notes that “leadership is one of the most observed and least understood phenomena on earth”. Bass and Riggio (2006:1) explain that the discussion “about successful leadership and significant failures of leaders occupies a central position in every human endeavour from social, political, religious circles or in the work place”. Horner (2003:7) points out that in a definition of leadership “the traits, qualities and behaviour of leaders are taken into considerations and there is no limitation to leadership studies which span across cultures, decades and theoretical beliefs”.

Vroom and Yago (2007:17) noted that “leadership is a process of influence, extending from leaders to followers”. Therefore, analyses of several studies indicate that there is influence in leadership (Maxwell, 2009:2; Wehrich, Cannice & Koontz, 2008:347). Bateman and Snell (2009:434) describe leadership is a process through which a leader “influences others, inspires, motivates and directs their activities to help achieve the organisation’s goals and objectives, in spite of resistance”.

The achievement of shared goals in any organisation “involves taking risks and initiatives and in applying leadership attributes, such as beliefs, values, ethics, characters, knowledge and skills” (Cuban, 1988:193; Weinhrich et al., 2008:347). Thus, leadership is “concerned with the personality of the leader and the dynamics between leaders and followers that result in a form of influence” (Northouse, 2001).

Leadership is a continuous process and multiple people can exercise leadership through demonstrating influence and effective leadership values in an organisation. In demonstrating influence, Robinson (2007:15) explains that the more school leaders influence teachers and focus on teaching and learning, the greater their influence will be on student outcomes. This corroborates the study of Louis, Leithwood, Wahlstrom and Anderson (2015:5) the influence of school leadership on schools, teachers and classroom conditions. These authors view leadership as being central to enhancing teaching and learning as well as managing influences related to work outside the school.

Administration of schools is an important part of the educational system in Nigeria and these leaders face a variety of issues on a daily basis which could be between students, parents, community or administrative or academic staff. In public schools, apart from prescribed duties, some teachers are appointed or elected into teachers’ union or subject associations, or appointed to serve in one committee or the other and thus have leadership experience within the school. This can be regarded as informal teacher leadership experience as against those appointed by the Ministry of Education with formal authority and referred to as school leaders. These school leaders are the principals, vice-principals, heads

of department, subject teachers, the class teachers and the year-tutors, each with their unique duties to ensure improvement in the teaching service.

Thus, school leadership is exercised primarily by principals, teachers and may be distributed to other (stakeholders) as well. A core set of basic leadership practices is valuable in almost all contexts. Successful leaders in schools serve diverse student populations and establish conditions that support student achievement, equity and justice. There is a general belief that the quality of leadership makes a significant difference to school and student outcomes (Bush, 2009:375).

In the school system, there are school leaders occupying various roles in the school, which provide direction and exert influence to achieve the school's goals (Leithwood & Riehl, 2003:4). In Lagos State public schools, teachers are appointed as Principals consequent upon deployment, retirement or demotion of a sitting principal and when new schools are established. Advertisement and application are not required for vacancies in principal ship positions. Unlike, the process of recruiting teachers, which requires, advertisement either through the placement of advertisement in the media or through "political forums" in which prospective applicants undergo written and oral examinations before being placed in respective educational district and requires to undergo a 2-3 months training.

Therefore, Nigeria public secondary schools recruitment and career progression of staff into leadership positions are determined on merit and there are procedures for the promotion of staff and in the appointment of new staff. Appointments are based on qualification, experience and expertise and internal promotions depend on the recommendations of the head (Peretomode & Peretomode, 2001 & Bush, 2003:44). In spite of the established criteria, there are influences of favouritism, ethnicity, socio-cultural practices that determine how appointments and promotions are made in public schools in which qualified individuals are denied promotions or appointments (Olujuwon, 2016). This shows that there is gap in the current practice and thinking of leadership in schools.

Literature have shown that dispute in organisation is an inevitable outcome of people working together in groups and teams and as such dispute could occur as a result of ethnic, religious, ideological or economic conflict which may center on succession (Omisore & Abiodun, 2014). Mullins (2007:770) describe succession simply as a way of preparing individuals to eventually take over key roles within the operating structure of an organisation as a result of resignation, retirement, transfer, promotion, new openings or death of staff. Therefore succession planning is one of the ways to create leaders in an organisation. It provides stability in the organisation, continuity of work as well as increased performance in schools (Orazi, Good, Wanrooy-van, Butar, Olsen & Gahan, 2014:59).

However, Wright (2012:30-31) states that often heads of organisations dislike thinking about the future when they will no longer occupy their position or they fear competition. Accordingly, these factors enumerated above could work against putting a robust succession plan in place. The study of Omisore and Abiodun

(2014) reveal that conflicts occur in “organizations as a result of competition for supremacy, leadership style, scarcity of common resources. Similarly, conflict could occur is a result of poor communication and a lack of trust between people”. They conclude that conflict in organisation “could lead to low productivity or service delivery”.

Research Sites for the Study

This study was carried in five public senior secondary schools in Educational District V in Lagos State, Nigeria. These schools were established and funded from the yearly budgetary allocations of the Lagos State Government (LASG). In spite of these allocations, there are challenges in the provision of adequate facilities such as auditorium, laboratories and classrooms that will enhance effective teaching and learning; this is evident in schools where this study was conducted. This inadequacy in the provision of facilities in public schools is well documented in literature (Inuwa & Yusof, 2012; Olaniyonu, 2006). In the five public schools, there were neither dining halls nor seminar rooms but assemblies were conducted outside in front of the main building. However, in some of the schools, new prototype block of classrooms were visible and others are under construction; while the old type of block of classrooms are still being used. Other challenges faced by public secondary school are the pupil-teacher ratio which is 1-100 and this is against the recommendation by government of 1–40 pupils in a class. In order to improve on facilities in schools, the Lagos State Government secured a loan facility to the tune of \$90million from the World Bank for school, renovation and projects; but a newspaper report shows that in spite of the loan much is still need to be done in the provision of adequate facilities in schools. Furthermore, the report shows schools with dilapidated buildings as well as inadequate desks and benches for students to learn (Folutile-Deji & Oketola, 2014).

As a result of the newspaper report, government placed embargo on any form of interviews with teachers or principals without adequate approval from the Ministry of Education. In addition, the principal of the school that featured in the report was suspended and later transferred by the government. This stance from the government made some principals and teachers to decline participation in the study so as not to lose their job or being termed as “anti-government”. This shows that gaps still exist in school leadership as leaders could not challenge the status quo for fear of being retired, demoted or transferred. There is need to have an effective school leadership that will enhance teaching and learning in schools. Table 1 provides a profile of the study participants and pseudonyms were used to protect their identities and the schools in the study.

Table 1. Profile of Study Participants

S/N	Name	N:S	Q	G	YTP	YLP	CLP
1	Clark	Egun Awori senior college, Badagry	M.ED	F	25	10	Vice Principal
2	Bayo	Egun Awori senior college	Bsc.Ed	M	22	5	Officer in charge of Special Duties
3	Adebayo	Egun Awori senior college	M.Ed	Male	30	20	Principal
4	Orji	Highway snr.sec.school	PGDE	M	25	13	HOD Arts
5	Okoli	Highway snr.sec.sch	M.Ed	F	25	8	Principal
6	Butter	Red High snr sec.school	M.Ed	M	21	10	Publicity Sec, Zonal Teachers Union and Head, Curricular Activities
7	Winners	Red High snr. School	1 st Degree	F	19	5	Year Tutor SS3
8	High	Red High snr sec.school	PGDE	M	25	6	VP (Academics)
9	Massarawa	Nigeria senior grammar school	1 st degree	M	17	6	Asst HOD Science
10	Saida	Highway senior secondary school	M.Ed	F	34	10	VP
11	Aladelola	White and Blue senior secondary School	M.Ed	F	30	10	Principal
12	Ayeola	Education District	M.Ed	F	30	10	TGPS
13	Njoku	White and Blue senior secondary school	M.Ed	F	25	5	Teacher
14	Boladale	White and Blue senior secondary school	1 st Degree	M	2	2	Teacher
15	Ade	Nigeria senior grammar school	PGDE	M	16	2	Classroom Teacher/School Librarian
16	Loveth	Nigeria senior grammar school	M.Ed	F	20	10	Year Tutor

Source: Field data, 2015.

KEY:

N S (Name of School)

Q (Qualification)

G (Gender)

YTP (Years in the Teaching Profession)

YLP (Years in Leadership Position)

CLP (Current Leadership Position)

Research Background and Methodology

The study reported in this article emanates from a doctoral thesis at the University of Johannesburg, South Africa on “Teacher Leadership in Public Secondary Schools in Lagos, Nigeria” (Olujuwon, 2016). The study focused on the challenges of public secondary school teachers and how they navigate teacher leadership practices in the context of Nigerian secondary schools. This enables us to present the voices of teachers on the influence of disputed leadership in schools leadership in the context of Nigeria. We adopted a multiple case, qualitative research methodology because it is exploratory and descriptive as it enabled an in-depth understanding from the participants’ points of view on the influence of disputed leadership in Nigerian public secondary schools (Creswell, 2009; Paterniti, 2011).

Purposive sampling was used as it enables an in depth study of “knowledgeable people” in their natural environment by providing rich information that can enhance the study and its findings based on their experience in teaching and expertise in leadership position (Cohen, Mannion & Morrison, 2007; Ary, Jacobs, Razavieh & Sorensen 2010). Participants in the study comprised of nine teachers, three principals and three vice principals as well as an educational administrator in an Educational District in Lagos. Participants were selected based on typicality of their knowledge, experience and seniority in leadership position in schools as well as their willingness to participate in the study. All the participants were full time staff and professionally qualified and certified by the Teachers’ Registration Council of Nigeria. Similarly, eleven of them had more than 20 years of teaching experience, and four had more than 10 years in leadership positions. In addition, they were members of the Nigeria Union of Teachers.

In gathering of data, we conducted a one hour individual semi-structured interview with participants at school sites, after school hours and during participants’ free period with a focus on the influence of leadership in schools. The data collection process lasted for eight months. The following broad research questions guided the research, “How does the current school leadership practice influence teacher leadership in schools and are there socio-cultural practices that influence the practice of teacher leadership? The participants’ responses revealed much about teachers’ perception on the influence of teacher leadership practices in schools and the socio-cultural practices that made leadership to be disputed in Nigerian senior secondary schools in Lagos. To enhance the reliability and validity of the study, data from the semi structured interviews were audio taped and then transcribed verbatim. After transcribing the interviews, we checked each of the transcribed files against the audio recording to ensure that they true words of the participants.

We analysed and consulted the following documents, the 2004 edition of the National Policy on Education (NPE), teachers’ work schedules, the National Teacher Education Policy (2009), Teachers’ Registration Council of Nigerian (TRCN) Teachers’ Handbook (2005), and the Lagos State Teacher’s Handbook (2003). All these are statutory documents backed by law to be kept in schools as they outline the aims, goals and the objectives of education in Nigeria.

We used the documentary analysis to corroborate principals', vice-principals', TGPS's and teachers' interviews and to provide basic descriptions of participants' perceptions on the influence of disputed leadership on school leadership practices in schools. Data was presented using direct quotes and comments of participants and were analyzed using content analysis and discourse analysis. This 'enabled the compression of participants' words into fewer content categories based on the explicit rules of coding' (Miles & Huberman, 1994).

It facilitated the understanding of the verbal interaction and dialogue of the literal meaning of words and their meanings by people in their day-to-day life activities (Ary et al. 2010).

In analysing data, we followed Miles and Huberman's (1994) three interrelated phases which comprised of data reduction, data display and data verification. This allows for the inductive category of coding and a simultaneous comparison of all units of meaning across categories which formed the themes of the research.

In the study, ethical issues were taken into consideration. All participants received a sensitisation about the purpose of the study and data management. We promised them confidentiality based on the democratic principles of research that neither their names nor any identifying information about them would be published. We obtained ethical clearance from Ethics Committee of the Faculty of Education, University of Johannesburg, the Education District V in Lagos, and also from the principals of the five public secondary schools.

The study is limited to data gathered from the teachers, principals and vice-principals selected and also from an education administrator in EDV of Lagos State. The results of the study are limited to the study participants which limits the reach of the findings to the education district. The findings must be considered within the context of the study (see Table 1 for profiles of the study participants). Another limitation is that the study is located within the case study research design. Limitations often associated with case studies of this type include time parameters, over-simplification, exaggerated bias, reliability, validity and generalisations (Cohen, Manion & Morrison 2011, 293; Shaughnessy, Zechmesiter & Zeichmesiter 2003, 290-9). Denscombe (2003, 39) states that the limitation of this approach, whether qualitative or quantitative is that it can only be a snapshot which is dependent on the local and temporal context in which it was carried out thereby undermining its applicability to incorporate wider contexts. Only semi-structured interviews and documentary analysis have been used for data collection.

It could be interesting to follow up the study in different context as teacher leadership is topical in school leadership as well as for policy makers in many countries. An additional data gathering techniques such as questionnaires, participant observations or focus groups could be used for further research on teacher leadership practices in schools. However, while the sample used cannot be deemed to represent schools outside this study, the data should not be regarded as insignificant because it gives useful insight into the perceptions of participants regarding school leadership.

In solving bias in this research, we ensured that the research questions were in line with the aims of the study and all the participants were asked the same question. We also ensured that the participant's voice was the only one recorded and transcribed so that each participant's voice cannot be taken out of context. We put aside all preconceived ideas and allowed the participants to speak without restraint so that we could more easily capture their experiences and perceptions on the influence of school leadership practices in their schools. The findings from the study are discussed below.

Disputed Leadership

These happen when a leader is not accepted by the subordinates and are not ready to accept directives from such a leader. Orji, a teacher explained that, if a leader is not accepted by the led as their leader, it will constitute a problem. Orji stated that: *You understand, acceptability is one of the hindrances to leadership in schools. If a leader is not accepted among the teachers, it will not work.* Loveth a teacher provides the concept of disputed leadership as leadership that is unacceptable to followers. Loveth remarked that: *It is a leadership that all do not agree to follow. It is disputed leadership that not everyone accepts its followership.*

Loveth elaborated that non acceptance of a leader, results in conflict and misunderstanding unless the right thing is done. Loveth explained that: *For instance, if it's a leadership that is corrupt and you want me to follow, but I disagree, I'm already disputing it unless it is distributed in the right way.*

Participants noted that socio-cultural practices, forming of cliques, that lack of trust, equity and justice influence disputed leadership. Massarrawa explain that:

Socio-cultural practices affect teacher leadership. It doesn't allow free flow of leadership. There is always a bending of rules, a bending of ideas when it comes to socio-cultural practices. It might be people of the same religious or cultural background; that are appointed into leadership. You always influence who and who that will work with you.

As a way forward, participants are of the view that there should be clear cut objectives in distributing leadership and strict adherence to established criteria in appointment. Orji explain the need for clear cut objectives in distributing leadership: *Under normal circumstances before a leader is given a position ... there must be certain things like objectives, if there are no objectives, it will not work.* Leadership objectives are important as they outline what needs to be achieved in the organisation.

Okoli shared the views of Orji and inform that in school leadership there is guidelines to be followed in appointment of leaders. Okoli noted that: *There are established guidelines to be followed by all educators in leadership.*

The above reveal that adherence to guidelines and objectives in leadership appointment will reduce disputes in school leadership. Similarly, lack of trust, equity and justice promotes disputed leadership.

Lack of trust occurs when subordinates do not have confidence in a superior. Four participants highlighted lack of trust among colleagues as one of the factors that could cause dispute in current school practices. Bayo explained that, “When the school authority does not have trust in you with which to carry out an exercise, that’s what mistrust can do.” Moreover, Njoku shares the view that lack of trust is a hindrance in school leadership practices. Njoku states that “the hindrance is mistrust”.

Mistrust of colleagues exists when school management does not believe in the capability of staff to carry out tasks and responsibilities. Mistrust is also a factor of social and religious exclusivity in schools. Literature reviewed for the study shows the significant role that trust has in teacher leadership. For leadership to thrive in schools, there should be trust and mutual respect among teachers and education officials and officials should appreciate teacher roles.

Equity, justice and fairness are essential ingredients in any organisation. Boladale reflected the views of other participants: “Trust, open-mindedness, you do not assume before the facts come in, sincerity about facts and put it straight. Then there should be equity and justice in the system.” The excerpt highlights the need for trustworthiness and openness as well as the need for people to be factual on issues. Moreover, in the school system there should be fair play.

Hoy and Tarter (2004:253) state that “leader behaviour that is equitable, sensitive, respectful, consistent, free of self-interest, honest and ethical is likely to create a perception of fair and balanced treatment”. The authors also state that the principles of voice, egalitarianism and representativeness are crucial in any attempt to empower teachers. Hoy and Tarter conclude that these “three principles work together to promote a sense of fairness among teachers”.

The above have shown that disputed leadership often arises when established criteria are not maintained and leadership being distributed is fraught with favouritism and social cultural practices. Thus, behaviour arising from disputed leadership inhibits innovation, best practices and creates conflict among members and could prevent schools and students from achieving the goals of education.

Favouritism in Appointment of Leaders

Favouritism is the use of personal ties to receive preferential treatment of relatives, friends, neighbours or other acquaintances (Brooks, 2011). It is also described as an act of unfairly use of power in an organisation and this can manifest in many ways (Swenson, 2006). In schools favouritism may occur in the appointment of leaders into position as a result of nepotism, ideology, affinity and seniority. Orji, one of the participants explained that: *leadership that is dished out as a result of political connections... When that is given to people, as a result of who you know, and is not a kind of leadership that is achieved through merit.* This excerpt reveals that distribution of leadership as a result of favouritism is based on affinity of the follower to the leader or through political connections or socio-cultural context. Massarawa, a teacher

interviewed shared Orji's view that favouritism occurs as result of an individual's affinity with the leader as well as the use of money in securing such positions. Massarawa explained that: *Favouritism yeah? Man knows man, favouritism. Money... money... when money is used in influencing positions.*

Boladale another teacher echoed Massarawa's view that leadership is influence based on the affinity of the leader to the subordinate. Boladale explained that: *We perceive my colleagues now that almost everything is by influence, teacher leadership that I know this person or that person*".

In another perspective, participants noted the negative effects of favouritism in schools. Bayo a participant noted that favouritism brings uncertainty when the right things are not done and when principal is afraid of offending some set of people. Bayo noted that: *It brings uncertainty especially for the principal who often finds himself in a dilemma when it comes to recommending certain people for assignments.* Similarly, Njoku a participant noted that favouritism affects leadership negatively when qualified people are not put in the right position. Njoku explained that: *It influences negatively. If for instance we have a situation where a junior officer is placed over a senior officer directly.*

Boladale explained that favouritism affects leadership in a big way as a result of favouring one over the other and this could result in bitterness and lack of trust. However, he noted that effective leadership could occur in atmosphere of equity and justice. Boladale explained that:

It affects it in a great deal, We believe that in a system where certain people appear to be more favoured than others, it creates bitterness and lack of trust by some people in the system. Anywhere you find teacher leadership so strong, and then there is justice and equity to balance it.

Above all, Loveth a participant informs that there will be no progress in an organisation where favouritism holds sway. To Loveth: *it will affect the overall performance and improvement will also be retarded.*

Literatures have shown that favouritism lead to stress and conflict and it is an outcome of politics and power struggles within organisations (Kwon, 2006; Sadozai, Zaman & Ramay, 2012). The resultant effect of favouritism is that it decreases organisational integrity and morale of workers. Also it leads to inefficient decisions and above all affects job satisfaction (Aydogan, 2008; Keleş, Ozkan, Bezirci, 2011).

Ethnic Consideration in Appointments

Ethnicity is a social group of people that identify with each other based on common ancestral, cultural, social or economic affinity. They perceive themselves as unique through culture, language and belief and tend to seek out one another to the detriment of those not belonging to their group (Adetiba & Rahim, 2012). Participants in the study underlined the level of ethnicity in schools as one of the influence of disputed leadership. Ade commented that: *We know somebody is better*

suited for this particular role and not being given, because he is from a particular state.” Njoku supported Ade’s view on the role of ethnic consideration in appointments in schools. Njoku explained that: *The factors are tribalism and the issue of sacred cons. Two people committing the same offence and only one party is favoured while the other is punished.*

Okoli, noted the imbalances in not appointing other tribes in the country. *Unlike other parts of Nigeria where a Yoruba people cannot be a leader; they won’t even employ you.* Similarly, Aladelola a principal brought to bear the issue of assumption and insecurity in appointment. Aladelola noted that: *The Igbo will believe if a Yoruba person is at the helm of affairs today, he will maltreat them.*

Boladale highlighted the multi ethnicity of Nigeria as affecting the current practice of distributing leadership in schools. Boladale said that: *The multi-ethnic nature of the country comes to play. A leader saying he likes this person or that person to be in a particular position because of his ethnic leanings or his loyalty to him or her, and not on academic competence.*

Similarly, High a participant noted that multi-ethnic consideration exists in the given of appointment in all strata of Nigerian society. High explained that:

Socio-cultural practices, have a role to play even in the appointment of teachers, in the appointment of vice-principals, principals even in the appointment of emm prefects especially the head boy, the head girl in the schools around this areas, you know, it has really gone a long way. In some states, you hardly get any of us being given appointments in their states by their state governments talk less of being appointed.

High went further to inform that engaging in any act of ethnic consideration in appointment of leaders is a violation of the country’s constitutional provision. High remarked that: *Well, it’s a violation of the constitution, but the constitution is not a rigid one. It’s flexible.* Thus, ethnic consideration in appointment of leaders violates Section 15(2) of the Nigerian 1999 Constitution which frowns at discrimination on the basis of linguistic association or ties, sex, religion or ethnic considerations.

Conclusion

The above discussions have shown the various dimensions of the negative effect of ethnic consideration in appointment of leaders in public schools which violate constitutional provisions and established norms. Effective strategy of upholding the rule of law as well as the established criteria for promotion of leadership in the teaching profession will go a long way in eradicating leadership being disputed as well as putting in place dispute resolution mechanism. The study revealed the influence of disputed leadership on teacher leadership practice in public secondary schools in Lagos. The findings of this study laid emphasise on adherence to established criteria and constitutional provision in appointment of leaders which are major indices for success in any organisation. The study shows the role favouritism and socio cultural practice plays in an organisation. It leads to stress,

conflict, low morale among workers as this could affect productivity as well as in achieving organisational goals and objectives. Organisational goals and objectives are effectively achieved where there is harmony, trust and co-operation among workers in an organisation.

The study recommends that promotion should be based on established criteria, efficiency and effectiveness of members as this will boost their morale. In addition, a conflict resolution mechanism as well as a good succession programme should be put in place in schools as this will enhance teaching and learning. This will benefit the school, teachers, students and the community. Moreover, the main finding of the study is that the influence of disputed leadership could make or mar the progress of a school and individuals in achieving educational goals. Also that positive attitudes, equity, fairness, and justice are essential conditions for ensuring quality leaders in schools. Adherence to ethical standards and professionalism must be ensured in the conduct of promotion and distribution of leadership in schools.

The findings of this study will benefit the stakeholders in Education District V and add to existence literature on the influence of disputed leadership in school leadership practice. It could contribute to the professional development of school leaders by ensuring that leaders are appointed based on merit and not socio-cultural or religious affinity. The study will inform policymakers on formulating policies that emphasise merit and best practices in the appointment of leaders. Similarly, it will inform future policy in putting in place an alternative dispute resolution mechanism that will resolve conflicts arising from leadership crisis in schools. The study helps to cover a significant gap in literature on the influence of disputed leadership on teacher leadership practices in Nigerian public secondary schools

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COLLABORATIVE RESEARCH PRACTICES AND PRODUCTIVITY OF UNIVERSITY TEACHERS IN CROSS RIVER STATE, NIGERIA: IMPLICATIONS FOR QUALITY ASSURANCE

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Survey data collected from 178 university teachers in Cross River State of Nigeria were analysed to determine the extent to which they were involved in collaborative research practice. The university lecturers were selected from various faculties, institutes and departments of the two universities in the state using the stratified sampling technique. A valid and reliable instrument captioned Collaborative Research Practice Questionnaire (CRPQ) was used in data collection. The results of data analysis using simple percentage revealed that in the past five years, less than 14 percent of the respondents have involved themselves more than five times in collaborative research within their respective faculties, 14.6 percent and 15.7 percent to 33.1 percent have involved themselves two to five times and once respectively. Low and most times negligibly low proportions had collaborated with others in other institutions, government agencies or non-governmental organizations. The results also showed that provision of enabling environment for collaborative research is highly inadequate while the indexing of research reports by university lecturers is rare. It was recommended that for assurance of having ground breaking research findings, university lecturers should move from largely mono-studies to largely collaborative research endeavors and should establish linkages for the sake of benefiting from the multiplier effects attainable for peer cooperation.

Introduction

In recent years, various research sponsoring agencies like the Tertiary Education Trust Fund (TETFUND), World Bank, World Health Organization (WHO), United States Aid (USAID) Japan International Cooperation Agency (JICA) have often focused their research sponsorship more in support of collaborative research efforts and less in favour of mono-research endeavors. Scholarly collaboration concerns an

individual working in cooperation with others on designated issues or problems of common interest. It could concern working together on research projects, or dissemination of research information. By and large, the concept of collaboration is neither new nor rank exclusive, it is evident in book authorship, conference paper presentation, and journal article publication of university teachers (Ravid and Handler 2001). Collaboration are often established between institutions, or between individuals within or outside various departments, faculties, universities, countries or continents.

The National Universities Commission (NUC) was established with the aim of ensuring productivity of Nigerian Universities in order to improve ranking and global competitiveness. In Nigeria, the need to ensure improvement of learning and expand the frontiers of knowledge has caused emphasis to be laid on collaborative research across the universities. Scholars in related disciplines are usually encouraged to work in collaboration with others in order to enhance productivity, at minimum cost. The cost of funding research individually is quite exorbitant, the premium on cost cutting makes preferred option. The current quest for collaborative research also has implication for cost saving in research activities.

Aydinoglu (2013) sees research collaborations as a family of purposeful working relationships between two or more people, groups, or organizations to research phenomena, in order to develop a scientific instrument or technology, build a facility, or to publish a study. Research collaboration can be viewed in many different forms: such as when researchers engage in consultations, provide advice, participate in site visits, conferences or create complementary research agendas. Others include joint research projects, multiple authorship, sharing of research facilities, allowing access to research data and discoveries, and the linking of research centres and virtual networks. More specifically, Rodríguez, Vargas-Quesada, Hassan-Montero, González-Molina and Moya-Aneón (2010) defines, collaboration as interaction of individual networks which, in turn, reflect institutional and global networks. Collaboration usually works to signify the process of individual writers deliberately coming together to compose a text. It is a situation where two or more authors, each regarded as an individual, coherent identity, putting their respective unique contributions side by side to create what is then called a collaborative text (Karell 2002).

Collaborative research encourages researchers across diverse rankings to meet and interface within the frontiers of their disciplines. With the increased competition in obtaining research grants, when researchers engage in collaborative research, working in teams, they usually develop new ideas and promote innovative approaches to research and adds quality to learning. (Ngussa and Muneja 2015). Furthermore in the competitive world, strong research collaboration between universities and industries is essential in determining a country's rank in global standing (Onaolapo Uche, and Lasisi 2013). In the same light, a country's capacity for research and development of knowledge economy is measured by the size and quality of its scientific research community and research community is built on collaboration.

The purpose of this study was four fold; One was to determine the extent of collaborative research practices among the university teachers in Cross River State,

Nigeria; the second was to determine the factors in the university environment that facilitate collaborative researches; the third was to find out the sources of funding for collaborative researches and the fourth was to find out the extent which university teachers indexed their collaborative research findings.

Research questions:

1. What is the extent of collaborative research practices among university teachers in Cross River State?
2. What are the factors in the university environment that facilitate collaborative researches among university teachers in Cross River State?
3. What are the sources of funding for collaborative researches among university teachers in Cross River State?
4. To what extent do university teachers in Cross River State indexed their research reports?

Theoretical framework

Vygotsky (1978) provides the theoretical structure for considering collaboration as a social process in which meaning is constructed from working among group members. Vygotsky (1962, 1978) envisioned learning as a socially constructed experience involving more capable people guiding those less capable to understand ideas beyond their developmental level. He called this the zone of proximal development (ZPD), and believed that it is through social interaction and working that will enhance productivity. Although ZPD is generally discussed in relationship to the development of children, the concept has been expanded to include relationships among adults and is applicable to the relationship between academics, as well as lecturers and students (Brown 1993) Moran and Steiner (2003) explain that based on the Vygotskian framework, “all mental functions are first experienced socially, learned in interaction with others.” An underlying assumption about collaboration is that meaning and knowledge are co-constructed. This view corresponds to a holistic social constructivist worldview in which relationship is the unit of analysis and environment is taken into account (Lincoln and Guba 1985).

In social constructivist theory researchers understand that as collaborators, not only do they plan, decide, and act jointly; they also think together, combining independent conceptual schemes to create original frameworks. Also, in a true collaboration, there is a commitment to share resources, power, and talent: no individual’s point of view dominates, authority for decisions and actions resides in the group, and work products reflect a blending of all participants’ contributions.

Review of Related Literature

In Nigeria, it has been observed that the trend towards collaborative research is gaining momentum gradually. A look at the research funding agencies (TETFUND) World Bank, World Health Organization (WHO), United States Aid (USAID) and

the university faculty promotion guidelines indicates the need for collaborative researches. Hence, Onaolapo et. al. (2013) conducted a study on Inter-institutional collaboration: building sustainable synergy between research and development for global competitiveness in Nigeria. The main aim of the study was to examine the research collaboration between the Shell Petroleum Development Company (SPDC) and universities in Nigeria. Analysis of document and interview sessions with respondents revealed that 129 Post Graduate students from different universities across the country have had the opportunity to engage in research with SPDC under the Internship Programme between 2007 and 2012. The Internship Programme exposes post graduate students to all forms of research activities in their relative field of study narrowed by SPDC to incorporate broad subject matter areas such as Surface/facilities Engineering, Petroleum Engineering, Production, Well Engineering, Geology/Geophysics, Geomatics (Surveying, Hydrography, Geo-information management, Geodesy, Met-ocean), Environment and Sustainable Community Development. In the same vein, 112 Senior Lecturers have been engaged as Sabbaticals in various field of research within the same period. In total, 241 researchers have had opportunity to engage SPDC in research capacity between 2007 and 2010. The collaboration between SPDC and lecturers/ students has led to groundbreaking innovations over the years. For example in 2009, Software (IPS) for teaching in the university; and software (IPS) being used by oil and gas company were developed. However, none of these products have received any form of patent. This is why Uche, (2011) laments the challenges facing the university scholars in embarking on contract and collaborative research. They are not exposed to the modalities for patenting their finding that meet the demands of the users as being done in the developed countries. On more challenges towards inter-institutional collaboration, the interview sessions with university participants and the SPDC University Liaison Staff reveals some challenges with the research and development (R&D) collaboration between SPDC and universities in Nigeria. One of the key shortcomings is the absence of enabling environment for research and development in the country at large. Participants point to the fact that insufficient support from the government in terms of creating the incentives upon which private sector support systems is expected to rest is a major disincentive for R&D collaboration. Also aligned to the challenge mentioned above is the issue of security in the operational environment of SPDC. The respondents point to the fact that the fragile nature of the Niger Delta where the company's assets are located tend to act as a clog in the wheels of progress in R&D since in most cases, the fear of endangering the lives of researchers makes it difficult to commission field based studies such as environmental and social science researches. Funding constrain is another challenge to R&D collaboration between industry and universities. This is based on the premise that industry alone has limits to which it can fund a national based research. Hence, research funding is often based on narrow expectations focused on servicing the needs of the industry and not the country at large.

On inter-institutional ground breaking research collaboration, Onaolapo et. al. (2013) asserts that in Africa and indeed Nigeria, the culture of research as a standalone

activity is problematic enough not to talk of the collaborative framework between institutions necessary to drive a coherent technology-based economy. Within the context, weak innovative research endeavours and the emphasis on research for promotions in the universities, intellectuals pre-occupied themselves with individual growth rather than worry about ground breaking research necessary for holistic industrialization. Much as this is the case, factors such as low returns on educational activities, insufficient funding and corruption acted as disincentives for industry-based research in the country. To corroborate this assertion, Ajake, Isangedeghi and Ekuri (2015) in a study on researches for innovation: practices and challenges in Nigerian Universities found out that 41.1% of the respondents involved in the study carried out researches for promotion purposes, while just 16% conducted researches for the purpose of solving problems in the society. More so, Nigeria does not have a national core research and scientific community that can be called the country's knowledge community, but a collection of about 30,000 university teachers, and research civil servants, whom have not developed any form of collaboration or partnerships between and among themselves beyond trade-union level, it becomes even more logical to see the low drive for inter-institutional collaboration between universities and industries (Onaolapo et al. 2013).

Looking at collaborative research trend within Africa, Ngussa and Munega (2015) carried out a study on trends in research collaboration: experiences in Tanzanian institutions of higher learning. The study sort to find out the extent of senior-junior researchers' collaboration; inter-institutional collaboration and finally international collaboration. Concept analysis design was employed. Convenient sampling procedure was adopted in the study to obtain 118 journal articles. The researchers searched online for interdisciplinary journal articles, published between January 2012 and November 2014 by university lecturers in Tanzania from 17 online journals namely: Asian Economic and Financial Review, American Journal of Educational Research, British Journal of Education, European Journal of Business and Management, Mount Meru University General Education Journal, HURIA Journal of the Open University of Tanzania, International Journal of Academic Research in Progressive Education and Development, International Journal of Asian Social Science, International Journal of Business and Management Review, International Journal of Education and Practice, International Journal of Education and Research, International Journal of Humanities and Social Science, International Journal of Mathematical Research, Journal of Education and Practice, Journal of Finance and Accounting, Uongozi Journal of Management and Development Dynamics, and Research on Humanities and Social Sciences. Findings reveals that 63 (53.39%) of 118 sampled research articles were written by single authors, meaning without institutional, inter-institutional or international collaboration. Thirty-three (27.97%) were written by two authors while 15 (12.71%) were written by three authors and only 7 (5.93%) were written by more than three authors. This implies that only 55 articles were written by more than one person and therefore, majority of sampled research articles were authored without collaboration, thus reducing research quality. This finding is supported by Crawford,

Minde, Colverson, Freed and Haggblade (2011) who have it that collaboration in research improves research quality by bringing together researchers from different universities and private sectors, whose complementary areas of expertise can bring about better results due to combined effort rather than working in an individualistic approach. Looking into the rate of collaboration between experienced educators (senior lecturers) and less experienced ones (junior lecturers), 46.61% of sampled articles were published collaboratively, collaborating authors did not indicate their academic rankings such as professors, associate professors, senior lecturers, lecturers, assistant lecturers and tutorial assistants. Instead, they simply indicated their institutional affiliation and academic departments where they belong. Only one research article was indicated to have been co-authored by a lecturer and an assistant lecturer. Results on inter institutional collaboration reveals that 52.73% of articles written by more than one author involved inter institutional collaboration while 47.27% involved collaboration within the institutions. This implies that university educators collaborate within and outside their respective university to publish research articles. Particularly, universities whose educators collaborated inter-institutionally include University of Dar Es Salaam, Moshi University College of Co-operative and Business Studies, College of Business Education, the Open University of Tanzania, Sokoine University of Agriculture, Institute of Financial Management, Mzumbe University, University of Dodoma, Institute of Rural Development Planning, Kampala International University, Dar es Salaam and Mwalimu Nyerere Memorial Academy. Findings on international collaboration reveals that only 20% of co-authored research articles involved international collaboration while majority (80%) was limited to domestic co-authorship. This implies that the rate of domestic collaboration is higher than that of international collaboration.

Pravdic and Oluic-Vukovic (1986) analyzed collaborative patterns in their study of dual approach to multiple authorship in the study of collaboration/scientific output relationship. They found that scientific output as measured by publications is closely dependent on the frequency of collaboration among authors. The nature of the effect on productivity depends on the type of links; while collaboration with high-productivity scientists tends to increase personal productivity, collaboration with low productivity scientists generally decreases it. Furthermore, the most prolific authors seem to collaborate most frequently and authors at all levels of productivity tend to collaborate more with highly productive authors than lower-productivity authors. Besides enhancing personal productivity, collaboration appears to offer authors another advantage when it comes to a paper being submitted for publication. Gordon (1980) found a significant relationship between levels of multiple authorship for papers submitted to a leading astronomy journal, and their frequency of acceptance for publication.

Collaboration in research is an important factor for university efficiency, quality assurance and improved learning (Kipisha and Msigwa 2013). The idea of collaboration is supported by biblical literature which states “Two are better than one, for they have a good reward for their labour” (Ecclesiastes 4:9 KJV). Ngussa and Munega (2015) states that unless experienced and/ or senior faculty members collaborate with

inexperienced and/ or junior faculty members to write and publish, research culture will remain dormant. Particularly, it is held that: publishing establishment depends upon the reputation and history of the author as one element when deciding whether to publish a manuscript. As a result it can be difficult for junior faculty members to break into the publishing world at the beginning of their career. One way to begin establishing a reputation is to affiliate with established faculty members and collaborate on work that is likely to be published. This calls for experienced researchers such as professors and senior lecturers to see to it that they do their research publications with junior lecturers in order to awaken the publication zeal in their career journey.

There are enormous benefits to collaboration between lecturers and graduate students in research and publication. Oddi and Oddi (2000) highlights three benefits: First, faculty collaboration can support students to reach their academic and professional potential. Second, scholarship for both faculty and students is promoted. Third, academic professions gain from the contributions of both students and faculty. Graduate student involvement in collaborative research teams provides reciprocal learning opportunities. For students, ongoing exposure to diverse fields of knowledge, points of view and methods of research is highlighted. For academic researchers, it necessitates mentorship that does not assume the same disciplinary language basis, methodological knowledge, or theoretical analysis among students. It requires the researcher to consistently learn from and about other forms of disciplinary knowledge. Although considerable mentoring takes place through “apprenticeship” on research projects, faculty members are cautioned against treating students as “cheap labour” (Conn, 1995). Due to the evaluative components of an academic program and due to their limited experience with research, students are considered to be in positions of lesser power and vulnerable to exploitation (Fine & Kurdek, 1993).

The study on managing faculty – student collaborations in research and authorship by Arthur, Anchan, Este, Khanlou, Kwok and Mawani (2004) reveals that with growing access in Canadian universities and research institutes to the internet and availability of instant communication through electronic mail, it is possible for multidisciplinary research teams to be composed of members in different cities and different organizations within those cities. Their study concluded that current practices in academic departments, including the issues inherent in student-faculty research collaboration, need to be vetted in an open discussion to identify potential pitfalls for both students and lecturers. This may be especially useful for junior faculty members to be initiated into matters pertaining to supervision of research. More so, collaboration in research and authorship can be an effective strategy for faculty to mentor students and to help them gain valuable experience working with more experienced researchers.

During collaborative research between lecturers and student, the problem of intellectual ownership may arise, as well as the problem of authorship (Arthur et. al. 2004). On countering the challenges in collaborative research especially among lecturers and graduate students, Barretta-Herman & Garrett (2000) states that it is the responsibility of faculty members to set clear boundaries and to protect students from exploitation, particularly when work on a research project has the potential for publication.

Methodology

Subject

A total of 178 university lecturers ranging from graduate assistants to professors were used for the study. The subjects (118 males and 60 females) were selected from two universities in Cross River State, Nigeria using the stratified sampling procedure. The subjects were drawn from faculties of Arts, Education, Law, Medicine, Biological Sciences, Physical sciences, Communication Technology, Institute of Oceanography, Institute of Education, Management sciences and Social sciences.

Instrumentation

A survey instrument captioned Collaborative Research Practices Questionnaire (CRPQ) was used for data collection. The research questionnaire had four sections. Section A elicited from the respondents demographic information such as sex, faculty, age, academic qualification and years of experience. Section B was a twelve item four point Likert-type scale that measured the respondents' extent of collaborative research practice. Section C was a four item question that elicited response on collaborative publication. Section D was a 9 item four point Likert-type scale that measured the adequacy of university environmental factors that facilitate collaborative research. Section E elicited from the respondents the frequency with which they could access the various sources of funding for collaborative research. Section F required the respondents to indicate the number of times within the last five years they had indexed their collaborative research reports using various indexing platforms. A face validation was carried out for the instrument using some experts in educational psychology as well as Test and Measurement.

Data Analysis

The data gathered were analysed using simple percentage to find out:

- i. The proportion of respondents who in the past five years had carried out collaborative studies once, two to five times or above five times with others junior to them, same rank, senior or graduate students in their faculties. Academics in other faculties of the same universities. Academics in other institutions in and outside Nigeria. Government agencies and non-governmental organizations. Published books, book chapters, journal articles or monographs.
- ii. The proportion of the subjects who perceived the environmental factors that facilitate collaborative activities in their universities as being very adequate, adequate, inadequate or very inadequate.
- iii. The proportion of the respondents who in the past five years had accessed various sources of funding one to two times, three to five times or more than five times for collaborative researches.
- iv. The proportion of respondents who in the last five years have used each of the available platforms one to two times, two to four times or five times and above in indexing their collaborative research reports.

Results

The results of the data analysis were presented per research question.

Research question 1: What is the extent of collaborative research practices among university teachers in Cross River State?

The results of data analysis as presented in table 1 showed that of the 178 respondents in the study, 14% had within the last five years collaborated with junior academics in the same faculty more than five times, 32.6% reported that they had collaborated two-five times; while another 32.6% had only collaborated once. The rest (20.8%) never collaborated with junior academics.

In enquiring into the frequency which the respondents collaborated at other levels within the past five years, the responses were very revealing. 24.7% have never collaborated with academics in the faculty who are of the same rank, 29.2% have never collaborated with senior academics in the same faculty, 52.8% have never collaborated with graduate students, 48.3% have never collaborated with academics in other faculties, 47.8% have never collaborated with academics in other institutions within Nigeria, a high percentage of 85.4% have never collaborated with academics within Africa, 82.6% have never collaborated with academics outside Africa. At other levels of collaboration with government agencies, multi-nationals, cooperate organizations and non-governmental organizations, 69.7%, 91%, 83.1% and 81.4% have never collaborated respectively.

This implies that the extent of collaborative research practice is low among university teachers in Cross River State

Table 1. Percentage of respondents who in the past five years have collaborated once, 2-5 times or more than 5 times with others on research activities in Cross River State. (N = 178)

S/N	Collaboration activities within the last five years with:	Never %	Once %	2-5 times %	More than 5 times %
1	Junior academics in your faculty	20.8	32.6	32.6	14
2	Academics in the faculty who are of the same rank	24.7	33.1	34.3	7.9
3.	Senior academics in your faculty	29.2	15.7	42.7	12.4
4	Graduate students in your faculty	52.8	21.9	14.6	10.7
5	Academics in other faculties.	48.3	21.3	27.0	3.4
6	Academics in other institutions within Nigeria	47.8	16.9	29.8	5.6
7	Academics in universities in Africa outside Nigeria.	85.4	5.6	9.0	–
8	Academics in universities outside Africa.	82.6	9.6	6.7	1.1
9	Nigeria Government agencies or parastatal.	69.7	24.7	5.6	–
10	Multi-national agencies.	91.0	6.7	2.2	–
11	Coperate Organizations.	83.1	10.1	6.7	–
12	Non-governmental organizations.	81.4	16.3	2.2	–

The Bar charts in figure 1 further illustrates in pictorial form (for greater appreciation) the proportions of the university teachers who never collaborated in different situations, those who have done so once, between two – five times and those who have done so more than five times in the past five years.

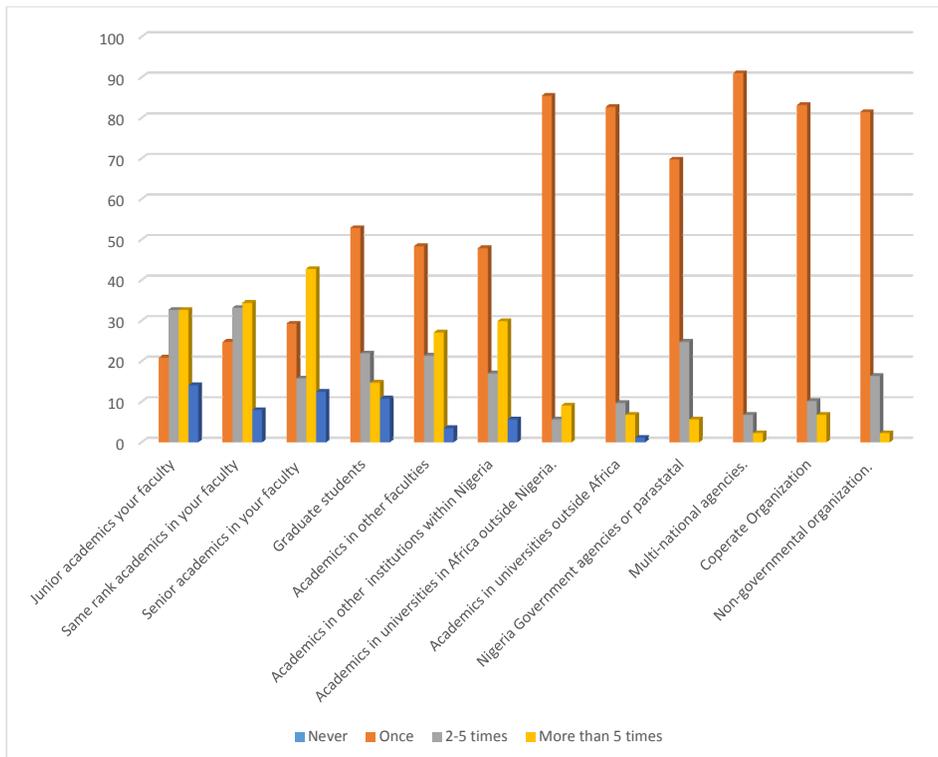


Figure 1. Bar chart of the extent of collaborative researches practices.

Furthermore, to determine the extent of collaborative research of respondents who had in the past five years carried out collaborative researches to publish books, book chapters, journal articles or monographs, the results are presented in table 2. The results of analysis as presented showed that 15.7% had not collaborated in publishing journal articles, 6.7% had published once, 41% had published two to three times, 11.2% four to five times and 25.3% had published more than five times. A higher proportion of the respondent had never published books, book chapters and monographs at 65.2%, 50.6% and 81.5% respectively.

Table 2. Percentage of respondents who had in the past five years carried out collaborative researches to publish books, book chapters, journal articles or monographs in Cross River State. (N = 178)

S/N	Really, how many times in the past five years have you collaborated with others to publish	None %	Once %	2–3 times %	4–5 times %	More than 5 times
1	Journal articles	15.7	6.7	41.0	11.2	25.3
2	Books	65.2	18	13.5	2.2	1.1
3	Book chapters	50.6	22.5	19.1	5.6	2.2
4	Monographs	81.5	13.5	1.1	–	3.9

Research question 2: What are the factors in the university environment that facilitate collaborative researches among university teachers in Cross River State?

The result of the analysis presented in table 3. From the responses on factors in the university environment that facilitate collaborative research, the factor most frequently mentioned was poor funding, lack of power supply and poor functioning internet connectivity at a very inadequate level of 52.2%, 44.4 % and 40.4% respectively. As shown in Table 3, teachers' readiness to work with others as well as willingness to mentor junior colleagues was not seen as impeding factors where 52.2% of the respondents agreed that there was adequate readiness to work with others and 40.4% agreed that teachers are willing to mentor junior colleagues through collaboration.

Figure 2 illustrates the relative weighting of the seriousness of the challenges based on the percentages of the respondents who mentioned them.

Table 3. Proportion of Respondents who perceive the factors in the university environment that facilitate collaborative research as being very adequate, adequate, inadequate or very inadequate. (N = 178)

S/N	Factors	Very Adequate %	Adequate %	Inadequate %	Very inadequate %
1	Provision of funds for research	3.4	10.1	34.3	52.2
2	Functional internet connection.	6.7	20.8	32.0	40.4
3	Teachers' readiness to work with others	14.0	52.2	25.8	7.9
4	Teachers' willingness to mentor junior colleagues	14.6	40.4	30.3	14.6
5	Departmental libraries	3.4	29.8	41.0	25.8
6	Faculty libraries	3.4	25.3	37.1	34.3
7	Power supply	6.7	12.9	36.0	44.4
8	Lecture free periods for teachers	4.5	32.6	43.8	19.1
9	Laboratory/ workshops in aid of research	4.5	17.4	37.1	41.0

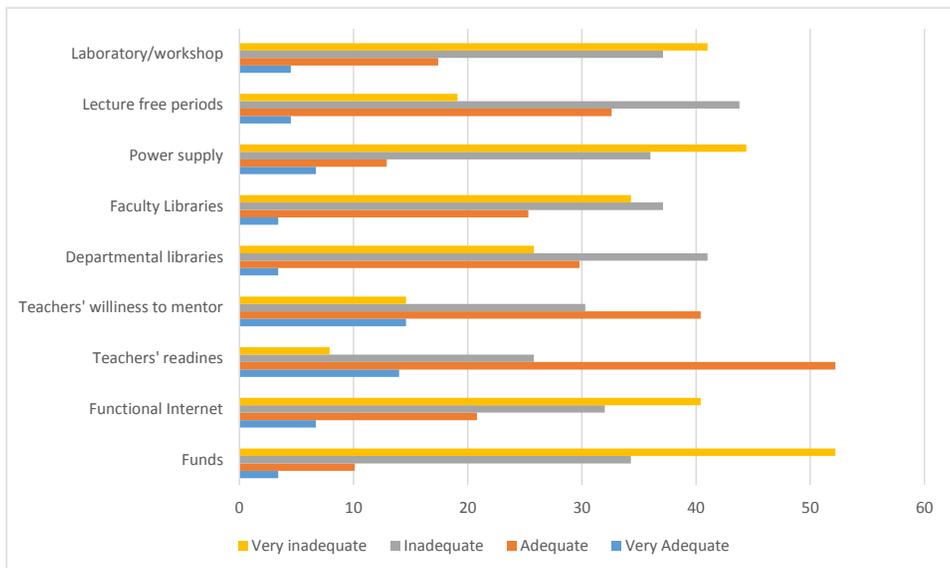


Figure 2. Bar chart of perceived environmental factors that facicilitae collaborative research practices.

Research question 3: What are the sources of funding for collaborative researches among university teachers in Cross River State?

The result of data analysis in table 4 shows that within the last five years, 33.1% of the 178 individuals and team member(s) have funded their researches for more than six times, the institutions (University of Calabar and Cross River State University of Technology) have not funded collaborative researches at 87.6%, Tertiary Education Trust Fund (TETFUND) have only funded 19.1%, while external grant giving agencies like the USAID, UNICEF, WHO, UNESCO have only funded 6.7% researches. This implies that the major source of funding for the few collaborative researches conducted were self sponsored.

The proportions of the source of funding for collaborative researches is further represented on a bar chart in figure 3.

Table 4. Proportions of the subjects who had in the past five years accessed 1–2 times, 3–5 times or 5 times and above the various sources of funding in carrying out collaborative research.

S/N	In the past five years, how many of the research projects you executed in collaboration with others have been	None	1–2	3–5	More than 6
1.	Completely financed by you and the team member(s)	20.2	18.5	28.1	33.1
2.	Financed by your institution	87.6	9.0	3.4	–
3.	Financed by government or its agencies	83.1	15.7	1.1	–
4.	Financed by Tertiary Education Trust Fund (TETFUND)	80.7	19.1	–	–
5.	Financed by external organizations such as UN, USAID, UKAID, UNICEF, UNESCO, WHO, JICA etc	89.9	6.7	1.1	2.2

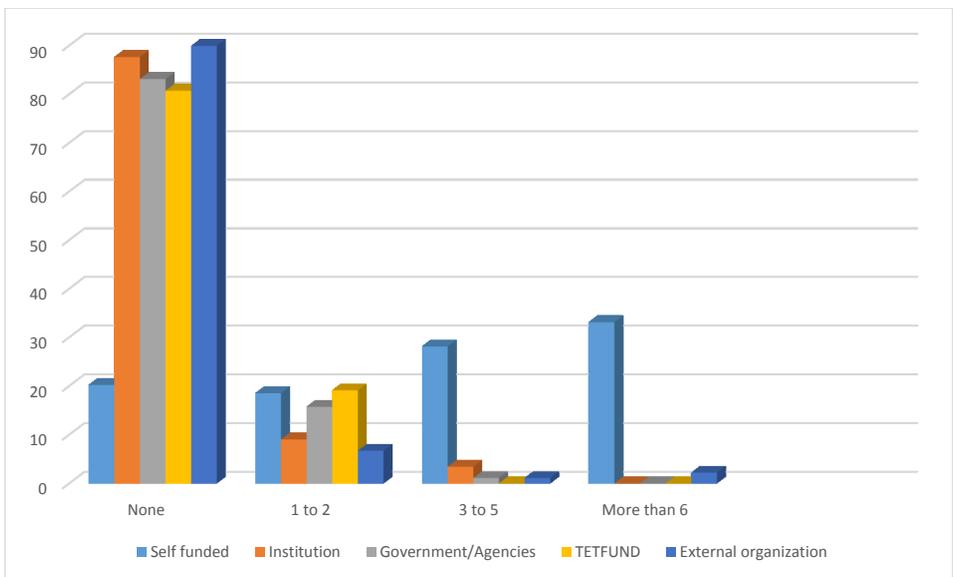


Figure 3. Bar chart of sources of funding for collaborative researches

Research question 4: To what extent do university teachers in Cross River State indexed their research reports?

The extent to which the subjects’ research report in the study is indexed was measured by the number of times their research reports had been indexed in reputable indexing platforms. As shown in Table 5, as much as 29.2% of the subjects reported that their published research reports had never been indexed in Google scholar while the rest had their published researches indexed in google scholar ranging from once (25.3%), two-five published researches (21.3%) and above five published researches (23.1%). Further examination of the table shows how the respondents’ published

research reports are indexed in Scopus, DAOJ, Ebsco Host, index Copernicus, Index Medicus at lower levels of 61.8%, 83.1%, 76.4% and 86.5% respectively.

This is further represented on a bar chart in figure 4.

Table 5. Proportion of the subjects who in the past five years have indexed their collaborative research report by using the various platforms. (N = 178)

S/N	In the past five years how many research report have you produced in collaboration with others have been indexed in	None	1–2	3–4	5 and above
1.	Google scholar	29.2	25.3	21.3	23.1
2.	Scopus	55.6	27.0	5.6	11.8
3.	Directory of Open Access Journal (DAOJ)	61.8	16.9	9.0	12.3
4	Ebsco host	83.1	6.7	3.4	6.7
5	Index Copernicus	76.4	10.1	6.7	6.7
6	Index Medicus	86.5	6.7	2.2	4.4

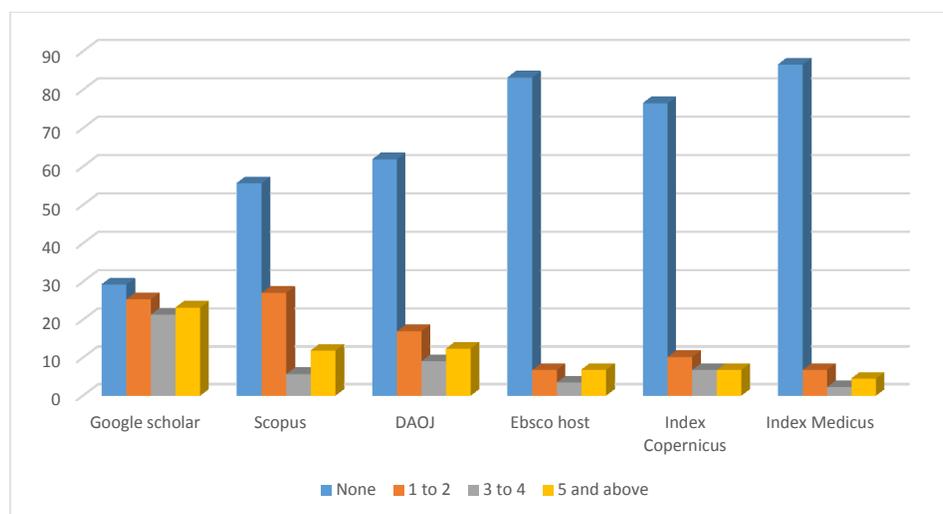


Figure 4. Bar chart of indexing of respondents' collaborative research reports.

Discussion of findings

The study revealed that university teachers in Cross River State-Nigeria overall collaborative research practices was low. The involvement of senior academics in collaboration with fellow senior academics was high, however collaboration with graduate students and junior academics was low. Responses reveal that collaboration among senior academics and junior academics is moderately low. For collaboration

with academics in other institutions within Nigeria, the result was quite revealing where 47.8% have never collaborated, a high percentage of 85.4% have never collaborated with academics within Africa, and 82.6% have never collaborated with academics outside Africa. At other levels of collaboration with government agencies, multi-nationals, cooperate organizations and non-governmental organizations, 69.7%, 91%, 83.1% and 81.4% have never collaborated respectively. This finding is supported by Onalapo et. al. (2013) who conducted a study on inter-institutional collaboration and found out that the culture of research as a standalone activity is problematic enough not to talk of the collaborative framework between institutions necessary to drive a coherent technology-based economy, this account for the low drive for inter-institutional collaboration between universities and industries in Cross River State. These finding corroborates the finding of Ngussa and Munega (2015) who carried out a similar study on trends in collaborative research experiences in Tanzanian institutions of higher learning and discovered that collaboration between experienced educators (senior lecturers) and less experienced ones (junior lecturers) was relatively low at 46.61% of sampled articles.

Findings on the environmental factors that facilitate collaborative research reveals that most frequently mentioned was poor funding, lack of power supply and poor functioning internet connectivity at a very inadequate level to facilitate collaborative research at 52.2%, 44.4 % and 40.4% respectively. This finding is supported by Uche (2011) who found that challenges facing the university scholars in embarking on collaborative research is the absence of enabling environment for research in the country at large. Participants point to the fact that insufficient support from the government in terms of creating the incentives upon which private sector support systems is expected to rest was a major disincentive for research and development collaboration.

The major source of funding for the few collaborative researches conducted were self sponsored. This finding is supported by Ajake, Isangedeghi and Ekuri (2015) who carried out a study on researches for innovation, practices and challenges in Nigerian universities and discovered that funding research by one self (individual involved in the research) was mentioned by 85% of respondents as the major source of financing researches. Furthermore, subjects reported that their published research reports were indexed in google scholar more than other indexing platforms. The sudden rise in indexing is as a result of the academic staff promotion guidelines which speculates that researches must be visible on reputable indexing platforms.

Limitations

The study encountered some limitation. The total population of the study was all teachers in universities in University of Calabar and the Cross River Sate University of Technology. The total number of subjects used were 200 teachers, out of which 178 (89%) questionnaires were retrieved. This gave attrition rate of 11%. One is not sure if the result would have been different if more subjects were used for the study.

Also, Cross River State University of Technology were not in session, only few questionnaires were retrieved from the institution. As at the time of study, most university teachers were unwilling to fill the questionnaire because they were busy with examination and marking of scripts.

Conclusion

The finding of this research has provided evidence and potency to show that collaborative research practice will enhance university teacher productivity and capacity building. The implication of this is that productivity in terms of teachers' efficiency, improved learning and quality assurance will be enhanced in our universities in Nigeria if effective collaborative practices are upheld.

However, a high proportion of the respondents were low in their collaborations. As many of the subjects especially those in the senior cadre never collaborated with the juniors and graduate students within and outside their faculties. It is also worthy to note that many of the university teachers have not collaborated with academics outside their universities, academics in Africa, academics outside Africa, Nigerian government agencies, multi-national agencies, cooperate organization and non-governmental organization. This calls for serious concern because in this era of global competitiveness, there is need for all university teachers to break even with others within Nigeria and outside to enhance productivity and for effective quality assurance.

Therefore, in order to facilitate collaborative research practices among university teachers in Cross River State, there is need for proper re-orientation on various collaborative research practices so that teachers with diverse complementary areas of expertise can bring about better results due to combined effort rather than working in an individualistic approach. In addition, funding should be adequately provided, constant power supply and internet connection should be made available to enable university teachers overcome the challenging disparities in collaborative research, so that contemporary societal problems could be solved. Thereby increasing learning, productivity of teachers and quality assurance in the universities.

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INFORMATION COMMUNICATION TECHNOLOGY IN TEACHING ENGLISH AS FOREIGN LANGUAGE: AN ANALYSIS OF TEACHING METHODS IN CLASS FROM THE PERSPECTIVE OF JOURNALS

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In this paper, we offer an insight into the state of TPACK as represented in teaching methods with the use of technology in the school classroom English as a foreign language teacher's. By means of inductive content analysis of the e-versions of scientific journals based research articles on technology in English teaching as published in the years 2010-2016, we capture the pace and development of technology implementation process in this subject. We offer an interpretation of the developed approaches associated with the use of technologies in class as one of the key indicators of TPACK in action. In our qualitative content analysis, we found formally centralized, modern methods and post-methods based approaches resulting in practice regarding use of technology in teaching English. Since compared to formally centralized practices, modern and post-modern based teaching as based on social constructivist educational process, we argue in support of TPACK developing as a comprehensive model in actions of teacher's classroom practices based on post-methods approaches.

General Description, Objectives and Theoretical Framework

Teaching of English in schools in other native countries than English called English as a foreign language (teaching) EFL (Hyte, 2008) in the emerging global and European contexts is guided by (inter)cultural communicative competence (ICC) (Byram, 1997) ascribed in learning a foreign language. ICC goal embody on Van Ek's (1986) comprehensive framework comprising linguistic, sociolinguistic, discourse, strategic, sociocultural, and social competence as the main constituents. According to this model, acquiring language is acquiring knowledge and skills relating the articulated components as the interconnected dimensions of language.

At methodological level, the articulated goals guide instructional models within communicative approaches (Canale & Swain, 1980; Hymes, 1971) represented generally in interactive, participatory, task based, and collaborative or constructive instructional designs (Bagaric, 2007) as well as individualized programmatic (Mitchell & Vidal, 2001), situated and post-methods instructions (Kumaravadivelu, 2006).

Communicative approaches in teaching EFL are rather aligned with recently emerged pedagogical perspectives or deriving from modern language acquisition theories (Mitchell & Vidal, 2001) for instance; sociolinguistic perspectives (Hymes, 1971), natural approaches to language (Krashen, 1981), socio-constructivist perspectives (William & Burden, 1997), sociocultural perspectives (Ellis, 1994; Mercer & Littleton, 2007).

Besides, the listed multiple perspectives and approaches in teaching English as stated are among the key indicators of contextual changes including changes in learner characteristics. Regarding changes, alongside the issues related to situational changes, learner characteristics are even more serious and diversely addressed issues in EFL which in the information age (Ocholla, 2009) come associated with complexities representing generational differences based on digital identities and cultures (Casey, 2016) as some of the frequently confronting challenges in 21st century English class (Trilling, & Fadel, 2009). These are a few key reasons why new discourses defining teacher knowledge evolved extrapolating digital competences as important teacher eligibility criteria as related to pedagogy and content knowledge (Voogt, Fisser, Robin, Tondeur, & Braak, 2012). This is that teachers' skill in integrating information communication technologies (ICT) in teaching-learning process is now one of the basic teacher eligibilities.

With the viewed indispensability of technological skills, teacher knowledge is represented as being a comprehensive concept which is called technological pedagogical and content knowledge (TPACK) frame (Koehler & Mishra, 2009) unlike in the past when it was limited with pedagogical content knowledge (PCK) (Shulman, 1986). Having adopted from Shulman (1986), Mishra and Koehler (2006) modified the concept in which they emphasized teacher skills in making use of technologies in integration with other domains other two key knowledge areas e.g. pedagogy and content (Voogt, Fisser, Robin, Tondeur, & Braak, 2012). In teaching English too, proper and balanced use of knowledge and skills representing the three main domains i.e. technological, pedagogical content domain is what is known as TPACK in action (Diana & Tai, 2015).

In common that the use of technologies brings along innovations in teaching/learning techniques (Carstens & Pelgrum, 2009 Eds.; Pritzkow, 2014; Tileston, 2004) the issue as which specific content and pedagogical aspects combined with which specific or individual types of ICT are associated to bring along innovation in teaching English, is one of the key question for examining research level analysis.

In EFL, integration of ICT can be viewed associated with diverse components representing TPACK (Diana & Tai, 2015). Among several, however, an analysis of content items on which the lessons are composed and the methodological components on which their instructions are designed, for instance; selected language items, content

and materials for learner engagement, aimed learning focuses are some of the key components of technology application and teaching methods or approaches in practice.

Nevertheless, it would also be important to view whether and how the integration of technologies modern teaching-learning approaches e.g. communicative instructions develop in EFL (Rasario-Sanchez, 2012; Purewal, 2016; Goker, 2006). This focus as well enables a view in what ways technology integration still limits practices to traditional approaches. With the premises as these, in this paper we analyze the research represented teaching-learning methods and approaches developed with the use of technology in teaching English.

In this paper we focus on the e-versions of scientific journals in EFL and ICT. In today's digital era, e-versions of the media considerably influence the formation of new ideas, beliefs and expectations in the persons as key sources of learning (Machill & Beiler, 2009) regarding the study of technology integration in teaching English as a school subject successful integration of ICT in EFL teaching-learning, and thus, are the key sources of learning. Besides, media provide readers with information about contextual factors involved in the process of ICT implementation in this pedagogy.

From a research perspective, online versions of the media allow researchers to communicate by publishing reviews, theoretical, empirical studies as well as texts (See Lapadat, 2002) informing readers about new techniques to using technology in developing new approaches to teaching and learning EFL teaching/learning and thereby can be considered as the rich sources of research knowledge pertinent to the process. Understandably, an analysis of media communications can significantly contribute to the understanding of the use of ICT in developing new approaches to teaching EFL.

Following the key communications regarding technology in teaching English from teacher perspective, as disseminated in the e-versions of the journals, in this paper we answer the question as; how the use of ICT in EFL teaching was reflected in the e-versions of the journals in the years: 2010 – 2016. Among several, five journals were selected for analysis. The aim was to analyze different components on which EFL lessons and their instructional methods were built with ICT to which the media paid attention and to identify the researcher viewpoints regarding different approaches to teaching EFL with ICT.

These research questions were formulated for analyses:

Research Questions

1. How are teaching methods in teaching EFL with the use of ICT represented in the e-versions of journals? Which approaches are most represented in classroom use of technology?
2. Which teaching methods are representative of TPACK as a comprehensive framework on teacher competence?

Research Methodology

Our research is grounded on the inductive content analysis method (Elo & Kynga, 2007), which can be used to analyze media messages of any type and can be focused both on the message content and on the form and make exhaustive interpretations on a phenomenon. One of the advantages of this method is that it is a non-intrusive technique meaning that the involvement of other persons in the research is not required. The other advantage is that it allows us to investigate the processes occurring over any period of time and thus, is helpful to understand a trend. As regards the disadvantages of inductive content analysis, it is textual and thematic, and therefore, the interpretations of the results make up more conceptual than objective meanings.

The unit of observation in our research was ICT in EFL teaching. Individual articles focused on technology integration in teaching EFL in the journals listed in the table below were units of analysis. A unit of analysis was an article which included an author and a headline. Therefore, empirical and review research studies and discussion papers were included whereas content pages were not. Using the directed qualitative content analysis approach (Hsieh & Shannon, 2005) we designed analytical codes (Tsai & Wen, 2005 in Chai, Koh, & Tsai, 2013) pertinent to the main research question which generated a pool of information for qualitative interpretations. In order to shortlist the relevant research; topic, abstract, key words, and conclusion of each paper published in the selected journals between 2010 and 2016 were reviewed. The papers were selected based on the criteria e.g.:

The paper could be review and empirical research report or a discussion paper. On content level, the report had to link teaching EFL in school linking use of ICT. Papers that reported on English as a professional course or higher education level were not selected in this study. Based on these criteria, n=144 out of 598 papers were selected for analysis. The table presents an overview of the sources and amount of selected papers.

Table 1. Selected Journals and Number of Articles

SN	Source / Journal	Selected Papers
1	English Language Teaching (Journal)	5
2	The Southeast Asian Journal of English Language Studies (Journal)	2
3	Computer Assisted Language Learning (Journal)	50
4	English Teaching (Forum)	43
5	Language Learning & Technology (Journal)	44
6	Total	144

Results

In this section we present the results and these address the e.g., “How are teaching methods with the use of ICT as represented in the e-versions of journals?” To this question, we used the given as the main indicators of teaching methods as represented in EFL e.g.

Aimed learning focuses based on language techniques or language items selected in different types of English lessons. Different *individual types of technology* used in different activities or purposes; and *Classroom procedures or the instructional designs*. Based on their characteristics, we identified the main teaching methods and the approaches in teaching English as described in this section.

Aimed learning focuses in the EFL lessons:

Learning focuses were distinguishable on the basis of the selected language techniques or the language items used in particular EFL lessons. Based on these criteria, following were the main learning focuses:

Forms learning focus:

22 studies out of n=144 in this study reported the EFL lessons built on learning focused on forms as; grammar, translation, vocabulary, reading and writing learning. The lessons as such selected the language items that designed the exercises focused on lexical rules such as word meanings and pronunciations, syntactic rules as reading, and writing or composing sentences.

Communicative skills learning focus:

63 studies out of n=144 reported the EFL lessons built on communicative skills learning.

In this regard, the items selected for learner practices consisted of four main language skills-based conversation exercises and the texts for reading and writing exercises. The selected items also consisted of the exercises on the use of grammar and vocabulary items given with their functional aspects such as; requesting, offering, or the notional aspects as; sports, offices, locations etc. along with the extensive reading and writing content or literature.

Integrated or real communication skills learning focus:

59 studies out of n=144 reported the EFL lessons built on integrated skills or real communication skills learning. In these, the items selected for learner practice consisted of the text items for reading and writing that related the content on diverse subject areas such as civilization, history, geography, cultures, business, occupation, professions, science and technology, environment etc. The lessons also consisted of the communication items based on strategy techniques and the context focused interpersonal and intercultural communication skills selected for learner practices.

Individual ICT used in EFL lessons:

The studies reported both general devices such; record tools, data projectors, computers, multimedia, audio-video devices and also smart devices as; mobiles, tablets, laptops as well as language robots (Korean context: Han, 2012) used in teaching EFL in schools.

Supported by their respective devices these were the technologies reported in general; audios and videos, multimedia and presentation technologies, tools supported software like; word processors, spreadsheet, language software, and internet, data bases, online or web-based media, and social media.

The studies reported the mentioned tools and technologies used in different activities and purposes in different lessons which have been described separately under their respective types of English categories following this sub-section.

Classroom procedures and the instructional designs supported by ICT

The studies reported on diverse types of classroom procedures and instructional designs on which the lessons were built supported by technologies.

In this regard, 22 studies out of n=144 reported on these main types of classroom procedures and the instructional designs such as; translation practices based on google translation software, grammar exercises supported by web-based media and language software, vocabulary practices based on online media as online dictionary, thesaurus, and market based software, and pronunciation drills. The classroom practices as these were reported in the forms learning focused lessons.

63 studies reported on these main types of classroom procedures and the instructional designs such as: conversation exercises supported by online and youtube media, question-answers or interactions based on web-content, reading supported on presentation media, group or pair presentations, writing activities supported by computers, online or web-supported grammar, vocabulary and functions focused exercises synchronized with illustrators. Movies, documentaries supported listening, reading and writing activities. These types of classroom procedures were reported in the communicative skills focused lessons.

59 studies reported on these main types of classroom procedures and the instructional designs such as: group and individual tasks and projects supported by computers and online media, presentations supported by multimedia projectors, dramatics or stage acting supported by record and audio-visual devices, teacher-student participated workshops, video conferencing with other school participants, external teachers and experts, online collaborations via social and weblog media. These types of classroom procedures were reported in the integrated skills or real-communication skills learning focused lessons.

On the basis of the identified classroom procedures, these main types of teaching methods seemed represented in the research as: grammar- translation method, audio-lingual method, direct method, communicative language teaching method, functional method, task based method, problem based method, project method, collaborative

methods, experiential learning method, and situated methods respectively. Based on the learning focuses and the methods applied in designing the classroom instructions, three types of EFL lessons were identified e.g.:

1. *Forms competence focused EFL lessons;*
2. *Communicative skills or functions focused EFL lessons; and*
3. *Integrated or real communication skills or communicative competence focused EFL lessons.*

The above stated typographies of EFL lessons are summarized represented in the table.

Table 2. Types of EFL Lessons, Focused Learning and Instruction Methods

Type of EFL Lessons	Number of studies	Focused Learning	Instruction Methods
Forms Competence Focused Lessons	22	Grammar, translation, vocabulary (rules, meaning and partially pronunciation)	GT methods, audio-lingual methods, direct or natural methods etc.
Functions or Skills Focused Lessons	63	Four main language skills: Grammar and vocabulary functions associated with notional aspects	Communicative language teaching (CLT) methods, content and language integrated method and task based language teaching Method
Communicative Competence Focused Lessons	59	Integrated language skills, strategy skills, context and culture appropriated communication skills, and competences	Task based method, content based method, content and task integrated method, problem based method, project based method, experiential learning method, and situated methods

The findings on the use of ICT as represented teaching methods and approaches developed in three different instructional categories have been discussed hereafter.

Use of ICT in the forms focused EFL lessons

As represented in the table, grammar-translation, audio lingual and direct or natural methods based lessons fall into the forms focused category of EFL lessons. In these types of lessons, the studies reported these main individual types of ICT used as: *electronic record or audio-video devices, multimedia projectors, interactive board and online web sources like; Google, Wikipedia and YouTube mainly.*

The main activities in which the mentioned technologies were used related to; *teacher presentations, recording activities, watching videos and listening to pronunciation samples and drill practices, reading electronic texts and graphic materials, using computer and internet for sourcing word meaning, grammar rules etc.*

For instance in line with others; Iks (2010) reported grammar from online free and open sites; in Yassaei's (2012) videos, radio and TV sources were used for drilling practices.

Language specific learning articulated in terms of accuracy in language aspects such as; lexicons (Turrel, 1991), grammar, syntax, reading, writing, and audial components (Celce-Murcia, 1991) were the main outcomes in these lessons.

For instance, as others; Garcia and Pena (2011) reported on lexical and syntactic aspects; Engwall (2012) and Stockwell (2010) reported on vocabulary meanings, sounds and reading of words as the main learning results.

Use of ICT in the functions focused lessons

As represented in the table, communicative language teaching (CLT) methods, content and language integrated method and task based language teaching method based EFL lessons fall into the category of the functions or skills focused EFL lessons. In these types of lessons, the studies reported these main individual types of ICT used as: *general electronic devices, multimedia projectors, interactive board, computers, internet and online web-sources like; google, weblogs, and social media as; facebook, skype, and twitter* used in different purposes.

In these lessons, ICT were reported used on three different levels but more concentrated on classroom level. The main activities in which technologies were used in these lessons were as; presentations, listening, speaking, reading, writing skills, vocabulary, and grammar focused exercises and activities.

For instance; Romero and Manjarres (2016) reported multimedia used for student presentations; Hwang, Shih, Ma, Shadieff and Chen (2016) reported use of mobile games on listening and speaking and web-sources were used for referencing.

Technologies served these main purposes as; exploring information, designing materials, supporting class procedures, and media-communications.

For instance; Lan, Sung, Cheng and Chang (2015) reported teacher designed activities using GJT online, CSL writing platforms (7 modules) etc.; Rezaee, Marefat and Saeedakbta (2015) and Golonka, Bowles, Frank, Richardson and Freynik (2014) reported on the use of web-based and social media communications.

Regarding learning outcomes, learning of four language skills, functional skills in grammar and vocabulary or meaningful use of language in contexts and learner motivation were reported as the main.

For instance, in line with other studies, Hwang, Shih, Ma, Shadieff and Chen (2016) articulated listening and speaking skills; Borthwick and Gallagher-Brett (2014) reported communication skills in face to face and also online situations, and Salas, Fitchett, and Mercado (2013) noted purposeful task based group activities.

Use of ICT in communicative competence focused lessons

As represented in the table, generally, collaborative instructional designs based lessons such as; task based method, content and task integrated method, project based method, experiential, and situated methods based lessons fall into the category called integrative or communicative competence focused EFL lessons.

In these types of lessons, the studies reported these main individual types of ICT used as: *general electronic devices, multimedia projectors, interactive board, computers, internet, web-sources as; Google, weblogs, clouds, web-quests, moodle, and social media as; Facebook, Skype, twitter, and institutional LMS or laboratory supported and supplied media and technologies.*

These were the main activities in which the technologies were used in communicative competence focused lessons as: tasks and project activities supported by computers, internet and online sources, group presentations, online collaborations with peers, external participants, experts and professional circles of EFL teachers.

For instance, Frank (2013) reported on web-quests designed on diverse cultural nuances; Koçar (2010) reported on online and class interactions; Li, Snow, Jiang and Edwards (2015) reported on collaboration with local experts; Alan Hung (2012) presented on the use of e-portfolio used by teachers.

The technologies in these instructions were also used for online video conferencing, participated workshops and for building learning communities.

For instance, Robinson (2011) reported on a workshop activities; Mendez (2010) reported on the use of social media and online web media task integrated activities.

In these lessons, use of social media ICT in beyond the classroom situations for online collaborations (Bertin & Narcy-Combes, 2012) were more focused uses.

For instance; in line with other studies Idris and Ghani (2012) reported on the use of facebook, twitter, emails, chat rooms, weblogs and learning platforms.

Regarding learning outcomes, at language level, real life communication skills and virtual communication skills integrated with contexts and cultural communication skills were the main.

For instance, in line with many other studies, Idris and Ghani (2012) reported on synchronous and asynchronous communication skills;

The lessons also represented the relational skills as resulting from collaborative learning activities in these lessons.

For instance, in Ware and Kessler (2016) and Li, Snow, Jiang and Edwards (2015) teacher collaborated with students on media chats, online platforms and on project activities.

Besides, the studies noted high learner motivation and multi-skills learning outcomes as a result of self-efficacy and student collaborated learning activities in these lessons.

For instance, Alan Hung (2012) reported on e-portfolio or blogging activities participated by student.

Limitations

The study is based on the inductive (qualitative) content analysis method (Hsieh & Shannon, 2005; Elo & Kynga, 2007). Owing to the nature of this methodology, analytical processes along with adaptation of information may reflect some signs of subjectivity and abstracted empiricism at the level of interpretation (Riddell, 1989 in Burgess, 1989 Eds.) that may be treated as shortcoming from the perspective of quantitative inquiry based on numerical precision as its validity (Black, 2005).

Regarding TPACK, its interpretation in this study is limited to the analysis of the applied methods and approaches in teaching EFL with ICT, whereas with reference to Shulman (1986) followed by modifications contributed further by Koehler and Mishra (2005; 2009) and others, is an integrated concept on teacher competence comprising a number of theoretical, conceptual and methodological constituents embodied in a single framework.

Besides, the study does not report specific content items on which the categorized EFL lessons and the identified teaching-learning methods were described. For instance; which specific grammar items, which vocabulary items, which functional and notional aspects etc., are not specified in this study.

Possibly, several different types of barriers and issues underlying the use of technologies as associated to methods and approaches to teaching English are not reported in this study.

Finally, with the sorted-out list of n=144 empirical and review research papers analyzed in this study, another quantitative study may be recommended that may be used to counterbalance any metaphysical types of qualitative claims (Riddell, 1989 in Burgess, 1989 Eds.) which may have resulted in this study.

Discussions

With the emerging discourses in advocacy upon the issue of integration ICT in EFL teaching (Adams & Brindley, 2007) assumed as key means to bringing along innovations in teaching-learning techniques that develop in dynamic, communicative, collaborative or so called (socio) constructivist teaching-learning approaches (Kumaravadivelu, 2006), in this paper, we focused from the researchers viewpoints teaching methods as developed in EFL technologies of pedagogical use (Pedagogicky Slovník, 2003 in Sedova & Zounek, 2008). Based on the findings on the components representing instructional design practiced along with the use of technologies of various kinds, we interpret the developed teaching-learning methods. The identified features associated approaches to the use of technologies in teaching English upon different skills focus e.g. language, communication and intercultural competence etc, these components as key to teacher knowledge, are assessed to answering which teaching methods are representative of TPACK as a comprehensive framework on teacher competence and it is explicitly stated in conclusion section.

The results reflect that with technologies, multidimensional instructions that incorporate diversified language techniques, develop in EFL. For instance, apart from usual language skills such as; listening, speaking, reading, writing skills, most of the lessons are designed on *integrated content, activities, and cultural* items as associated with the use of ICT. This is a clear picture of learning focus extending from grammar to learning *of communications, contexts and cultures* simultaneously with language skills (Aydin, 2016).

Regarding teaching methods, with the use of technologies, varied instructional designs based on diverse teaching-learning techniques, seem to be developing in EFL

class. In some situations, the practices still persist on grammatical instructional designs, though large number of the selected studies revealed interactive, experiential, collaborative, situated or individualized methods predominantly emerging as supported by the use of ICT over traditional methods of teaching English (Plonsky & Ziegler, 2016; Godwin-Jones, 2015).

Accordingly, the use of individual technologies differ in different types of EFL lessons. For instance; general tools like; videos, audios, record devices, and tools supported software (word processors in different categories and multimedia presentation tools) are used as common *in all types of lessons* whereas, in addition to these media technologies; both online web media and social media based technologies are implemented in *functions but more eminently in communicative competence focused lessons*. Moreover, the communicative competence focused instructions are also supported by system based technologies like *LMS* (Arnesen, 2010) and online web-media and social media technologies.

Regarding the functions of individual technologies, these are identified as the main purposes of them as; exploring information, organizing activities for classroom practices such as conversations, group works, presentations by teacher and students, workshops, video-conferencing, research on web-media, explorative activities, social media based teacher-student communications and collaborations, as well as extended collaborations with the external resources and experts and many more... (Salas, Fitchett, & Mercado, 2013). In the variegated purposes as these, internet, online web media and social media are used with special emphasis in interactive English instructions as noted by Lewis, Chanier, and Youngs (2011).

In this way, a common picture emerges that with the use of multimodal in substitute of general structural technologies interactive classroom procedures develop in teaching English. In other words, the above analysis of different components on which the EFL lessons and their instructional designs constitute reveal that the use of modern technologies contribute significantly to developing communicative approaches in teaching English which from paradigmatic perspective represent socio constructive learning framework (Richards & Rodgers, 2014).

From learning perspective, the analyzed research points at along with *subject specific* skills, a number of *new skills and strategies* as the learning outcomes in communicative approach based EFL instructions. In particular, in such lessons, relation building skills, team work skills, active learning skills, self-efficacy or independent learning skills (Godwin-Jones, 2015) are the emphasized skills attained. With the emphasized learning outcomes, an explicit shift from grammatical learning to acquiring real-communication skills competence represented in the analyzed research. In this way, based on the changes as discussed, it is worth consenting with Baker (2009) that EFL teaching considerably revolutionized with the emergence of modern technologies in recent decades.

However, some exceptions are that all the reported types of lessons built on different selected language items and focused competences cannot be categorized as *multiple skills* or communicative competence focused EFL lessons. A considerable

number of studies on EFL reported on usefulness of ICT *grammar focused instructions* (22 out of n=144) and even larger number of studies (63 out of n=144) on the four main language skills integrated with grammar and vocabulary learning. The lessons as these are guided either by grammar practices, audio-lingual, and direct methods or by communicative language teaching methods making conversational practices, drills on listening and oral use, and reading and writing focused exercises supported by ICT (Garcia & Pena, 2011). However, compared to the integrated skills focused tasks-based instructions, the lessons as these are still limited to formal competences or minimal skills competences (Rasario-Sanchez, 2012).

In short, based on the represented inconsistent typographical features, the analyzed EFL lessons were categorized in three distinct models called forms focused, functions focused and communicative competence focused instructional models as discussed above. Accordingly, on the basis of the constituents on which the lessons differ and the instruction designs are varied on the level of classroom procedures which accordingly form within three distinct approaches to teaching English in that use of technologies are tantamount. Following the literature the findings thus are represented into these given approaches as listed here:

1. Traditional approaches; 2. Modern (methods) approaches; and 3. Postmodern or post methods approaches. Their features have been briefly discussed here.

1. Traditional approaches: The forms focused lessons reflect the characteristics of traditional approaches applied in EFL with the use of ICT. In these types, the main classroom practices are noted to be based on grammar translation, audio-lingual and direct methods (Nattinger, 1984). The use of ICT is confined to two main objectives as; classroom management and lesson presentations. The main activities with their use focus on grammar, vocabulary and pronunciation aspects based exercises. In EFL, the procedures as these concentrate more on knowledge aspects of language (Richards and Roger, 2014) and hence, contribute to attainment of accuracy in linguistic aspects (Chang, 2011). From paradigmatic perspective, the processes as these constitute behavioristic and cognitive language learning framework (Turrel, 1991) and are therefore, labelled as traditional approaches.

2. Modern (methods) approaches: The functions focused EFL lessons reflect the characteristics of *modern (methods) approaches* to EFL with the use of ICT. In these lessons, communicative language teaching methods, and functional methods make up the main in which ICT are used on the purposes as; engaging students, communicative or conversation activities, presentation activities and media communications (Romero & Manjarres, 2016). Thus, use of ICT in these lessons extend from merely class management activities to monitoring learning, making extensions, and scaffolding (Casamassima & Insua, 2016). From the perspective of learning framework and its outcome, the designed lessons and their procedures make dynamic process not limited to addressing linguistic accuracy but extend to skills focused learning or communicative skills learning (Hymns, 1971).

From paradigmatic point of view, the processes reflect development of constructive learning framework as characterized to be modern approaches to language (Richards & Roger, 2014).

3. Postmodern or post methods approaches: The communicative competence focused EFL lessons reflect the characteristics of *post methods approaches* to EFL with the use of ICT. One of the distinct features in these lessons is that, use of ICT notably supports interdisciplinary content, tasks and project based interactive instructions. The instructions seem exclusively developing on task methods, project methods, experiential methods, situated methods and so on in EFL with technologies (Benson, 2015). The other important feature is that in these types of lessons use of ICT extends to beyond the classroom situations in which distance learning mode seems blending with the classroom procedures (Bertin & Narcy-Combes, 2012). In the situations as these, exploring sources, organizing workshops and video conferences, supporting student projects, presentations, developing integrated lessons, and online collaborations with multiple resources, EFL experts, and also professional development of teachers are the main purposes of using ICT. In general the use of online as well as social media increases remarkably in the communicative competence focused EFL lessons (Rhoades, 2013; Frank, 2013; Alan Hung, 2012). With the uses of ICT as these, collaborative and experiential *learning* instructions seem stemming up as the main classroom methods building upon inquiry-based, critical and creative learning frameworks. The processes as these reflect the engagements in a structure called '*learning to learn*' (Synthesis report EU, 2003 in Schratz, 2014) in these lessons. Understandably, integrative or real-communication skills comprising contextual, strategic and cultural skills are notably represented learning outcomes in these lessons.

In short, from the paradigmatic perspective, the use of ICT and the developed teaching methods in the communicative competence focused lessons reflect the application of post-methods approaches building on socio-constructive learning process in EFL with modern ICT (Banegas, Lopez-Barrios, Porto, & Soto, 2014).

Concluding the discussion in representation of TPACK

On the basis of the identified methods and the approaches in EFL with ICT, we draw conclusion on the representation of TPACK in action in EFL and it answers which methods are representative of TPACK as a comprehensive framework on teacher competence.

Flashing upon findings and discussions, it is an important picture that with the use of EFL instructional practices build upon integrative framework incorporating language items and content from diverse subject areas (multi-disciplinary content items) such as social studies, science and technology, cultural nuances supported by ICT (Benson, 2015). Besides, extension of learner engagement beyond the classroom situations is possible with the use of media (Idris & Ghani, 2012). Hence, it is common

that the integrated or active EFL instructional practices not only exemplify communicative approaches, but also blended and extended competence based approaches in addressing intercultural communicative competence, a culture based notion of competence (Byram,1997) also called meta-cultural communicative competence based dynamic and pluralistic approach (Sharifian, 2016).

Another important insight is that whereas EFL lessons could be distinguished in the categories as; grammatical, functional, and communicative and so on depending on the focused competences, their instructional designs do rarely correspond with the categorized typographies when supported by technologies. Instead, the instruction designs when integrated with a variety of interactive technologies develop as asymmetrical but considerably dynamic learning practices (Godwin-Jones, 2012) though learning focus on which the lessons are designed limit to forms competences. For instance, we found that the instruction designs in the forms focused practices didn't necessarily represent the so called traditional classroom procedures, though not without exceptions. The instructions in general framed as participatory learning practices such examples were too common in several cases (Kozer, 2010. In this way, it is to be acknowledged that modern technologies of various kinds are associated explicitly with classroom procedures (Sharifian, 2016). With the examples as these, the general research viewpoint is that integration of ICT (Arnesen, 2010) results into developing modern and communicative approaches in EFL (Diana & Tai, 2015) framing social constructivist learning process (Godwin-Jones, 2015).

In this way, as the represented instructional methods and learning processes, and the developed approaches offer evidences it comes supported that use of modern ICT is associated with transformative process in EFL, based on these, it should be concluded that in EFL, which from teacher knowledge or skills perspective is representative of TPACK as a comprehensive framework (Baser, Kopcha, & Ozden, 2015).

However, should also be taken into consideration that in forms focused EFL lessons, use of ICT is still limited 'more with the same' approach (Kraler & Schratz, 2012) on the level of classroom procedures. Though use of ICT helps increasing grammatical knowledge, multi-skills, cultural etc. competence goals are rarely addressed (Sharifian, 2016). Moreover, in the lessons as these, use of ICT is limited with teacher-tasks. Hence, instead integrative lessons based on multi-disciplinary skills (Guichon, 2010) possible by that frame in learning not only core but key skills of teaching (Hayward & Fernandez, 2004) as represented in this study in practices of teaching English within functional and intercultural competence focused approaches, are claimed as representative of TPACK in action (comprehensive) framework.

In such examples, lack of practitioners' updating with the emerging changes in technological and pedagogical states called TPACK (Voogt et al., 2012), or teacher knowledge defined for 21st century EFL class (Diana & Tai, 2015) is anticipated to get addressed with new skills teachers inaugurate upon comprehensive focus and enhanced innovation in teaching and technology practices.

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SCHOOL PRINCIPAL LEADERSHIP AND IMPROVING THE QUALITY OF LEARNING THROUGH PRACTITIONER RESEARCH

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Extensive research on teachers and schools across the globe leads to a conclusion that quality of teachers, the quality of teachers' professionalism and the degree of professionalisation among teachers depend on the quality of their teacher education and this is reflected in recent European policy documents published by the European Commission (2005, 2007) and the European Council (2007).

Regarding the issue of the quality education for every child and the concept of reflective, critical teacher, there is a need to re-think teacher professional education and based it on using research findings for better learning.

This paper addresses the role of school principal leadership in creating the innovative learning environments (Schleicher, 2015) that support the development of critical practitioner research (Groundwater-Smith and Mockler, 2006). Taking into account quality in practitioner research from a bottom-up perspective, it is assumed that practitioner research can promote creative partnerships between those institutions in which teachers and academics work in order to support knowledge creation and quality of teaching.

Considerations on the school leadership and its role in supporting culture for quality improvement in practitioner research are illustrated by the results of qualitative research that was conducted in academic year 2015/2016 among a group of 42 Polish school principals that participated in a post-graduate diploma university program on successful school leadership. The data were collected during focus group interviews with the school principals.

The main aim of this research was to recognize the experiences and the needs of school principals concerning practitioner research, their perceptions on the role of school leaders in supporting culture for quality improvements in practitioner research, and on the conditions of mutual participation of academics and practitioners in the social process of creating educational knowledge.

On the basis of the preliminary findings of the study the capacity of practitioners' research to be critical and to ask important educational questions for teachers' practice and for knowledge creation, especially in the context of education in Poland, will be discussed. At the same time the study participants' perceptions on the role of school principal leadership and the conditions of mutual participation of academics and practitioners in the social process of educational knowledge creation will be critically considered.

The changing context of the teacher education in Poland: reforms of the system education and expectations towards teachers

The current setting for teacher education in Poland is partly shaped by shifting social, economic and political circumstances, whether local, national or global in nature. The rapidly changing context of the education system in Poland over the last 25 years has brought about significant changes in the legislation, which has become the basis for introducing important reforms in education and in teacher education. Every new reform, every innovation in education usually creates new expectations towards teachers and encourages to look deeply at teacher education and to research teachers' educational needs within at specific area.

It is worth pointing out that teachers who work at different levels of education (kindergarten, primary school teachers, middle and high school teachers) in Poland are mainly prepared at universities: they study at the faculty of education (kindegarden and primary school teachers = grades 1-3) or they study in subject departments of Polish universities. Teacher education programs are university based, where scientific content and educational research methodologies enrich the teacher education curriculum. Teacher education, especially at master level, is research-based. It means that it must be supported by scientific knowledge and focus on critical and creative thinking, and cognitive and analytic skills used in conducting research. The entry requirement for permanent employment as a teacher in all Polish middle and high schools is a master's degree. Kindergarten and primary teachers must have at least bachelor's degree.

Salaries are not the main reason young people become teachers in Poland (teachers earn very near to the national average salary level). More important than salaries are such factors as vocation, passion for working with children, possibility of self-realization, desire to work in a profession where there is some place for creativity, autonomy, reflection and constructive criticism (Drózka, Madalińska-Michalak, 2016).

The new basic principles of the Polish school system were established by the School Education Act of 7 September 1991 (with further amendments). The 1999 Education Reform Act on Implementation of the Education System Reform (with further amendments) introduced a new structure for the Polish school system. In light of the existing law, higher education in Poland forms a separate system and is based on the Higher Education Act of 12 September 1990 (uniform text published

in the Journal of Laws of the Republic of Poland of 1990, No 65 pos. 385). Higher education is a dynamic and expanding area in Poland, which has seen an almost five-fold increase in the number of students since 1990. The education system in Poland is centrally managed by two institutions – the Ministry of National Education (general and vocational education) and the Ministry of Science and Higher Education (higher education). It is only the national educational policy that is developed and carried out centrally, while the administration of education and the running of schools are decentralised.

Considering the reforms of education and their results, one can state that the Polish education system has moved from the emphasis on the transmission of information and on vocational education and training that prevailed under communism to an education system that aims to equip its citizens with a more rounded education focused on knowledge construction, and the development of skills and competencies.

The education system has been constructed so that it has to enable learners to adapt to a rapidly changing world, especially the pace and scope of economic, social and cultural change. It was adapted to the provisions of the Constitution and the system reform of the State. The Constitution of the Republic of Poland refers to fundamental freedoms and citizens' rights. It states that every person has the right to education and that education is compulsory until the age of 18. Education in public schools is free of charge. Parents are free to choose schools other than public ones for their children. Citizens and institutions have the right to establish primary, lower secondary, upper secondary and post-secondary schools and higher education institutions as well as childcare centres.

Children's participation in preschool has significantly improved in recent years but is still below the EU average. Poland has achieved one of the best results in Europe in terms of the participation of young people aged 15–24 in education at ISCED 1–6 levels (from primary education to doctorate programmes) and the number of young people holding upper secondary qualifications. Poland is one of the EU's top performers in reducing early school leaving and raising the level of basic skills tested by the PISA survey, including the average level as well as the levels of low-performing and top-performing students. Between 2000 and 2012, Poland made the most rapid progress in the EU with regard to increasing the number of young adults holding higher education qualifications in the 30–34 age group.

International education surveys show outstanding progress in learning outcomes at the end of compulsory education: Polish pupils' achievements at this education level are currently classified in PISA above or at least at the average level among the most developed countries co-operating within the framework of the EU and OECD. It is worth stressing that Poland's PISA results in 2000 were one of the factors impelling reform in schools and teacher education there over the last two decades. In the 2000 PISA examination, Poland's average student score was 479, well below the OECD average of 500 points (OECD, 2001). More than 21% of students reached only Level 1 or below. The PISA 2000 results also showed a real disparity between the educational competencies of students in the general education system and the basic vocational

schools. Nearly 70% of basic vocational school students tested at the lowest literacy level. However, thanks to a series of school reforms that began in the late 1990s, Poland has dramatically reduced the number of poorly performing students in the last 10 years and, in the 2009 and 2012 PISA tests, ranked among the top 15 OECD countries (OECD, 2009, 2010, 2014). Since its first participation in PISA, Poland has been able to increase the share of top performers and simultaneously reduce its shares of low performers in mathematics, reading and science. The average difference in results, between the top 20% and bottom 20%, is 97 points, slightly lower than the OECD average of 99 points.

The above-mentioned achievements of Polish education co-exist with the deep decentralisation of management of the education system and new policies on improving the quality of teaching staff. Repressed before the transformation of the political system, the organisational and financial potential was unlocked after 1989. Most educational tasks at preschool to upper secondary school levels are currently managed by a local authority. The organisational and financial responsibility of local authorities for developing education stimulated local educational ambitions and helped lift the burden of debts regularly incurred to finance educational tasks when these fell within the remit of the governmental administration.

At the level of post-secondary education, especially in higher education, the potential of non-public education was unlocked, supported by the considerable private expenditure of learners and their families. Decentralisation of the management of education has recently been reinforced by the steadily growing autonomy of schools and higher education institutions (HEIs). A policy based on learning outcomes has been introduced in school and higher education in line with the European Qualifications Framework to provide schools, HEIs and teachers with greater autonomy in organisation of the educational process.

In the school year 2009/10 by the Regulation of the Minister of National Education of 7 October 2009 were put in place arrangements within the pedagogical supervision system. The system existing before 2009 was modified on the basis of regulations of the minister responsible for school education adopted successively in 1999, 2004 and 2006. Pursuant to the Regulation of 1999, pedagogical supervision involved mainly two elements: checking the school's compliance with the requirements concerning its statutory tasks and supporting school staff. The 2004 Regulation introduced the concept of evaluation understood as assessing the relevance and effectiveness of educational activities in relation to their stated aims and with regard to potential improvements. Finally, the Regulation of 2006 provided for compulsory evaluation of educational activities undertaken by schools. However, it did not define clearly any specific tasks for pedagogical supervision or rules and tools for quality assurance as part of pedagogical supervision. As a result, external pedagogical supervision consisted mainly of checking schools' compliance with the law. It did not focus sufficiently on the evaluation of the quality of their work and it did not provide them proper support essential for improving the quality of education and for the implementation of improvements and development plans.

The main reasons behind the modernization of the pedagogical supervision system in 2009 included (1) the lack of a uniform, comparable system of the pedagogical supervision across the country, (2) the ineffectiveness and the limited usefulness for improving quality in schools of the previous system and its inability to respond to the pace and scope of changes and educational needs of the society, (3) insufficient efforts taken by schools and their managing bodies in order to improve the quality of education (this resulted in educational inequalities related to pupils' or students' background which pose problems in less developed regions of the country), (4) the need to gather reliable information to design the national education policy and education policies at regional and local levels, and (5) the need to provide pupils and teachers with opportunities for comprehensive personal and social development in line with their aspirations and capacities.

The arrangements put in place in 2009 were aimed at establishing a pedagogical supervision system which contributes to better quality of education on the one hand through supporting the development of kindergartens, schools and other educational institutions, and enabling comprehensive development of pupils and teachers, and on the other hand through supporting the national authorities in developing and pursuing an educational policy based on comparable data on the entire education system. The latest arrangements made up an integrated system of *internal* and *external* quality assurance, covering both early childhood and school education, and both public and non-public schools within these sectors. Nowadays, the system of quality assurance requires at the school level to conduct the research on the school practices. It means that the role of school principals and teachers has been reinforced and they are perceived as researchers and creators of the knowledge¹². The reform put greater emphasis on collaboration among teachers and other school stakeholders, encouraged teamwork at the schools and building a culture of self-evaluation, which had thus far not been part of the Polish education system. The reform influenced on the organisation of inspectorates as well as the attitudes of important actors in the education system regarding the relevance of data to support internal and external school evaluation.

Methodology and methods

The qualitative research study was designed to learn about the experiences and needs of school principals concerning practitioner research. Specifically, I was interested in finding out their viewpoints, beliefs and perceptions about their beliefs, opinions, perceptions of the role of school leaders in supporting culture for quality improvement in practitioner research at school level, and to examine the conditions of mutual participation of academics and practitioners in the social process of creating educational knowledge.

The focus group interview as a method of data collection (Sharon et al. 1996) was chosen for the purpose of the research. The method provided the opportunity to capture insight into the school principals' experiences in practitioner research and

their needs within this field, and to investigate the participants' beliefs, opinions, perceptions regarding their role in supporting culture for practitioner research at school. I felt that the focus group interview could provide opportunities for school principals to share freely their viewpoints on the complex issue of practitioner research and knowledge creation.

Data were gathered among 42 participants of the post-graduate diploma university program on successful school leadership in academic year 2015/2016. The school principals were aged between 42 and 55 and they came from two different types of school: primary and lower secondary schools. They experience in being school principals range between 4 and 15 years. Many were primary school principals (25).

Regarding the workplace, the study participants were divided into 5 focus group interviews: (i) 3 groups of primary school principals ($8 + 8 + 9 = 25$), (ii) 2 groups of lower secondary school principals ($8 + 9 = 17$). The interviews were audio taped. The transcribed data were analysed, according to the qualitative analysis.

Each interview lasted between fifty and seventy-five minutes. Prior to the interviews, I met with each group of school principals and briefed them on the nature of the interview and its general purpose, explaining that they were free to talk and ask questions. Although they had no prior experience in this kind of group interview, they were very enthusiastic and spontaneous and all readily agreed for recording their discussions.

Group interaction was based on a list of topic questions pertaining to the main theme of the interview (see Table 1). The list included a series of open-ended questions that were directly connected with the the main theme of the study. The analysis of the responses to the topic questions was important in identifying the themes and common answers that gave insights into the situations in which participants saw themselves as leaders in improving the quality of practitioner research at their own schools.

At the beginning of the focus group interview the study participants were asked to response to the question 'Why not conducting practitioner research at schools?' Then, their attention was directed to the issue of their experiences and perceptions of their role in creating the conditions for practitioner research at school. Special attention was paid to the issue of the conditions of mutual participation of academics and practitioners in the social process of creating educational knowledge.

Results

The main findings of the research suggest that the school principals found practitioner research to be of great value to the continuous improvements of the school education. They recognised the capacity of practitioners' research to be critical and to pose important educational questions for teachers' practice and for knowledge creation. The school principals paid attention to their role as school leaders in creating the conditions for enabling practitioner inquiry leading to change in practice. They would like their teachers to be actively involved in research carried out in cooperation with academic researchers.

Even though, the context of education in Poland influences on schools through an emphasis on test and exam results and on high stakes quality assurance systems (new system of pedagogical supervision), school principals that took part in the presented study paid a special attention to their teachers' professional learning and school change. These principals were especially concerned about the challenging questions about the education of students for their better life. Therefore, they focused on school values, beliefs, pedagogies and leadership. They showed their teachers the importance of opening the school door towards – as one of the principal said – „the real problems of the students”, „to their culture”, „their worlds”. Lower secondary school principals in very emotional way stressed that is important to go beyond teaching methodologies and create an inclusive, culturally responsive, emotionally literate learning environment at school. As principals they try to support teachers in developing effective communication skills with students and encourages a reflective approach to their practice at school.

They expressed their views on teachers responsibilities in the context of school-based research. They said that “without teachers, school-based research is impossible”, „teacher presence and willingness to conduct reseach on their own practice is obvious”. However, at the same time some of the school principals pointed out low teacher motivation to conduct the significant study. They noticed that teachers are overwhelmed with the formalities – they have to work on the documents that are evidence of students achievements and school developments in different areas. School principals talked about various strategies that they used to address this barrier. They mentioned that ongoing support to teachers during the research and the proces of implementing the change at the daily school life increased teachers' motivation. Much can be gained from studying the ways in which school principals try to work on such values as trust, respect, sensitivity, appreciation in order to establish and maintain healthy relationships (with and among teachers, parents and students). According to school principals, motivation, commitment and cooperation are crucial to stay the course in school-based research.

In Poland, teacher research has received much attention in the last decade. The popularity of the view that research and teaching are closely related activities has reasonable justifications and benefits. School principals are fully aware that teacher research has a range of impacts on staff, including changes to a curriculum and pedagogy as well as improved confidence, job satisfaction and professional development. They see the value of research-informed practice for teachers, teaching and learning at school. “Through research – as one of the principals said – teachers can understand in deeper and richer ways what they know from experience.” They can be seen as learners who reflect on their professional needs and explore the learning processes occurring in their classrooms.

The school principals share the view that school-based research is not the research that can concern the transfer of pedagogical/educational knowledge into practice. Study participants fully supported the importance of the research that is conducted not only exclusively by academics in order to use obtained findings in practical

conditions. From the collected data is evident that study participants are not interested in applying theoretical knowledge into practice. They rather opt for such a knowledge that is connected with practice and embedded in actions. Grundy defined this type of knowledge as: ‘Knowledge that is intrinsically connected with practice. This is not knowledge that informs practice, or that has practical intent, but knowledge which is embedded in “praxis”: reflective knowledge in and through action’ (1987, p. 40).

Data collected on the basis of focus groups interviews proved that for the researched school principals doing research and indeed some of the new knowledge arising from practitioner research may be recognised as relevant to the desired outcome improvement in practice. However, regarding the preliminary findings of the conducted study we can identify some significant barriers that need to be overcome before effective working relationships between school- and university-based researchers can be forged (Lunenberg, Ponte, Van de Ven, 2007).

On the basis of collected data we can state that from a school perspective some of these barriers have their origins in school principals’ and teachers’ past experiences, while others are based on myths and common misconceptions about universities and academics in Poland. During the focus group discussions school principals stressed out that there are different expectations of research between universities and schools. The school principals see that “academics are mainly interested in writing the papers for academic journals that many teachers usually do not read” and they are “focused usually on theoretical knowledge and at the same time they are not really interested in such studies that can have a direct application in classrooms”. School principals pointed out that “academic researchers see knowledge creation as the main function of doing research”; “education research is abstract and not relevant to their specific school context”.

On my question: “How we can cross boundaries to close the gap between academics and practitioners?” school principals said that “there is a need to create the conditions for the partnership of universities and schools”. The school principals expressed their needs in developing such partnerships. They mentioned that any form of partnership between university and school in order to create knowledge together should be based on the necessity “to understand that in this cooperation both contribution and learning combine into one process – process of learning”. However, usually “academics rely on their own authority and don’t seem to be willing to be closer to practitioners” or “to build with them the relevant relationships”. The school principals stated that “building relationships between school and university is a really important aspect of collaborative research partnership”. However, they would like the academics “to look at their school problems from their school perspective” – this might be perceived as very problematic for the developing the practitioner research.

The school principals said that they would like their teachers to be treated by academic with demonstrated respect, sensitivity and appreciation for their time and priorities. So, basing on the school principals opinions, experiences, irrespective of the school conditions, I found that appreciative, interested and inclusive relationships

tend to encourage teachers to the studies. In this way, explicitly building a partnership with teachers may draw them into the school as a place of the research and change, and may have a positive effect on agency in the school-based research.

Conclusions

The focus group interviews with school principals help us to recognize some barriers that they see for practitioner research. And, what is interesting, the study participants mainly pointed out the barriers that are created by academics. However, one can state that it is not just universities crossing the boundary to collaborate in research and work in schools but schools crossing the boundary to work and perfect their research skills at universities. Frederick Erickson, in the third edition of the “Handbook of Research on Teaching” (1986), discussed research collaborations involving academics and teachers and said: ‘A few steps beyond collaborative research involving teachers and academic researchers is for the classroom teacher to become the researcher in his or her own right’ (1986, p. 157). Erickson went on to argue that more teachers need to take on the responsibility of conducting educational research: ‘If classroom teaching in elementary and secondary schools is to come of age as a profession—if the role of teacher is not to continue to be infantilized—then teachers need to take the adult responsibility of investigating their own practice systematically and critically, by methods that are appropriate to their practice.... Time needs to be made available in the school day for teachers to do this. Anything less than that basic kind of institutional change is to perpetuate the passivity that has characterized the teaching profession in its relations with administrative supervisors and the public at large’ (p. 157).

The partnership of institutions of higher education/universities and schools based on cooperation consists in increasing the significance of differences and reinforcing the sense of identity, and at the same time in expanding the mutual knowledge about each other and raising the degree of mutual understanding; so that the movement between the two “castles” can take place in a way bringing pleasure and posing a challenge, and can be mutually strengthening (Somekh, 1994, p. 373). Possibility of crossing the barriers, of removing them so that the cooperation between academics and practitioners can start, is based on the metaphore of mutuality (Johnson & Johnson, 2002). The partnership of institutions of higher education/universities and schools emerges from the necessity to understand that in this cooperation both contribution and learning combine into one process.

Andrew H. Van de Ven (2007), shows that business people and academics usually find it hard to discover common areas, to agree on many matters, but that probably they would agree on one thing: they possess completely different ways of perceiving the world and of evaluating it. In reality differences that exist between the practitioners and academics create not so much barriers making their cooperation impossible, but chances for better search for solutions to problems involving both sides. It is hard to give full and appropriate answers to questions posed by researchers, if the search for this answer is characterized by only one way of thinking. “Engaged scholarship” is

such a form of research practice in which one looks at a posed problem from various perspectives: academic's one, practitioner's one, client's one and others. When such a situation occurs, it may contribute to the increase of our abilities to expand knowledge and improve practice.

There is no doubt that searching for possibilities of cooperation between academics and practitioners with the assumption that they are different does not mean that they oppose each other or that they are supposed to substitute each other. Researchers and practitioners who, while having different points of view in understanding the problem, can increase the significance of research for practice and personally contribute to the advancement of scientific knowledge in the pedagogical field. During process of research, teachers have the opportunity to travel outside their environment to seek information and collect relevant data. They can develop relevant research skills: formulating realistic research questions, adopting appropriate procedures for collecting and analyzing data, and presenting the fruits of their research in a form accessible to others. It provides greater opportunities for collaboration and networking between academics and teachers. When teachers are involved in research, their motivation may be boosted and maintained. Through collaborative knowledge building, studies can spotlight transitional trend analysis through human and instrumentation collaboration. To enhance co-operation between academics and teachers the emergence of positive motivation that makes teachers utilize the academic knowledge (recurrence, objectivity, generality, explaining, for example, why people behave in a certain way), establishing pedagogically/educationally effective contacts of researchers with teachers and establishing the dialogue between researchers and teachers may be necessary.

Many teachers are concerned about time and abilities and still see teaching as a consuming, complex activity which is made even less manageable when research is an additional requirement, even though it is exactly that experience of teaching complexity that makes teachers' input vital to research and reflection on teaching. Teachers are already overburdened with curriculum requirements, accountability requirements and all the day-to-day pressures of keeping a classroom running and they wonder why they should take on one more thing. This concern is justifiable and understandable; however, it is a misconception that sees research as a separate activity from teaching. For many teachers, research is an optional extra (Thornley et al, 2004). Teachers must realize that research is doable because it stems from their own teaching practice. They should become aware of their own practices and the beliefs that underpin them, construct their knowledge and become active participants in research. They must acquire research skills and confidence necessary for disseminating small-scale but high quality research findings, thus making public their knowledge, beliefs and practice. As researchers of their own practice, teachers can discover for themselves how deeply theoretical their work is and has always been. This discovery can position them in a new relation to university theory. Theory is no longer what "they" do at the university, but becomes what "we" do in our classrooms every day (Kalnin, 2000).

Practitioner research calls for courage to face emerging social problems. School principals' leadership play an important role in improving quality of practitioner research in different ways – ways that were indicated in this paper.

Short-sighted educational policy becomes something of an obstacle in increasing the quality of functioning of schools. Thanks to practitioner research, teachers, as researchers of their own practice undertaking in cooperation with academics critical reflection and making efforts to understand their own practice and its context, can change their own practices and support work of their schools, as well as contribute to development of educational knowledge. Practitioner research can assist in concentrating not on a “gap/distance” between academics and practitioners, but on a space/sphere between them, the one that links academics and practitioners – this sphere is education. By forming the sphere/space that links them, academics and practitioners can act in order to co-create educational knowledge and change educational practice.

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AUDIOVISUAL CREATION EXPERIENCE AS A LEARNING EXPERIENCE

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The main objective of the research is to analyze the meaning of the audiovisual creation experience in teaching-learning processes, especially in the teaching of History. We investigated digital audiovisual production as a place for the collective construction of knowledge and the potential that it represents for learning and teaching History. The research approach is qualitative and the data were collected through interviews and a focus group with 22 students and teachers involved in the creation of two short films in a Brazilian school. The analyses suggest that the production of short films by teachers and students of basic education represented a space for the development of the collective, integrating the participants in different creation processes, as well as it also meant an experience of understanding the knowledge in History. The results show that the production of short films at school represents a possible strategy for rethinking teaching and learning in digital culture.

Introduction

Despite the clear state of digital exclusion in force in several regions in Brazil and the world, where individuals are kept away from contemporary innovations through social exclusion, we live in an era of digital revolution, with unprecedented impacts in everyday life brought about by new technologies. In the contemporary context, the production of short films using digital technology is a concrete possibility in relation to teaching.

The spread and popularisation of digital media, access to editing channels and programs through the internet, as well as the speed of information on social networks have streamlined the reality of these 'new students' (Pino & Zuin, 2012). As it is wide-reaching and accessible, being able to make a film with images recorded on a mobile phone, digital cinema production offers activities that can include all students in the class, at different stages of the creative process. It is a reality that may be used by the educator, as long as he/she introduces the basic codes of this language in short, medium and long term projects, as in order for us to appropriate ourselves of a

language, understanding, interpreting and giving it meaning, we need to learn how to operate its codes (Martins, 1998; Grizzle, 2011).

It is essential to see the student at the centre of the creative process, a builder of meaning, as learning is related to the person who learns, the main and most important character of this process (Prata Linhares, 2011). Therefore, thinking of the creative experience as a safe path to really understanding the teaching-learning process, points us to the debate of including the language of creation and short-film production.

However, despite the popularisation of digital media, when we look into the school, reality is still challenging. The TALIS report (OECD, 2014) notes that skills to use digital technologies in schools and for promoting learning have still proved a challenge for many teachers, who despite acknowledging the importance of exploring digital technologies in learning spaces, continue to be unprepared. The rationale is that this is partly due because it is a process that demands continuous alterations, as technological apparatus are constantly changing.

This article discusses this theme and presents results of a study developed in Brazil, which was led by the following question: what is the meaning of audiovisual creation experience when associated with teaching-learning processes? In other words, the study sought to learn how the production of short films by students and teachers could affect teaching and learning practices in schools. The paper is divided in four sections: the first presents its theoretical framework, the second addresses the methodology used, the third discusses the results, while the fourth and last part looks at the educational importance of this study.

Theoretical framework

The study's theoretical framework is supported by Brazilian authors like Fantin (2006, 2010, 2017) and Prata-Linhares (2012; 2013; 2015), among others. They discuss the potential of creation and specifically of the cinema, when joined to education, highlighting the challenges to incorporating this language as part of a pedagogical proposal, as well as approaching the advent of digital information and communication technologies. With respect to the significance of the experience and its meanings in the memory of those that enjoy it, the study presents a reflection on memory and its role associated to artistic creation. In addition, it is fundamentally based on Spanish author Larrosa (1994, 2002, 2011, 2015) and uses Bardin's (2011) content analysis (2011) as a reference for studying the data collected.

Methodology

Looking to understand transformations better, the study brings an analysis of these mechanisms and strategies to present reflections on the creation and production of two short films developed with teachers and upper secondary students in a school in the state of Minas Gerais, in Brazil. The study's subjects are the teachers and students involved in the creation and production of the short films. They participated in

interviews and focus groups, thinking about the meanings the experience took over the years, since being carried out and how important it was in their lives.

Produced between 2009 and 2010, for those taking part, the short films represented the sharing of knowledge and its meanings. The short film 'The Margin', *A Margem*, (2009) addresses the theme of 'social exploitation in the field'. The theme, which represents one of the big contradiction of Brazilian social development, was also chosen for its great relevance with subjects such as history, geography and sociology, among others. The script produced told the story of a family in a rural area, exploited by a farmer. In the plot, this family's father decides to flee with his wife and child, so as to no longer be submitted to his boss' abuses. However, before fleeing, the father takes all the money he manages to raise and which, according to him, he should have been paid a long time ago, which leads to the farmer's displeasure and persecution of his family by his henchmen. The element of the 'theft' of the money was introduced to trigger a debate on ethics and justice, relevant issues particularly in the philosophy and sociology subjects.

The short film 'Seven warriors, a reminder' in its turn, features an adaptation of the War of Canudos, conflict that put in check the social conditions at the start of the Brazilian republic. The conflict involved residents of a village in the northeast of Brazil, who were being decimated by the behaviour of an authoritarian government. In order to adapt and make the story credible, the plot developed does not have the main characters as the great fighters. Instead, they are anonymous young people, who stood at the entrance of the Canudos village, with the charge of warning the other residents of a possible invasion by the army. This made it possible for young people between 16 and 18 to play the characters in the script.

Focus groups and interviews were used for collecting the data. For those taking part in the short film 'The Margin', we used the focus group. This was done because the production involved 10 people who lived in the same town, which made using this procedure easier, as subjects are instigated to reflect on their memories collectively. The choice for collecting data from participants in 'Seven warriors, a reminder' was to use a semi-structured interview as the predominant technique. This choice was base because the subjects involved in the project were 27 students, who at the time attended several universities, some in other towns, which made attempts at meeting everyone together difficult.

In order to analyse the data following the principles of categorisation by Bardin (2011), a classification system was established, with pre-defined categories. Then, we selected and divided the analyses. Obeying mutual exclusion, homogeneity, relevance, objectivity and productivity criteria, we opted for analysing reference values from the set of established categories defined. The criterion used in categorisation was semantic.

In the building of the categories that guided the data analysis, several questions were presented vis-à-vis the study's objectives and hypotheses:

- How is the experience of creating and producing a short film perceived in the memories of the study's subjects?
- What are the similarities between the accounts provided by the individuals?

- How does the experience reveal itself in the memory of each individual?
- What do the individuals think of the production experience as a learning experience?
- What impacts can audiovisual production have on the learning experience?
- How does memory operate vis-à-vis artistic memory?

It was essential for the categories to represent paths to unravel hypotheses intrinsic to the study's central objective, thus, working organically in harmony with the criteria established by Bardin (2011). Therefore, defining the three categories mentioned included fundamental concepts of the study and assisted in analysing the subcategories that emerged from them.

Hence, we arrived at three categories, as explained in the chart below:

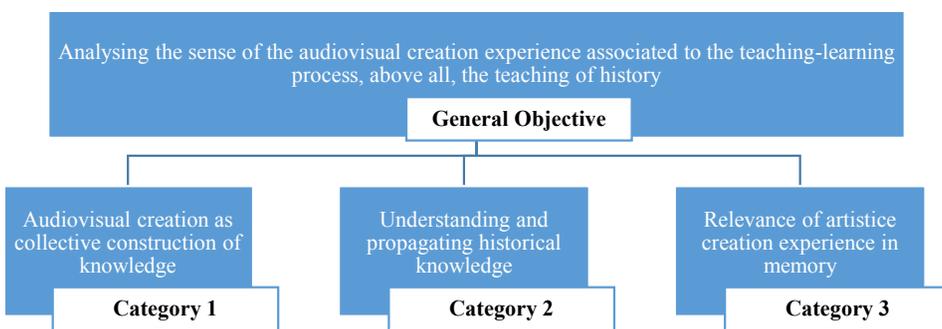


Chart 1. Defined categories

Source: the author, 2016

When the three categories were established, the arguments and possible subcategories deriving from the key concept of each were analysed. Thus, we considered the reports of the two short films, divided by themes associated with each category and subcategory. Hence, we opted for not segregating the analyses in two categories, of students and teachers. The integration of the issues and not each subject's condition in the project, served to show that in both perceptions, concepts like unity, overcoming challenges and understanding historical and social reality, emerged in the same way when the two projects were reported, be it by students or teachers. Therefore, we believe that the processes and experiences that indicate new ways and practices in the school universe, should also consider the teaching process as a learning process, developing the notion of the teacher as a constant learner and students as active subjects in the path to knowledge. The results will be discussed below.

Results

Considering the methodological procedures and defining the three main categories, we analyzed the arguments present in the speech of each subject, highlighting those that were most affirmed, and defining subcategories associated to each of the central categories. After the analysis, the most relevant information was systematized in the table below:

Table 1. Categories, arguments and subcategories systematised in the study

Categories	Arguments	Subcategories
Category 1: Audiovisual creation as collective construction of knowledge	<ul style="list-style-type: none"> Unity of those involved Sharing of tasks Overcoming differences Overcoming conflicts Inclusion Integrity Collective effort Group's motivation Teamwork Everyone involved Different and shared tasks Multiple participation possibilities Collective study Unity between students and teachers Collective determination Pleasure in coexistence Intensity of the experiences Overcoming adversities 	<ul style="list-style-type: none"> Collectiveness Sharing of tasks Overcoming hurdles
Category 2: Audiovisual production and creation as understanding historical knowledge	<ul style="list-style-type: none"> Understanding historical concepts – War of Canudos, Messianism Understanding Antonio Conselheiro's historic leadership Understanding social exploitation in the field Importance of daily life Innovation in how to learn Learning enhancement Dynamic study of the past Overcoming content related difficulties Putting the past in context Materialisation of the past Interrelation theory by practice Immersion in the theme Experiencing social problems New way of teaching and learning history Overcoming memorisation by understanding Teaching associated to emotion Building of multiple perspectives 	<ul style="list-style-type: none"> Persisting memory New way of studying history Social themes
Category 3: Relevance of artistic creation experience in memory	<ul style="list-style-type: none"> New experience for those involved Fun and Pleasure The excitement of producing a film The production of costumes and the script and how they stay in one's memory The production of the short film as the school's primary experience Desire to turn back the clock and make the short film again Longing for production Influence on professional life Memories of the production details Sacrifices for the production and its results Building affectionate relations Building permanent relations 	<ul style="list-style-type: none"> Permanence Affectionate relations Protagonism

The analysis of the discourse, memories of the subjects involved in creating the short films revealed the meaning the experience holds for those taking part. The short films 'The Marging' and 'Seven warriors, a reminder' constituted true learning moments and the understanding of a variety of elements associated not just to audiovisual artistic production, but history and other subjects. Shot with a simple hand-held digital camera and with very modest and improvised resources, the films meant projects resulting from the belief of several people in how a movie is able to sensitise, motivate the other to share experience, or even understand under a different glance the theme addressed by the script.

In the short film creation and production experience, subjects were in touch with the artistic dynamics proposed as part of a whole in the building of the plot and the production. The activity's collective notion projected the different points of views in the wide design of creation. This made each student or teacher notice their collective role, at the same time as they were brought closer to the experience in a unique manner, singularly perceiving reality and creating meanings that will perpetuate in the memory of each and every one of them. Art enables experience in the extent that it addresses subjectivity in the creative process.

In Larrosa (2002), we are invited to notice experience beyond its common definition. The experience would be a place where meanings are built associated to individuality and at the same time, collectiveness. Individual because it is noticed by the experience's subject, who allocated meaning to it, and collective due to the notion that the experience happens through one's relation with the other, just like in a classroom where everyone is invited to reflect on the same question. By thinking about the relation between knowing and experience, Larrosa explores the definition of experience beyond its modern conception. Inheriting the empiricist tradition, a foundation of modern science, the experience was always allocated as the place where perceptions are compared. The scientific basis of knowledge is anchored on the notion that experience points to reality, empirically noticed in the field of method. Hence, subjects passive in relation to the occurrence, notice it in the same way as through experience, essential confirmation of science. For Larrosa, experience opposes modern notion, as it not in generalisation, but in the individualising of perception.

If we all witness something happen, or in other words, if something happens to all of us, like someone's death, the fact is the same for everyone, what happens to us is the same, however, the experience of death, the way in which everyone feels or lives, or speaks, or tells, or gives meaning to death, is different and singular in each case for everyone, which is why we could say that we all experience and do not experience the same death. Death is the same from the point of view of the event, however, unique from the point of view of experience (Larrosa, 2011. 16).

When considering that man is defined by the word, which points to the individual's posture vis-à-vis the world, reflecting on the meaning of experience as knowledge is to define that it is what it comes through us, what happens to us, touches us and not

by what happens. Experience related knowledge is not knowing things, by allocating meaning to them. We can spend a day watching a lecture, or a lesson and nothing happen to us because we do not take part in it, we do not appropriate ourselves of the experience as meaning. 'Experience does not reduce the event, but supports it as adamant. My words, my ideas, my feelings, my knowledge, my power, my will' (Larrosa, 2011. 6).

In Brazil and in the rest of the globalised world, the logic of speed characterises the ever shorter and numerous curricula, making experience as an educational foundation unviable. From Larrosa's perspective, generating information and opinion paradoxically provides a setting where experience is increasingly rare. Hence, his advocacy for education based on art, film, literature and philosophy.

Along the same line, according to Fantin (2006), debating the possibilities provided by film when associated to education, there is the real need for education that goes beyond teaching what the cinema is. This education needs to include the production of students, as when we multiply participation opportunities by students in relation to authorship, we are promoting an education 'with the means (using cinema and films in the context of enjoyment), about the means (critical reading through cinematographic analysis) and through the means (producing audiovisual material, photography, scripts)' (2006, p. 8–9).

The testimonies by the study's subjects represented moments of immersion in the perceptions they built in relation to the experience they went through over 5 years also. In addition, they were opportunities to think about what the past represents for those remembering it, as well as how memory may give different meanings to experienced moments:

If you ask me about any other theme, some other war, just like that, I don't know... but the War of Canudos I do because I made the film, we studied the history related to it really well, in order to be able to show the film, which was very good. (Study subject, 2016)

In the accounts by teachers for instance, it was evident that the experience represented much more than they were able to realise at that moment. The intention of motivating students to make a short film through the power of example, as in a film being made by the teachers, became a motivation for the teachers themselves, who started to rethink their practices and ways of interacting, which they had developed throughout their professional lives:

I remember various meetings the team held to read the script and develop the characters. We were very thrilled... everyone felt that because we were developing something so new and important for everyone and the students who would watch the short film. The magic of the cinema is integrating people in varied roles to tell the same story. (Study subject, 2016)

[...] the fact the student sees the teacher taking part in a project enhanced reflection on the themes addressed by it. When students see us there, they say, wow! Look at the teacher there! This surprise is used positively in the debate about the movie.' (Study subject, 2016).

The spirit of collectiveness and camaraderie among those involved in creating the short film, highlighted in the study's analyses, pointed out the potential projects of this nature have in developing a sense of collectiveness in teaching practices and students' day-to-day. 'Doing audiovisual in school may mean a synthesis between educating for language, learning by doing and learning by cooperating'. (Fantin, 2006).

Educational importance of this study

Education needs to be a space where individuals allow themselves to be captivated. When students are captivated, affected somehow by the power of example, or experience, the classroom becomes a place where knowledge develops naturally, moved by the range of subjects that make up the school universe. The teacher, manager of this multiple reality, needs to be the agent that initiates the change by example. We do not advocate here that teachers, from all areas be trained in audiovisual production languages. What we do advocate is for the teacher to be a professional open to new experiences and above all, open to constant and shared learning. Many students operate the languages of new information and communication technologies more precisely than the teachers themselves. This may work in teaching if the teacher uses these skills in socialisation moments in the classroom and out of it. Taking advantage of skills and vocations present in the classroom means motivating others to reveal themselves. It also means to enhance the existence of multiple abilities in the building of knowledge.

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FACEBOOK AS SUPPORT FOR VOCATIONAL TRAINING

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This research is about the use of social network as a tool in the teaching-learning process, aiming the information flow to improve the communication process between students/ teachers and students/students. The social network and its educational use have two points of view. The first one relates to Information and Communication Technologies (ICT), which is the creation, multiplication and diversification of new devices (especially mobile devices or apps), increasing the opportunities and diversifying ways to share ideas, values and interests that still need to be explored. The second perspective relates to the development of abilities and attitudes in the school environment through the ICTs. This set of abilities and attitudes go beyond the basic alphabetization as known as digital literacy, enabling the development of the Critical Collective Intelligence (Lévy, 1999a).

Collective intelligence is widely spread and is valued and coordinated in real-time, resulting in an effective mobilization of its competences (Lévy, 1999a). The collective intelligence establishes synergy between competences, resources and projects, constitutes and maintains a common memory, activates flexible and transversal cooperation modes, promotes coordinated distribution of decision centers and tries to fight the disjunction of the activities, the compartmentalization and the opacity of the social organization.

We understand that we are facing a bidirectional and dynamic type of communication today, enhanced by digital tools such as Facebook, Wikipedia, Twitter etc. Displaced in a theoretical framework and designed as a digital platform, these tools help to expand online communities in order to share information, online support and act as a group (Spagnoletti, Resca & Lee, 2015). Human interaction is the focus of online communities and Facebook is one powerful tool that spreads and encodes information, creating good conditions to the learning process. Therefore, a virtual community allows the students to share information, opinions and doubts and aids in the educational process, especially when these activities are supervised by tutors that consider a theoretical and pedagogical framework.

This research outlined the topics, interests and contents of three Facebook communities created by students from two undergraduate courses of the Paulínia Faculty (FACP), São Paulo, Brazil; studied the ecosystem of ideas of these communities and its member interactions and their collective intelligence production. To reach these objectives we asked the following questions: what is the content of a Facebook community created to enhance socialization and information exchange? Which are their objectives and motivations to use this tool? How do they evaluate the tool for communication, its utility and the contents taught in the classroom?

The goals were to identify what is posted on a group created by students for interaction and understand the educational potential of using social networking.

Theoretical framework

The theoretical perspective of the research discusses the relations between information and communication technologies (ICT) and their implications in the social ambit and the potential of the use of ICT, especially of Facebook, in the context of formal education.

ICT: relations and implications in the social spheres

Pierre Lévy is a theorist who investigates the relationships and the role that ICTs play in the communication between people and the way these technologies influence cultural evolution. Lévy tries to find a balance between different points of views about the Internet and its role in current social life. He says that the real question is to recognize the qualitative changes in the ecology of the signs, the brand new environment that results from the extension of new communication networks to social and cultural life (Lévy, 1999b, p. 26). Dealing with social and cultural implications of new technologies, he makes clear that “A technique is nor good nor bad – it depends on the context, the use and perspective, and it’s not even neutral (it is determinant or restrictive)”. Lévy (1999b) calls attention to the fact that turning back in time is something impossible: the cyber culture is one more resource to the humanization and education of the social environment.

Lévy presents the cyber culture as a technical phenomenon and an array of sense. According to Lévy (1999b, p. 17), cyber culture designates “the set of techniques (material and intellectual), experiences, attitudes, thoughts and values that we develop together in cyberspace”. To this author, cyberspace is “the new communication vehicle that emerged from the worldwide web”. He also states that this terminology “defines not only a digital communication infrastructure, but also a huge amount of information hosted by this universe, as well as the social diversity of web users” (Lévy, 1999b, p. 17).

Similarly, Lemos (2002) says that cyber culture is a contemporary phenomenon characterized by digital technologies. This socio cultural form emerges from the symbiotic relation between society, culture and new technologies born with the convergence of telecommunications with the advent of Informatics in the 70’s.

Cyber culture reveals new ways of connection; however, it also maintains existing forms of social interaction and allows the emergence of new relations mediated by technology. To create a blog, post a comment on Facebook, share a tweet, create a group on whatsapp, download an application on Ipad, send an email, write this text, at long last, everything is part of this phenomenon we call cyber culture. We can no longer ignore the implications of these technologies in social life and the training of teachers.

Lemos (2002) warns that one should not take cyber culture as a particular culture from particular groups. He says, “cyberculture is a new form of culture. We experience the cyberculture as we used to experience the alphabetic culture centuries ago. However, cyberculture do not denies orality or written language but it is its extension” (Lemos, 2002, p. 13).

According to Lévy (1999a), collective intelligence is the set of cognitive capacities resulting from the multiple interactions between people in physical and / or virtual spaces. The current notion of collective intelligence is that every human being knows something, but at the same time no one knows everything while all knowledge is within humanity. Therefore, is an intelligence that values every human being and understands the knowledges of all, in search of an approximation of absolute knowledge, from there to try to solve better the problems of humanity. Fueled by cooperation and collaboration, collective intelligence brings forth creative faculties and higher learning potentials different from the faculties of isolated individuals.

Levy says that internet-learning abilities help to improve teacher-training skills in Pedagogy courses. Virtual interactions need an ethic code to be followed due to a common memory of the Internet and we want to know how we can modify this common memory. Hence, he states that we need to develop nine learning abilities, represented by a cycle that is always rebooting. The first learning ability is the attention management. It is necessary to define interests, search objectives and priorities because the Internet stores a huge amount of data. So, it is necessary to be focused in the priorities of learning.

Then it is necessary to learn how to contact reliable sources. The author warns that Twitter and Facebook are not reliable sources. People and institutions are reliable sources. Levy still alerts for the ethics and transparency on the Internet. Each source has questions that need to be answered – who, what, why, how, whom. Who is behind the scenes?

Later on, he states that is necessary to know how to gather information in a single place. He states that it is not a matter of choosing a platform but data organization of cognitive skills. Internet platforms change continuously: new ones are emerging while others are being extinguished. The ability to manage this knowledge needs to be developed.

The fourth ability concerns filtering. There are platforms that provide filtering mechanisms, but even these ones rely on cognitive processes, such as keywords selection within a field of knowledge.

The fifth skill is categorization. We need to organize our own memories as well as those we get from others. This skill is very important because memory, without categorization, can be easily lost in an infinity loop of information in the Internet. The next skill is creating a long-term memory. It must be the result of data organization. The author name it ability to create a data trusteeship, i.e., the creation of a relevant data set related to a personal subject/theme.

Then, make a good summary by producing articles, organizing mental maps and explanatory tables. The ability of communication is the next step, sharing data by tweets, Facebook posts, blog posts or comments on websites. The author draws attention to the fact that data is shared, posted, “retweeted“ on the Internet without criteria, and could not enter this cycle.

Finally, the last ability of the cycle is to reassess the management of personal knowledge in order to contribute in a constructively way to the collective and social knowledge an individual knowledge is necessary to this cycle.

ICT: potential for use in the context of formal education

Driven by ICT advances, the twenty-first century has brought great challenges to all fields of knowledge, especially in the field of Education. Increasingly interactive, participatory, ubiquitous and immersive, these technologies have contributed to generate in the people new learning and skills (Yang & Wu, 2012). These characteristics have broadened people’s ability to perceive the world, driving learning, collaborative work, producing new knowledge and negotiating meanings.

They also have the potential to reconfigure pedagogical practice, especially since they offer openness and plasticity to the pedagogical projects of the courses and allow co-authorship between teachers, students and the community where they live (Almeida & Valente, 2012). Ayas (2006) argues that these technologies are very relevant to education because they facilitate the co-construction of knowledge among students.

ICTs are already part of the daily universe of students, but need to be more appropriate in schools, as they can be used as tools to support the pedagogical process. Among the tools of the Internet or World Wide Web (www or web), Facebook is a platform social networking type. This platform brings together technological resources that allow the collective construction of knowledge among people, as it favors dialogue, interaction, socialization and learning. “Facebook emerges as a new scenario to learn how to learn and learn with others, that is, to learn to live virtually in an interactive pedagogical process of communication that emerges in cyberspace” (Ferreira, Corrêa, & Torres, 2012).

In the educational context Facebook can serve as a tool to create virtual communities or ‘groups’ that, through common pedagogical interests, establish relationships, via cyberspace, to achieve specific goals. These groups or virtual communities are the aggregation of people who “carry on public discussions long enough, with enough human feelings, to form networks of personal relationships in cyberspace” (Rheingold, 1995, p. 20)). In them there is the idea of space as a

field of symbolic exchange. Social ties are mediated by digital technological artifacts that provide dialogic, broad, fluid communication that generates a feeling of belonging reinforced, on the one hand, by the homogeneous interests of those who integrate it and, on the other, by the interactional dynamics that are produced from Interests.

People in virtual communities exchange experiences and emotional support, develop friendships and intellectual discourses; produce rationalities; meanings and senses for reality that are submerged. For Lévy (1999b), cyberspace is the locus, understood as an interactive and communitarian communicative device, where the roads that pave the collective intelligence are constructed.

In this perspective Facebook 'groups', created under an educational context, are collectives that discuss, reflect, share ideas, exchange information, organize events, expose proposals, elaborate content, etc. Favor the construction of a collaborative culture based on emerging values of the members themselves and the bonds of trust they produce. This creates a sense of belonging. Therefore, Facebook has great potential to serve as a tool of the educational process because it creates a dynamic communication link between students and teachers that generates:

[...] Complex and enriching social interaction. [...] In this way, networks of learning and collective intelligence can be built, based on communication and open and shared knowledge. As far as Facebook groups are concerned, [...] they are independent spaces of the ,main' network of interactions, which allows the communication and cooperation processes to be concentrated and directed towards the goals and objectives established by their components (Cerdà & Planas, 2011, 39).

The research design

We used the virtual ethnography or "netnography" as a methodological tool because it „preserves the details of the observation in the ethnographic field in order to “follow the actors” by electronic devices“ (Bishop et al., 1995). This methodological approach allows the researcher to grasp the culture and personal interactions in cyberspace out of the analysis of virtual communities. The immersion of the researchers into virtual communities was required in order to identify the topics that come to light in communication mediated by computers. Such methodology allows the better understanding of everyday practices around the Internet.

The netnography requires an immersive combination of commitment and cultural observation (Kozinets, 1997, cited in Passerino, & Montardo, 2006) with respect to the researched communities and the researcher ought to be recognized as a member of this culture and an element of the fieldwork.

Modes of inquiry

We used two techniques to collect the data. The first one was observation concerning the content of posts as a result of communication and interaction between members

and any source of files (photos, images, videos and texts) stored in these communities. The second technique was a quantitative and qualitative Google Forms survey containing 13 questions as follows:

six questions about personal information (Course, gender, previous training, professional activity and motivations to have chosen this course);

five questions about the community (objective, main subject of posts, how these posts influenced the learning process and how Facebook helped as a communication tool to access contents previously studied in class);

and two questions, the first one with nine sub questions of 10 points each (Where point 1 represents the lowest and 10 the highest level of motivation), which assessed the students' perception on how computer mediated learning contents are organized and worked in the classroom by their teachers. Google Forms questionnaire can be accessed at: <https://goo.gl/LBYw44>.

Both techniques contributed to assess the social relations between three communities' members that use it as an additional tool in the learning process.

This article is going to assess only the data that relates to educational activities. Thus, we analyze the questions related to student perception about the use of communities as an educational tool.

Data sources or evidence

There were 209 members enrolled (students and teachers) in these communities, all of them belonging to the courses of Technology in Human Resources Management (THRM) and Education (DEP) from FACP. This college was founded in 2002 and is the only High Education Institution (HEI) located in the city of Paulinia, Sao Paulo, Brazil. Located 102 km from São Paulo, Paulinia has the largest GNP in the country, due to the large concentration of chemical companies, such as Purina, Shell, Syngenta, Brasken and Petrobras. THRM and DEP are two of 17 undergraduate courses offered by FACP.

The THRM course is a professional degree that educates students to work in the human resources management field. This course trains students to identify competences in the recruitment and admission department, helping in training staff, arranging positions and structuring salaries, benefits and quality of life at the work field, as well as evaluating personal performance. It also deals with operational activities such as wage slip; social care benefits payments and social charges.

The two course communities THRM, created in 2013 and 2014, have 120 members in total, 111 members are students and nine are teachers. Students who created the THRM community in 2013 stated that it was created "to be another vehicle of communication"; already in 2014 the THRM community reported the same goal with the specification: "communication between students and teachers." Both THRM course communities can be accessed at the following addresses: <https://goo.gl/Oqc3Ty> (THRM 2013) e <https://goo.gl/Hkpf7S> (THRM 2014).

The DEP course trains Childhood Education teachers to act in the first four years of Elementary School; pedagogical coordinators, who guide the work of teachers; managers and supervisors of school and also pedagogues to work in companies. Both courses deal with people and work environment as their main subject and therefore relate to each other.

The community of DEP course students has 89 participants, 81 students and eight teachers. Built in 2011, this community claims to be a “space for sharing experiences and knowledge”. The page DEP community can be accessed at <https://goo.gl/IvtcP8>. Google Forms was filled out voluntarily by 49 members of the communities, ie 23.4% of the participants. 79.6% of respondents belong to course communities HRM (2013 and 2014) and 18.4% to PED community. The population of the three communities is predominantly female (65.3%) and is concentrated in the age group 18–25 years (38.8%). With regard to previous education respondents are mostly from the public high school (75.5%). The netnographic data collection realized by means of the participant observation occurred from September 8 to October 3, 2014. The observation focused on data, such as images, videos, file contents and posts. The collection of these data covered all types of data since the creation of those communities.

The collected data from the questionnaires were divided in two different ways: a) qualitative nature; b) quantitative nature, when exported from Google Forms to an Excell spreadsheet, generating graphs. Only three out of 13 questions were considered to write this article. These three qualitative questions were conceived to assess the availability of Facebook as an educational ‘locus’ where learning occurs.

The first question sought to identify the issues / topics posted by members of the community since its inception. The question examined whether subjects / themes were related to the objectives posted with the purposes for which communities were created. Though the posted subjects/themes have varied they could be classified into three categories: personal, professional and training. In the personal character’s category it was basically found that the post dealt with subjects/topics of personal interest relating to training courses for communitie’s members or referred to some aspects related to them, for example, suggestions for improvement of courses, notices of job openings, incentives messages to colleagues, requests for information about dates of events/deliveries academic papers etc.

In the professional’s category it was found that the posts had a broader intention because they focused into generic interests linked to future occupations of the communitie’s members. Text files were posted containing research about coverage’s area by the profession, reflections of scholars on the playing field of training areas, reports, images, thoughts, criticisms and views about the professions that were produced by agencies linked to the categories class and/or by local, state or federal offices. In the formative’s category subjects/themes were intrinsic to the dynamic nature of the classroom focusing on aspects related to concepts, techniques, skills and training skills. Therefore, the posts of the training’s category bind to specific content taught by teachers in the classroom or turned to discussions relating to them.

Also there was post which emerged doubts, analysis, reflection or personal tips about the contents. In this case it was observed that the members attempted to produce interdisciplinary logic tying distinctive contents that complements each other.

Also in this first question it was observed that the PED community had better convergence of interests among students. This alignment of interests is verified by the large number of posts that the members of this community make on issues related to the content of disciplines and also on courses, seminars, workshops that occurred about related topics.

Also it's possible to observe an increase in the number of 'likes' when the posts have this nature. It is observed that the communities served both to share texts, comment on articles and/or events and to communicate to students about issues related to school, doubts about contents and job tips. The content posted in the three communities by students and teachers identified the potential for communities to develop actions aimed at effective use of Facebook as an educational space able to enable the construction of learning and competencies in students.

It can be said that the space created on facebook enabled the promotion of intellectual cooperation, that for Lévy (1999a), it is a condition for the development of collective intelligence. The author speaks in cooperative competition or competitive cooperation. The freedom to propose ideas, viewpoints, opinions even though diverse and antagonistic relates to competition and the social bond and friendship refers to cooperation. It is from the balance between competition and cooperation that collective intelligence is born.

The analysis of post's contents may indicate that it was established a synergy between competence and intellectual resources which, for Lévy (1999a), is one of the roles of collective intelligence. It was found in the community an ecosystem of ideas, i.e. a network where information was exchanged and selected by each participant. To Levy, the ecosystem of ideas emerges from thinking, communication, action of humans that enable flexible and transverse modes of cooperation.

The definition of collective intelligence by Lévy (1999a) – an intelligence distributed all over, incessantly valued, coordinated in real time, resulting in an effective mobilization of skills – it seems to be present in the community, even if incipient.

The second question sought to identify the ways in which members of the communities assess whether the posts made by colleagues meet personal goals and communities. In this matter, it was observed that the members of the communities studied did not have a unanimous view on how to evaluate the posts. Thus, the answers to this question varied between two poles: 1) those who bother to register that it is very important that the posted information is known by everyone because Facebook is a space for exchanges and information sharing, and 2) those who said that is not up to them knowing whether the information posted is or not important to other colleagues.

In this case, it's possible to notice that each person has unique resources and information strategies of appropriation and that it is not possible to see the shapes they adopt to make interpretations and fit them in their conceptual framework. So in this

matter we realize that there are two forms of assessment adopted by the members of the communities: objectively and analytically. The objective's form assessment is made by the number of "likes" and comments made by members under the post.

The phrases registered by two members of the communities in this matter shows what was evidenced above: "When someone comments or likes on a subject posted I know it was worth it because it was read by someone" and "Whenever people "smile" the goal is achieve because your interest was reached and may be helpful." In such a way of evaluating it appears that the amount of 'likes' and comments indicates that the information was known and that reached the purpose for which it was intended.

The analytical form of assessment is performed by analysis, comparisons and reflections. In this kind of evaluation the members report that "it is the participation of the group members and the prolonged debate or contributions that I value. I just post and believe that somehow, which I had published will be seen and will reach someone" or that "it is researching and comparing the actual post with other links" that you can evaluate whether what was posted met the goals. Thus, this form of evaluation occurs, even if incipient, analysis and reflection that goes beyond mere objective/ quantitative evaluation because it seeks explanations and justifications that can give evidence if the information posted are important or not.

Lévy emphasizes in his studies the importance of organized social relationship, inventive and alive. For him, organized does not mean a closed center in a higher court, but self-organized, spontaneous. These are areas of open, continuous, flow and nonlinear knowledge's, which are reorganized according to the social context that each occupies, and that promotes collective intelligence in virtual communities.

For him, the collective intelligence is based on the recognition that every human being knows something, but no one knows everything, and at the same time, all knowledge is present in humanity. It is an intelligence that values every human being and includes within it the knowledge of all, searching for an approximation of absolute knowledge, and from there try to best solve the problems of mankind.

It also states that „humanity, by the phenomenon of popularization of the Internet, it is moving towards the construction of a new anthropological space, the wisdom Space, in which all human beings are interconnected in real time over the Internet“ (Lévy, 1999a, p. 29). In this space, intelligence, understood as a dimension that builds the human being, will be the center of relations.

The Wisdom Space makes possible for everyone to be sources of knowledge. From the expansion of new information and communication technologies (ICT), the collective intelligence becomes free to develop. More than a concept related to cognition, collective intelligence is agency, work and group creation. In it, the knowledge is no longer an unattainable and sophisticated component but a demonstration of everyday life through the exchange between subjects who live multiple experiences.

The third question focuses attention on identifying the reasons that led the members of the communities to use Facebook to interact with colleagues. In this question arose four reasons. The first reason relates to the democratic characteristics that Facebook has in essence. It can be said that this is a democratic platform, free and open where everyone can deal with any subject without going through controls, rigid hierarchies and fenced off. It is also a platform easy to use because it has an intuitive interface and contains appropriate tools for interaction. With such features this was one of the main reasons cited by members of the communities studied.

Another reason given by them relates to the understanding that Facebook is more than a computing platform and is also a 'place' of sharing information and exchange of ideas. Thus, shows that Facebook develops social activities and create feelings of belonging to each other (symbolic, economic, emotional and informational). For this reason, they conceive it as a 'social location' which opens to them new possibilities to build collective experiences and social ties (Lemos, 2002).

The third reason relates to the first one and brings up again the fact that Facebook provides convenience and ease access to important information of public interest. Understood as a communication space this platform has the advantage of speeding up communication/relationship between the members of the communities allowing horizontality and dynamism in the sharing and dissemination of information that interest them. It is therefore an important reason for use.

Finally, admits that one of the reasons Facebook use is because it also provides the role of approaching emotionally colleagues from each other and creates between them ties/ bonds closer friendship. Admits that Facebook as well as an information sharing space is a place that allows you to extend social interaction initiated in first place personally within the classroom, 'sharing moments' building 'meanings' and 'senses' and solidifying personal relationships.

Since the 2nd. half of 2013 we observed that teachers from other disciplines also joined the communities while teachers who had previously joined them were participating more actively. This year we observed a greater activity in these communities. They served as a vehicle to share files, to review articles, to promote events and to spread notes related to classes, questions and job vacancies. We noticed that the exchange of information intensified with the presence of teachers. Although timidly, there were some evidence that there was a connection between the classroom and the posting content, e.g.: "...we have discussed this matter in the classroom and look what happened in real life!". We observed that it triggered the interest of the students, since they began to share important information about the field of study, their difficulties and ways of dealing with their problems.

Another role of collective intelligence it refers to establishing and maintaining dynamic of common memories. This has been observed in communities by posts that promote the provision of the collective memory of the participants, the imagination and experience of each one, evidenced in the exchange of knowledge creating a organization form in real time. The cyberspace technologies, in addition to the relevant didactic function, contribute to each memory booking, each group,

each individual, transform and move, permanently collective knowledge. The use of cyberspace technologies, nowadays, little exploited features an incipient cyber culture. If we use this technologies to accrete and to organize collective and cooperative actions aimed at the social protagonism, we could reach the cyberactivism.

For all that has been identified it is possible to say that Facebook in this study was an important educational tool for members of the three communities. Its use may have contributed to amplify the chances of learning among communities' members. Certainly, that to consider it as a tool capable of being incorporated into teaching practices is still necessary many studies and analysis, mainly because to fulfill this purpose become necessary the practice of integrated and concurrent actions.

The first one goes through, first, the qualification of teachers and the development of more interactive content able to exploit the communication potential that current digital technologies allows. Second one, it is necessary: the development of pedagogical projects that articulate the pedagogical practices to technologies and contents referred; the construction of evaluation ways of learning that leads the use of digital technologies in the educational process; and the implementation, in educational institutions, of adequate technological infrastructure to support the needs that digital technologies impose, among others.

Regarding information exchange that occurred through posts and comments we can say that DEP community has a longer lifetime than the other two because its students are interacting a long time ago: the course has a longer duration than the Human Resources course. This led to the conclusion that the DEP community have a greater convergence between students. Their alignment of interests is evident, which makes us think that are larger the chances of experiencing expansion of cognition enhancing learning and structuring competences.

The content posted by students and teachers allowed us to identify the roots for the development of actions related to the effective use of Facebook as an educational tool that may allow the construction of learning skills among the students. In addition, it was also found that the Regarding the data collected using the netnographic method, two out of the three authors of this research are teachers and/or coordinators, therefore have a close contact with the members of those communities in a daily basis. In addition, they are active members of those communities since their opening (DEP: October 2011; THRM: June 2013 and February 2014, respectively). The physical proximity and virtual contact of researchers and students were decisive factors for the establishment of a solid relationship between them based on respect and trust, which strengthened communication and facilitated the application of the questionnaire. This was an active participation without being interventionist. It also enhanced the dense and detailed grasp of cultural aspects circumscribed to the virtual interaction, facilitating the understanding of the motivations that led communities' students to use Facebook as a communication tool and access the information about the content taught in the classroom.

Conclusions

The data collected students built their own basic strategies to run those communities, giving rise to an actor called ‘community manager’, played naturally by the most experienced students. They were already acting in the profession field and were more mature than the other community colleagues were. These students were naturally leaders of these communities, posting a more informative content, promoting dialogues and encouraging other colleagues to respond the questionnaires. In our perception, this fact was extremely important because it facilitated the flow of information between the students, helped to keep them updated about general and specific themes and promoted a feedback that may have contributed to improve their communication in order to turn these communities into a reference site (Spagnoletti, Resca & Lee, 2015).

Thus, we conclude that Facebook can be included among the huge variety of learning tools such as free classes, blogs, websites, email etc. In the point of view of these three communities’ students, especially analyzed, Facebook is a virtual tool that can be considered a content storage space and easily be accessed, allowing them to study anywhere, in their spare time.

The use of Facebook as a tool to enhance the educational practices and the training process is still underestimated. Among the communities analyzed in this article the presence of the “community administrator” was crucial to the quality of interaction in those places. Their own experiences provided the posts with a more professional character. We noticed that, from their performance, the community shared more information giving Facebook a more evident character of intentional educative communication space. The presence of teachers in these communities was also relevant because they used to link comments to classes’ contents, asking the opinion of all members, mobilizing the students and contributing to the creation and/or solidification of new skills.

Although the figure of the “community administrator” was essential for the consolidation of Facebook community as an educational communication space, this management cannot be imposed by an incisive/authoritatively manner. It may happen in such a way that this natural interaction could build bonds of trust between them. We know that this is an essential factor to the path of turning this exchange of information space in a collaborative space and collective action. Thus, the members of these communities are the ones allowed to make the rules. In this study, what caught our attention was the fact that although the communities are the root of an educational space, they are not characterized as an extension of formal school.

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TRAUMA SENSITIVE PEDAGOGY FOR YOUNG CHILDREN

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While many adults have an idyllic view of childhood, children around the world are regularly exposed to traumatic events that overwhelm their capacity to cope (Atwoli, Stein, Koenen, & McLaughlin, 2015; National Child Traumatic Stress Network, 2005). As a result, children experience traumatic stress that manifests itself in a myriad of ways, some of which are devastating for their teachers who are almost universally unprepared to respond to and cope with resulting behaviors. The following anecdotes reflect actual examples:

A four-year old child brought her cat into her preschool classroom for Show N' Tell. While waiting for her turn, the child strangled her cat to death.

A four-year old child, who declined a teacher's request, threw a chair at the teacher and broke her nose.

A five-year-old child climbed onto his school bus and screamed at the bus driver, "I'm going to stab you and kill you."

A third grade child burst into tears when asked to write about a challenge he has overcome. [The assignment reminded him of his cousin's murder the summer before.]

Teachers' lack of preparedness to respond to such behaviors may result in an overreliance on discipline practices (to include suspension or expulsion) that do not consider the underlying reason for children's behaviors (Gilliam et al., 2016). Consequently, it is imperative that school administrators carefully examine the disparate impact of discipline practices on different student populations, particularly those with traumatic histories (Morgan, Salomon, Plotkin, & Cohen, 2014). This is especially necessary for children with a history of traumatic events given the important role of teachers as nonfamilial adults who may function as secondary attachment figures for this vulnerable group of students (Lynch & Cicchetti, 1992).

What is Trauma?

The Center for Prevention & Early Intervention Policy defines trauma as, “an event that is unpredictable, produces feelings of helplessness, and overwhelms one’s capacity to cope”. These traumatic events can either be acute (e.g., sudden loss of a loved one, school violence, natural disasters) or chronic (e.g., neighborhood violence, homelessness, poverty, maternal depression, intimate partner violence, complex trauma, etc.) (National Scientific Council on the Developing Child, 2005/2014; Jones Harden, 2015). Complex trauma, which describes children’s exposure to multiple or prolonged traumatic events, typically involves child maltreatment that is chronic, begins early in life, and occurs with their primary caregivers, resulting in toxic stress. Young children “are often exposed to chronic and complex trauma because one traumatic experience may relate to another (e.g., the co-occurrence of intimate partner violence and child abuse)” (Jones Harden, 2015, p. 2). The U. S. Department of Health and Human Services (2015) estimates that there were 702,000 child victims of maltreatment in 2014. Rates of victimization were highest for infants under 1 (24.4 per 1,000 children), followed by children between the ages of 1 and 5 (11.4 per 1,000 children), and then by children between 6 and 10 (9.0 per 1,000).

Such early negative experiences often negatively impact brain structures and functioning, as well as socio-emotional functioning that have negative cascading effects in their learning processes. “In extreme cases, such as cases of severe, chronic abuse (especially during early, sensitive periods of brain development), the regions of the brain involved in fear, anxiety and impulsive responses may overproduce neural connections while those regions dedicated to reasoning, planning, and behavioral control may produce fewer neural connections.” (National Scientific Council on the Developing Child, 2005/2014, p. 2). Consequently, children who display fear, anxiety, and impulsive responses are more likely to experience school (to include preschool) expulsions or suspension (National Scientific Council on the Developing Child, 2005/2014) especially if they are of color and notably African American (Gilliam et al., 2016). Moreover children with disabilities /developmental delays are more likely to experience abuse and neglect and, at the same time, children who are abused and neglected are more likely to be identified as having a disability/developmental delay (Division of Early Childhood Development, 2016). As a case in point, children of color in the state of Maryland are disproportionately represented in special education *and* removal from school through suspension or expulsion (Maryland State Department of Education, Division of Special Education/Early Intervention Services Strategic Plan, 2016).

Trauma and the Brain

Brain development proceeds at an astounding rate from birth until the age of 5. The regions of the brain responsible for visual and auditory processing as well as body movement develop first. Brain regions that control higher-order processes such as

conscious thought, decision-making, memory, reasoning, problem solving, and self-regulation, continue to develop from early childhood into adolescence.

The brain is comprised of a network of 100 to 200 billion neurons that store and transmit information across different areas of the brain. The strength and complexity of these neural connections depend upon the child's interaction with his or her environment, particularly around sensitive periods of development. During these sensitive periods, children's interactions with caring adults, especially with their parents early in life, affect the development and organization of their brain architecture through what is known as experience-expectant brain stimulation. As infants continue to develop, experience-dependent stimulation of brain regions proceed as a result of specific learning experiences that vary widely based on individual differences and contextual influences (National Research Council and Institute of Medicine, 2000).

During these important moments of development, it is important for caregivers and educators to be sensitive and responsive to children's signaling behaviors that provide a rich adult-child relationship, which promotes positive development. Unfortunately, when children experience adverse events in their environment, particularly complex trauma such as abuse and neglect, changes at the neurobiological level become quite evident.

The biological stress response system. Children across different developmental stages may experience traumatic stress when exposed to acute and chronic traumatic events. Their bodies' major biological stress systems such as the hypothalamic-pituitary-adrenal (HPA) axis, activates to produce a range of physiological reactions to deal with the real or perceived environmental threat (De Bellis & Zisk, 2014). Typical functioning of the HPA axis is usually assessed by measuring different levels of cortisol. During stressful events, cortisol levels become elevated but then return to baseline due to the negative feedback loop within the HPA axis (Trickett et al., 2014).

This short-term increase in cortisol levels is necessary to ensure survival. However, when stress responses remain active at high levels for an extended period of time in the absence of supportive relationships, organ systems and brain architecture may become damaged, leading to negative effects on learning, behavior, and health for these children. The excessive or prolonged activation of the stress response systems is known as "toxic stress," which can have damaging effects on the development of neural connections, brain structures, and brain functions, especially those dedicated to higher-order skills (Shonkoff, et al., 2012).

Structural, functional, and connectivity issues related to trauma. Alterations in brain structures that are typically associated with trauma, particularly as a result of toxic stress include the hippocampus, corpus callosum, the anterior cingulate cortex (ACC), the amygdala, and the prefrontal cortex (PFC). The hippocampus is a brain area that is rich in corticosterone receptors (Trickett et al., 2014) and plays an important role in the process of information encoding and recall. It is also particularly important in the consolidating short-term memory or sensory and perceptual information into long-term storage. Given the amount of corticosterone receptors in the hippocampus, it becomes particularly susceptible to the increased cortisol levels

as a result of toxic stress. This, in turn, is associated with reductions in hippocampal volume, which may not emerge until after puberty (Teicher et al., 2016). Decreased hippocampal volume may then be related to problems with encoding, retention, and recall of information learned in the classroom.

The corpus callosum is a band of myelinated neural fibers that connects the left and right cerebral hemispheres and aids in the lateralization process. The left hemisphere is often implicated in processing verbal abilities, positive emotions, and sequential, analytic processing. The right hemisphere is often implicated in processing spatial abilities (e.g., judging distance, reading maps), negative emotions, and holistic, integrative processing. It is important to note that despite this lateralization or specialization of functioning, the corpus callosum ensures that both hemispheres communicate and work together, which becomes more effective and efficient over time.

Unfortunately, traumatic experiences, particularly complex trauma such as maltreatment, are often associated with reduced integrity of the corpus callosum. Decreased thickness of the corpus callosum has been related with decreased IQ scores in maltreated children. It has been hypothesized that communication problems between the two cerebral hemispheres may play an important role in problem solving, leading to lower IQ scores (Teicher et al., 2016). Additionally, sex differences in decreased corpus callosum integrity were evident in that boys showed greater reduction than girls. Finally, when hemispheric balance is altered (e.g., using electroencephalogram-asymmetry studies), there is a resulting shift in how approach-avoidance decisions are made, particularly around anger and aggression where the left hemisphere is specialized for approach responses and the right hemisphere is for avoidance responses.

The region of the brain that is collectively known as the anterior cingulate cortex (ACC) is usually associated with the processing of emotional information, as well as the monitoring of cognitive and motor responses during conflict situations (Shackman, Wisner Fries, & Pollak, 2008). In non-traumatized children, enhanced activation in the ACC region was observed when participants were presented with threat-related facial expressions as distractors. However, individuals with high levels of anxiety were shown to exhibit lower activation of the ACC region (Bishop, Duncan, Brett, & Lawrence, 2004). Experiencing toxic stress and the resulting dysregulation in the HPA axis may decrease metabolism in the ACC. Indeed, individuals with prior experiences of trauma and resulting PTSD often show decreased ACC activation (Shackman et al., 2008). Decrease in activation levels for this particular brain region may indicate problems with emotional processing for children with traumatic experiences. This, in turn, may impact social interactions of children in the classroom.

The amygdala is an important structure for encoding emotionally-salient information and is part of the limbic system. It has reciprocal connections to cortical sensory areas such as visual and auditory regions. As part of the attentional network, the amygdala is responsible for orienting attention in the presence of emotionally-salient stimuli in the environment. It exerts a “bottom-up” or sensory-driven influence

over cortical areas that will be used in the attentional network when emotional information is present. The amygdala helps with the assessment of emotionally expressive information in order to learn about environmental events that may pose a threat or provide a reward. Thus, emotional signals are used to enhance vigilance and to prepare the brain's learning networks in order to acquire new information from the environment. The orienting function of the amygdala has been shown to amplify attention to threat or bias attention toward anger-eliciting or sadness-eliciting information in the child's environment (Briggs-Gowan, et al., 2015; Romens & Pollak, 2012; Shackman, Shackman, & Pollak, 2007), which may lead to the increase in anxiety, depressive symptoms, or aggressive behaviors. These, in turn, may lead to socioemotional difficulties related to children's educational well-being.

The prefrontal cortex is a structure responsible for thought, consciousness, inhibition of impulses, integration of information, and use of memory, reasoning, planning, and problem-solving strategies. Production of moderate levels of cortisol by the HPA axis stimulates neural activity within the PFC, which underlies these executive attention and executive function abilities (Blair & Raver, 2015). It exerts a "top-down" influence on the amygdala when processing emotionally-salient stimuli. Sufficient development of the PFC indicates children's readiness to begin formal schooling around 5 to 6 years of age. Maturation proceeds at later ages as children continue to learn self-regulatory capacities to promote sustained engagement in the learning process. For children with traumatic histories, however, experiencing toxic stress and the "flooding" of cortisol decreases activity in the PFC. There is also an associated reduction in the interconnectedness of the hippocampus with the PFC and the ACC, which is associated with a decrease in the top-down regulation of the amygdala by the PFC (Teicher, et al., 2016). As PFC activity is reduced, there is an associated increase in brain regions associated with reactive emotional and behavioral responses to emotion-eliciting stimuli. This decrease in inhibitory control may then lead to poor judgment and more impulsive behaviors, particularly for children who experience complex traumatic events.

Many of these brain structures function in an interconnected manner that allow for the effective and efficient activation of the attentional networks. At home and in the classroom, children are constantly bombarded with incoming information from the environment. Children must somehow be able to engage in selective attention given the brain's limited capacity to simultaneously process all of the incoming stimuli. During normal social development, children learn to modulate their attention to selectively attend to the most relevant internal and external information, while at the same time inhibiting or minimizing attention to irrelevant cues. This is important in the context of learning as children are required to attend to the lesson at hand, encode the information, and recall this at a later time during assessment. As highlighted above, these perceptual and attentional processes become altered due to early adversity, which may then influence the regulation of cognition, emotion, and behavior that places children at an increased risk for developing emotional and behavioral problems that can impact their educational well-being.

Consequences of Trauma

As a result of early traumatic experiences, children often fall behind non-maltreated and non-traumatized children in measures of educational achievement. A study by Rouse and Fantuzzo (2009) showed that childhood maltreatment, even after controlling for poverty, maternal education, and homelessness, was the strongest predictor of poor math and reading achievement as early as third grade. Furthermore, children who had experienced trauma were more likely to be suspended or expelled from school because teachers are unprepared to respond to the child's challenging and sometimes violent behaviors (Gilliam et al., 2016; National Scientific Council on the Developing Child, 2005/2014).

Taken together, the high prevalence of early traumatic experience in early childhood and the negative impact on educational, emotional, and, behavioral outcomes at the end of the early childhood period highlight the need for education-focused prevention and intervention efforts during this sensitive period of development. The classroom, in particular, becomes an important microsystem where teachers must be supported in order to promote a positive trajectory in these at-risk students' development and learning. In fact, evidence suggests that opportunities for play, socialization and interactions with nurturing caregivers and other adults (e.g., teachers) can help to mediate the consequences of toxic stress (National Scientific Council on the Developing Child, 2005/2014). Furthermore, teachers can offer stable, safe spaces for children, not only away from neighborhood/domestic violence, but where children feel valued and respected. Teachers are also in a position to teach children self-regulation strategies and mindfulness, which reduce stress and, therefore, promote learning. Lastly, teachers have the ability to provide children with, what might otherwise be rare, opportunities for success. Nonetheless, most trauma-focused professional development efforts for educators have focused solely on mandated reporter training or a general overview about trauma. Though important in providing the necessary tools for understanding, detection, and reporting, this strategy lacks the requisite knowledge to fully understand the developmental impact of early traumatic experiences on this vulnerable group of students. More importantly, these trainings lack guidance on how the developmental impact of trauma should be used to inform pedagogy.

Trauma Sensitive Professional Development

To date, the availability of evidence-based, trauma-sensitive teacher education curricula is scarce. Based on the prevalence of early childhood trauma, developmental sequelae, and subsequent impact on learning, the need to develop such a curriculum is of high importance. In response to the aforementioned need, the authors of this manuscript are developing a curriculum focused on Trauma Sensitive Pedagogy (TSP) for young children (age birth to age eight) (See Appendix A for the TSP Logic Model). TSP represents a collaboration among faculty at the University of Maryland and

The Pennsylvania State University. The project's primary home is the University of Maryland's Center for Early Childhood Education and Intervention, which places Maryland at the center of dissemination activities.

Theoretical Framework and Guiding Principles. This work is guided by Bioecological theory because it incorporates complicated and dynamic systems that lend itself to the inclusion of educators as important members of the child's school microsystem (Bronfenbrenner & Morris, 2006). This theory proposed that four interrelated and dynamic properties are involved in promoting growth and development: *proximal processes, person, context, and time*. Central to TSP are the dynamic processes between person-level and context-level (i.e., student and teacher) factors that, over time, influence specific developmental outcomes (e.g., self-regulation) that are important for academic success. Indeed, these *proximal processes* (i.e., student-teacher interactions or relatedness) have been implicated as the primary mechanism in promoting change and development. Often, these processes are most influential early in a child's life because it is through these interactions that children organize their set of cognitive, emotional, physiological, and behavioral responses to their world (Thelen & Smith, 2006). However, the influence of high quality interactions between the child and his or her context remain important at later ages. For non-traumatized students, teacher-student relationships in kindergarten have been shown to influence student work habits and grades by elementary school (Hamre & Pianta, 2001). For children early elementary grades, their sense of relatedness with teachers predict motivation and engagement in the classroom across school years (Furrer & Skinner, 2003).

Within the classroom, teachers play an important role as alternative or secondary attachment figures for students with traumatic histories. This means that students' relatedness with their teachers become even more important for children who come from toxic stress environments (Lynch & Cicchetti, 1992). Indeed, as highlighted earlier, children who experience early traumatic events come to school with a unique set of organized cognitive, emotional, physiological, and behavioral responses to their surroundings. Thus, how teachers respond to students with traumatic histories are vital in the formation of a sense of relatedness with their teachers, as well as their peers.

Key elements that influence how teachers respond to students with traumatic histories include knowledge about traumatic events, developmental sequelae of trauma, impact of trauma on learning, translation of knowledge to classroom practice, and teacher well-being. Teacher well-being, particularly socioemotional competence, is an especially important element for teachers working with students who experienced early trauma. Jennings and Greenberg (2009) argued for the importance of teachers' socioemotional competence (SEC) in the classroom. If not attended to, frustration with student behaviors can cascade into teacher burnout. The burnout rate is exacerbated due to the challenges and stress associated with teaching children who have (or are) experienced trauma (VanBergeijk, & Sarmiento, 2006).

One of the components incorporated into TSP is this notion of increasing teachers' SEC in order to serve as a secure base for traumatized children, as well as reduce or prevent burnout. This fits well within a Bioecological theoretical framework since

the need to improve upon the child's context (through knowledge, skill-building, and self-care) in order to improve the interaction is crucial for transactional development to proceed. In some way, this approach is analogous to Parent Child Interaction Therapy (PCIT) where the focus is on improving the quality of the parent-child interaction in order to promote positive development. Our goal, therefore, is to improve upon the teacher-child interaction in order to promote self-regulation and other developmental domains that can support children's academic learning. After all, children need support in the preschool classroom and at later grades as they continue to develop self-regulatory skills such as persistence, cognitive and emotional regulation, cognitive flexibility, etc., as well as the support of their school readiness domains, particularly around approaches to learning. For example, if children have safe and supportive teachers, then they will experience a positive impact on their approaches to learning.

In addition to the overarching framework provided by Bioecological theory, TSP principles are grounded in the recommendations of: the National Scientific Council on the Developing Child, the Trauma and Learning Policy Initiative (TLPI) from the Massachusetts Advocates for Children and Harvard Law School and the recent position statement by the Division for Early Childhood (2016) of the Council for Exceptional Children on the need to further understand the impact of maltreatment on education. Specifically, TSP addresses DEC's recommendation to work toward prevention and intervention by identifying evidence-based practices that can be embedded within DEC recommended practices.

Essential Elements of the TSP Curriculum. Following the recommendations of the aforementioned organizations and a review of the research literature, the TSP curriculum focuses on teachers as: (1) change agents in students' academic trajectories and in influencing the broader school culture toward trauma-sensitivity and (2) a voice for change in both local communities and governmental policy. More specifically, TSP has adopted an "It takes a village" approach focused on: brain development, the developmental impact of trauma, the importance of supportive, stable and caring relationships between children and caregivers/teachers, a strengths-based perspective when working with children and families, trauma prevention and intervention, and relationship building across the diverse systems of child welfare, medicine, mental health, legal, education, social services and government. Lastly, TSP includes age specific (Infant/Toddler, Preschool/Kindergarten and Primary Grades), units that allow teachers to develop a greater understanding of the development and behavior of the children with whom they work on a daily basis. Please see Appendix B for an outline of the TSP curriculum.

Stakeholder Engagement. Critical to the successful conceptualization and writing of professional development curricula for teachers (both pre-service and in-service) is consideration of the needs of the teachers themselves. Therefore, the design of TSP was grounded in the needs assessment responses of early childhood teachers (birth through grade three), early intervention specialists, early childhood specialists and childcare center directors. The aforementioned individuals, across two states in

the United States, were asked to complete a needs assessment survey with a two-fold purpose: to determine if stakeholders believed there was sufficient need for TSP and to ascertain their recommendations for both the content and the structure of the curriculum. Educators were also brought together for focus groups and experts in the fields of developmental science, early childhood mental health, law, neuroscience and social work serve as consultants to the TSP project.

Curriculum Delivery. The curriculum has been designed as a hybrid model that combines in-person professional development sessions with online, interactive learning modules, and the formation of a virtual professional learning community within and across participating schools/school systems/states. The online modules include substantive content around the impact of trauma on learning/behavior delivered via slide presentations, video presentations, virtual coaching from TSP staff and other relevant resources (e.g., websites, readings). Learning through the online component will be assessed via project-developed measures. Program completers will receive a certificate and, where applicable, continuing education credits/units.

Trauma Sensitive Pedagogy offers several unique advantages:

- The hybrid model will include in-person delivery of the curriculum, which will be complemented by online learning modules to promote fidelity and sustainability of the curriculum. The in-person modules are an important first step in the dissemination process in order to build relationships across the implementation communities. The complementary online-based learning modules will encourage the formation of a virtual professional learning community. These online learning communities can provide learners with the opportunity to share resources, provide coaching, and support for one another. In-person trainers will also be available at the final session, as well as through a later feature that will include live monitoring of the forum to provide targeted feedback and guidance.
- The digital platform for content delivery creates a sustainable and ongoing learning community that will allow participants to serve as peer mentors through the learning process. Having this online learning community also provides learners with the support they need to continually develop pedagogical practice in this area.
- The unique partnership between research-intensive universities allow for the implementation of the project that will take into account the necessary rigor for testing the effectiveness of the training. Moreover, the cross-institutional nature of this collaboration will allow for the sharing of resources and the establishment of multi-state (potentially national), online, professional learning communities.
- Learners will have the opportunity to earn continuing education units (CEU) as part of their ongoing professional development efforts.
- This project will add to the dearth of evidence-based practices focused on educators aimed at improving the educational outcomes of students with a history of trauma and maltreatment. This will ultimately address the DEC position recommendation stated above, and add to the group's role in providing guidance for educators in the field.

Conclusion

Children, notably young children, around the world experience both acute and chronic trauma (Atwoli et al., 2015, National Child Traumatic Stress Network, 2005). These traumatic experiences have been found to negatively impact developing brain structures and functioning, which in turn affects the learning process, impulse control, reasoning, planning, behavior and interpersonal relationships. Although teachers often function as a secondary attachment figure in the lives of their students (Lynch & Cicchetti, 1992), teachers are almost universally unprepared to respond to the ways traumatic experiences manifest themselves in child care centers and classrooms around the globe. Consequently, children who are traumatized are more likely to experience school expulsion or suspension because teachers are unprepared respond to children's challenging and even violent behaviors (Gilliam et al., 2016; National Scientific Council on the Developing Child, 2005/2014). Furthermore, children who experienced trauma are likely to fall behind non-traumatized children in educational achievement (Rouse & Fantuzzo, 2009).

The evidence strongly suggests the need for education-focused prevention and intervention efforts during the early years of development. Therefore the classroom is an important microsystem where teachers must be supported in order to promote a positive trajectory in the students' development and learning. Moreover, evidence suggests opportunities for play, socialization and interactions with nurturing caregivers and other adults (e.g., teachers) can help to mediate the consequences of the toxic stress associated with children's traumatic experiences (National Scientific Council on the Developing Child, 2005/2014). Although prominent U. S. organizations such as the Division for Early Childhood of the Council for Exceptional Children, the National Scientific Council on the Developing Child, and the Trauma and Learning Policy Initiative (TLPI) from the Massachusetts Advocates for Children and Harvard Law School have advocated for trauma sensitive pedagogy, there is a dearth of evidence-based, trauma sensitive teacher education curricula. Instead most trauma-focused professional development is focused on mandated reporting or a general, one session, overview of trauma.

The recommendations of the aforementioned organizations, as well as a review of the research literature, suggests the need for curricula focused on teachers as change agents in both students' academic trajectories and influencing the broader school culture toward trauma-sensitivity. More specifically, teachers (and as a result children) benefit from curricula that addresses: brain development, the developmental impact of trauma, the importance of supportive, stable and caring relationships between children and caregivers/teachers, a strengths-based perspective when working with children and families, trauma prevention and intervention, and relationship building across the diverse systems of child welfare, medicine, mental health, legal, education and social services.

Researchers from two universities in the United States have designed a *Trauma Sensitive Pedagogy (TSP)* curriculum for teachers of young children from birth to grade

3, administrators and early interventions specialists using a hybrid model as the mechanism for delivery (in-person and interactive, online modules). TSP focuses on conceptualizing trauma, developmental impact of trauma, theory to practice: translational and communication strategies, and coping with secondary trauma. TSP includes age specific (Infant/Toddler, Preschool/Kindergarten and Primary Grades), units that allow teachers do develop a greater understanding of the development and behavior of the children with whom they work on a daily basis. The goal of TSP is to improve upon the quality of teacher-child interaction in order to promote self-regulation and other developmental domains that can support children's academic learning.

The African proverb, "it takes a village to raise a child" serves as a powerful reminder of the many people and supports necessary for a child to reach his/her/their optimum potential. Therefore, we must include teachers and schools in our efforts to build a community of caring and supportive adults for this particularly vulnerable group of children. Teachers, in particular, are an important part of this "village" given the academic as well as social influence they have on children's development. In order to succeed, it is clear that teachers must be provided with the necessary tools and resources to be as effective as possible in promoting positive development for children with a history of trauma.

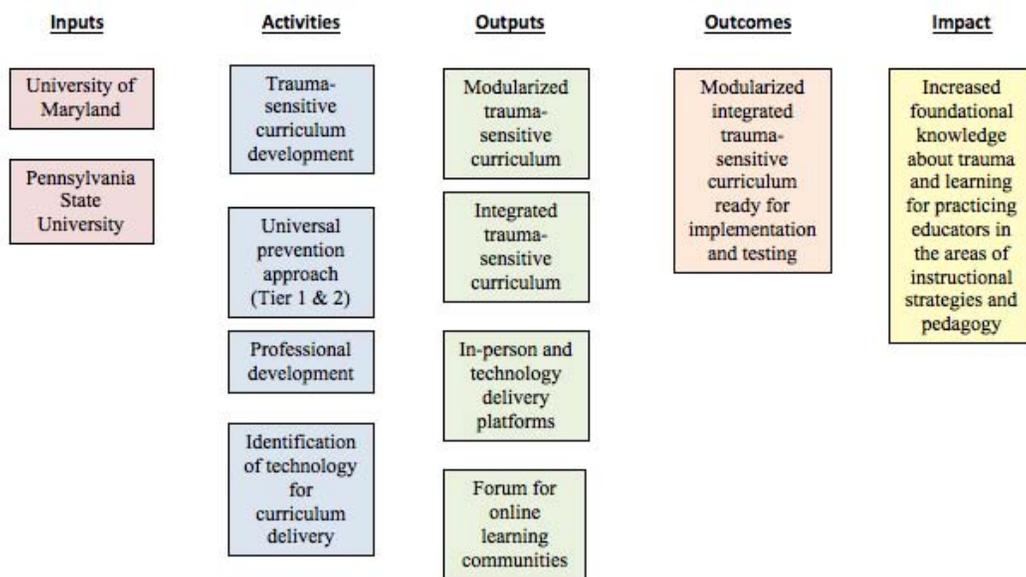
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Appendix A

Logic Model: Building capacity and content



Appendix B

Proposed Content of Trauma Sensitive Pedagogy

The curriculum modules will focus on (but not limited to) the following content:

- o Conceptualizing trauma
 - Developmental framework
 - Types of traumatic events:
 - Acute
 - Chronic
- o Includes complex trauma such as maltreatment
- o Developmental impact of trauma
 - Neurophysiological impact
 - Impact on learning processes
- o Theory to practice:
 - Translational strategies for the classroom
 - Communication strategies
 - Student-directed
 - Family-directed
 - Mental health professionals
 - Child welfare professionals
 - Trauma-sensitive pedagogy in the classroom
- o Coping with secondary trauma: An educator's guide to personal wellness
- o Bringing the *Trauma Sensitive Pedagogy for Young Children (TSPYC)* curriculum to your staff (optional module for center directors)

A META-ANALYSIS OF RELATIONSHIPS BETWEEN TEACHING METHODS AND CRITICAL THINKING

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Critical thinking is a higher thinking ability and has been a goal of student development because such ability is essential for effective study and work. There is a variety of teaching methods proposed for developing critical thinking of students. However what method is more effective and what teaching context is more appropriate for employing those methods are not clear in literature. This research aims to identify teaching methods and learning contexts that lead to more effective instruction for critical thinking. Specifically this research used the meta-analysis to quantify effects of different teaching methods on critical thinking of students, compare effect sizes among different teaching methods, and identify factors that moderate the resulting effect sizes. Data used in this study was effect sizes from 20 previous studies each of which investigate the effect of a teaching method on critical thinking of students. The findings of this study provided information regarding the effectiveness of teaching methods in promoting critical thinking skills and the conditions under which a particular teaching method is more effective in developing critical thinking of student was discussed.

Introduction

Critical thinking is a higher-order skill necessary for learning, living in daily life, and work. It is viewed as a global skill consisting of subdimensions. According to literature, there are different dimensions of critical thinking and these dimensions include inference, recognizing assumptions, deduction, interpretation, and evaluating arguments (Watson & Glaser, 1980). Educators have suggested that critical thinking be a needed skills among other 21th century skills. For example, In Thailand the national curriculum underscores the value of critical thinking, emphasizing that schools and teachers must enhance critical thinking of students. Tsui (2002) mentioned that employers, policymakers and scholars agreed that critical thinking is the

significant outcome of higher education institutes. Students or graduates with high critical thinking are those who live their life with greater defensible judgment and can solve encountering problems with reasonable strategies that can yield positive solutions. Because of such importance of critical thinking, many universities accepts scores on the assessment of critical skills such as SAT and GRE as an admission criteria to select their prospective students.

Although critical thinking is one of objectives of student development, developing critical thinking has been considered unsuccessful for many countries. In Thailand, it was found that scores on a combined domains of thinking skills was below the acceptable standard. Consequently, it is required by educators and policymakers that teachers use instructional strategies that promote critical thinking. There is a variety of teaching strategies that promote critical thinking such as concept mappings, scenario-based course exercise, and active learning technique. However, some teachers have limited knowledges in selecting a teaching method appropriate for promoting critical thinking of students in their classroom.

In order to assist teachers with selecting proper teaching method that is likely to promote critical thinking, some researchers (e.g., Behar-Horenstein & Nui (2011), & Chan, 2013) conducted meta-analyses to figure out what method has a potential to enhance critical thinking and thus will benefit teachers. However, those analyses were limited in that the context of instructions such as grade levels has not been incorporated and compared yet. Therefore, it is still unclear among teachers who are teaching at different grades or different levels if a particular method is appropriate for their teaching context.

This meta-analytic research will fill in the gap by conducting an analysis by comparing effect sizes measuring impacts of teaching methods on critical thinking across different contexts of instructional practices so as to provide information for teachers to choose a teaching method appropriate for their context.

Research Objectives

This research investigated the relationship between teaching method and critical thinking as measured by an effect size and aimed to 1) examine effect sizes of different teaching methods, 2) compare effect sizes of different teaching methods, and 3) investigate the impact of contextual factors on effect sizes.

Research Method

In meta-analysis, the effect of treatment on a desired outcome is measured by effect size which express standardized differences in the outcome between treatment group and control group. This research used a meta-analysis with the ultimate goal to examine if effect sizes from different studies vary across studies that used different teaching method and what method and context yield highest effect sizes.

Sample

Sample for this study included previous research studies examining the effect of teaching method on critical thinking. By using keywords such as “teaching” “instruction” “critical thinking” “effect” “comparison”, the previous studies were selected from databases including Proquest, Scencedirect, PsyInfo, Education Research Complete, Single Search, Academic Search Complete, and Thailis from 1980 to 2015. The initial search yielded 305 studies. The inclusion criteria was that 1) studies used the experimental design with the control group, availability of full text, teaching method and critical thinking used as independent and outcome variables, respectively. By using such inclusion criteria, the final sample size was 20 studies shown in Table 1.

For the selected studies, researchers collected, sample sizes, means and standard deviations for the treatment and control group which was subsequently used to calculate an effect size for individual studies.

Data analysis

Given the collected sample sizes, means, and standard deviations, effect sizes for individual studies were calculated using the following Cohen’s formula (1988) which was expressed as the standardized mean difference between the treatment and control groups.

$$d = \frac{\bar{X}_E - \bar{X}_C}{\sqrt{\frac{SD_E + SD_C}{2}}}$$

where \bar{X}_E is the mean for the experimental group, \bar{X}_C the mean for the control group, SD_E and SD_C are standard deviations for the experimental and control group, respectively. Heterogeneity of the calculated effect sizes was assessed through χ^2 statistics. Meta-analysis was conducted through the computer program called Revman 5.3.

Results

Table 1 shows characteristics of 20 selected studies. There was a variety of treatments used by researchers to promote critical thinking, which was classified into five groups, namely, concept mapping, games, computer-aided instruction & simulation, inquiry method, problem-based learning (PBL), and peer & group process. According to Table 1, there were 4 studies that used concept mapping, 4 studies used games, computer-aided instruction & simulation, 3 studies used inquiry method, 6 studies used problem-based learning, and 3 studies used peer & group process.

Figure 1 shows the results of meta-analysis and compares effect sizes of different five teaching methods including concept mapping, games, computer-aided instruction, & simulation, inquiry, problem-based learning, and peer & group process. In overall, the effect size was 0.55[0.28, 0.82] ($Z = 3.96$, $p < .05$), suggesting that all teaching

methods included in this study was superior to the traditional method. When considering individual teaching methods, the effect size for the concept mapping was 0.50[0.21, 0.78] which was statistically significant at .05 ($Z = 3.45$, $p < .05$). The effect size for games, computer-aided instruction, & simulation was 1.43[0.10, 2.76] and statistically significant at .05 ($Z = 2.11$, $p = .03$). The effect size for the inquiry method was 0.38[0.26, 0.51] and was statistically significant at .05 ($Z = 6.10$, $p < .05$). The effect size for the problem-based learning was 0.31[-0.17, 0.78] and was not statistically significant ($Z = 1.26$, $p = 0.21$). The effect size for the teaching method that emphasizes peer & group process was 0.14[-0.01, 0.30] and was not statistically significant at .05 ($Z = 1.81$, $p = .07$)

Figure 2 compares effect sizes of teaching methods between two types of student levels which included K-12 and undergraduate levels. In overall, the effect size was 0.53[0.25, 0.81] and was statistically significant at .05 ($Z = 3.76$, $p < .05$). When considering an individual education level, the effect size for the K-12 was -.00 [-0.49, 0.49] and was not statistically significant ($Z = 0.00$, $p = 1.00$). The effect size for the undergraduate level was 0.69 [0.33, 1.05] and was statistically significant at .05 ($Z = 3.76$, $p < .05$). Large χ^2 and I^2 indicates that there is variation (heterogeneity) in effect sizes that remain to be explained.

Figure 3 shows the comparison of effect sizes from different time periods researchers used to conduct experiments. In overall, the estimated effect size was 0.54[0.26, 0.82] and was statistically significant at .05 ($Z = 3.80$, $p < .05$). The effect size for the experiment conducted for less than 1 semesters was 0.93 [0.03, 1.83] and was statistically significant at .05 ($Z = 2.03$, $p = .04$). When the experiment was conducted for 1 semester, the effect size was 0.34[-0.08, 0.76] and was not statistically significant at .05 ($Z = 1.60$, $p = .11$). When the experiment was conducted for two semesters or more, the effect size was 0.34[0.15, 0.53] and was statistically significant at .05 ($Z = 3.50$, $p < .05$). Large χ^2 and I^2 indicates that there is variation (heterogeneity) in effect sizes that remain to be explained.

Table 1. Characteristics of included studies

Author	Year	Grouping of Treatment	Student Level	Experimental length	N_E	N_C	\bar{X}_E	\bar{X}_C	SD_E	SD_C
Cicchino	2015	Games, Computer-Aided & Simulation	K-12	na	177	115	3.66	3.88	1.07	0.98
Temel	2014	PBL	Undergrad	<1 semester	22	27	212	199.5	18.178	27.842
Tiwari, Lai, So, & Yuen	2006	PBL	Undergrad	2 semesters	40	39	271.4	262.2	23.25	32.45
Huanga, Tub, Wangb, Chenb, Yuc, & Chou	2017	Concept mapping	K-12	<1 semester	57	59	3.19	2.87	0.63	0.67
Kim, VanTassel-Baska, Bracken, Feng, Stambaugh, & Bland	2012	Inquiry	K-12	>4 semesters	428	369	16.7	14.3	5.6	6.1
Quitadamo, Brahlér, & Crouch	2009	Peer & Group process	Undergrad	2 semesters	326	226	18.65	18.04	4.31	5.2
Moattari, Soleimani, Moghaddam, & Mehboodi	2014	Concept mapping	Undergrad	<1 semester	16	16	20.14	6.41	13.62	6.52
Svenningsen & Pear	2011	Games, Computer-Aided & Simulation	Undergrad	1 semester	182	182	9.33	8.62	5.13	6.18
Pekdog-an, & Korkmaz	2016	Peer & Group process	Undergrad	2 semesters	25	25	179.7	179.8	48	48
Eftekhari, Sotoudehnama, & Marandi	2016	Games, Computer-Aided & Simulation	Undergrad	<1 semester	120	60	4.537	2.502	0.579	0.579
Gholami, Moghadam, Mohammadi-poor, Tarahi, Sak, Toulabi, & Pour	2016	PBL	Undergrad	2 semesters	40	40	10.75	9.72	2.41	2.44
Salleh, Tasir, & Shukor	2012	Games, Computer-Aided & Simulation	Undergrad	1 semester	21	21	30.24	17.86	6.495	4.328
Lee, Chiang, Liao, Lee, Chen, & Liang	2013	Concept mapping	Undergrad	1 semester	46	48	41.57	39.66	4.71	6.92
Chen, Shiah-Lian, Liang, Tienli, Lee, Mei-Li, Liao, I-Chen	2011	Concept mapping	Undergrad	1 semester	47	48	43.08	40.85	6.26	5.27
Choi, Lindquist, & Song	2014	PBL	K-12	1 semester	46	44	55.08, 46.00	57.54	5.46	5.31
Tseng, Chou, Wang, Ko, Jian, & Weng	2011	PBL	Undergrad	2 semesters	51	69	47.31	41.46	8.09	7.61
Snyder, & Wiles	2015	Peer & Group process	Undergrad	16 Weeks	37	17	18.76	16.35	4.18	6.36
Zhou, Huang, & Tian	2013	Inquiry	Undergrad	16 Weeks	59	60	10.58	10.05	2.76	2.80
Qing, Nia, & Honga	2010	Inquiry	Undergrad	8 Weeks	60	61	295.81	287.33	18.30	23.64
Şendağ, & Odabaşı	2009	PBL	Undergrad	4 Weeks	20	20	75.05	70.30	6.23	7.96

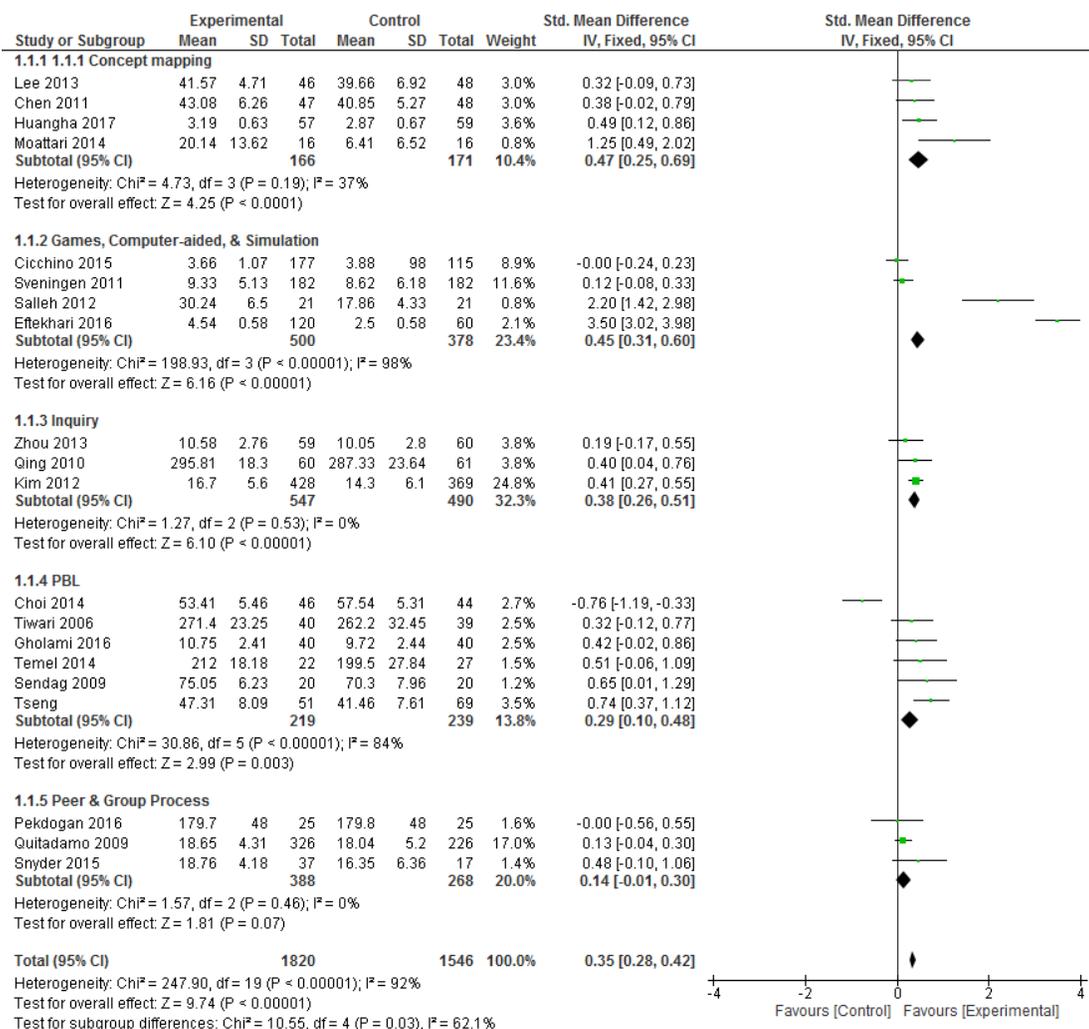


Figure 1. Effect sizes of different five teaching methods

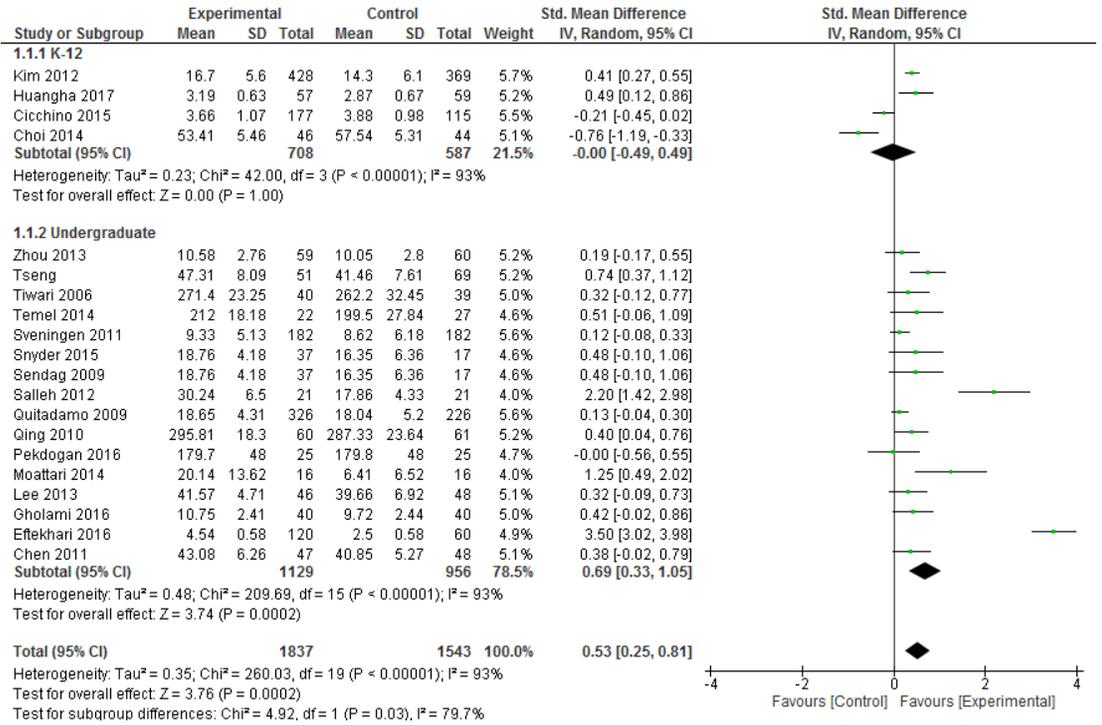


Figure 2. Comparison of effect size between student level (K-12 and undergraduate)

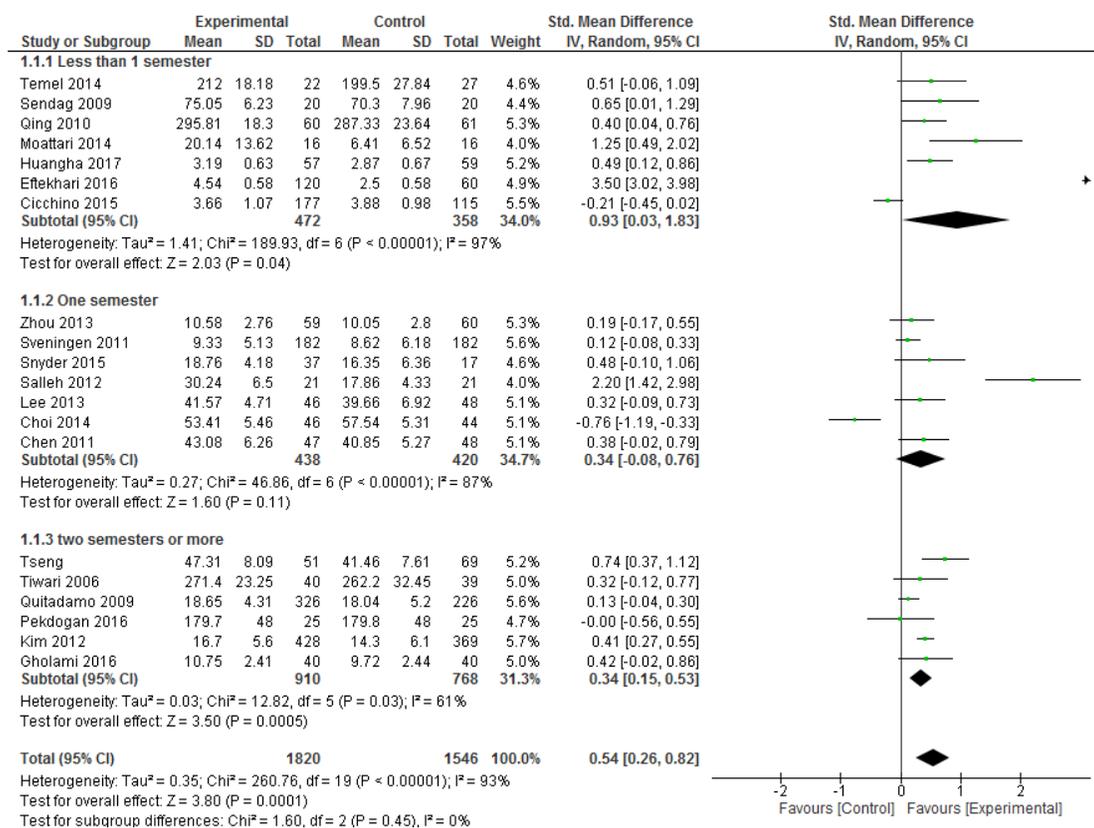


Figure 3. Comparison of effect size across three different time periods

Summary and Discussion

This study conducted a meta-analysis to examine the effect of different teaching methods on the critical thinking score. It was found that there were three significant teaching methods having effect sizes different from zero, which included concept mapping, inquiry, and games, computer-aided instruction & simulation, where the latter has the largest effect size. Problem-based learning and peer & group process was not different from the traditional teaching methods. It was also found that teaching method worked well for undergraduate level but not for the K-12. Moreover, it was found that teaching methods promoted critical thinking when they were conducted less than one semester and about two or more semesters.

The result of this study suggested learning with games, computer and simulation has greatest potential to enhance students' critical thinking. Problem-based learning has long been highlighted as a teaching method that promote critical thinking of students but it was found that in this study that it was not different from traditional

teaching method in promoting critical thinking skill. It was inconsistent with the findings of a meta-analysis conducted by Kong, Qin, Zhou, Mou, & Gao (2014) where they mentioned that the problem-based learning was able to improve nursing students' critical thinking. The explanation for this inconsistency might be because this study incorporate more studies beyond nursing research and thus the effect size of problem-based learning might be moderated by student background. Future research is needed to explore this relationship.

It was found that teaching methods in this study had a significant effect sizes for undergraduate study but not for K-12. This is consistent with Niu, Behar-Horenstein, & Garven (2013) that teaching critical thinking skills for undergraduate outperformed traditional method. It was suggested from this study that careful instruction of critical thinking conducted in about less than semester can enhance students' critical thinking skill.

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DIAGNOSTIC ASSESSMENT OF SCIENTIFIC LITERACY OF LOWER SECONDARY SCHOOL STUDENTS USING G-DINA MODEL

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The purpose of this study was to diagnose scientific literacy of night grade students with the following objectives: (1) to construct lower secondary school student's scientific literacy diagnostic test, and (2) to identify and diagnose students' mastery of attribute according to their scientific literacy skills. The samples were 270 ninth grade students. Research tool composed of 20 items in scientific literacy test for lower secondary school students. That measure skills based on the science assessment framework of the PISA project, which including skill to identify the scientific issues, skill to explain the phenomena scientifically and skill to use the scientific evidence. Data were analyzed using the Generalized DINA Diagnostic Model.

The results showed that 1) the test developed had classification accuracy and classification reliability of .73 and .58 respectively and had item difficulties from .16 to .61. 2) The diagnostic result revealed that 42.2% of students possessed the non-mastery of all three scientific literacy skills while only 10.4% achieved all three skills. The weakest skill was to explain the scientific-likely phenomena.

Introduction

Nowadays, we have lived in the era that economic competition among countries is easily seen. Such economic competition is due to the development of advanced science and technology. The country with advanced science and technology has more competitive advantages than those without the development of new science and technology. As a choice to support economic growth, education has become important and quality of science education has been raised to discuss among educators, policymakers and employers and therefore it is believed that high quality of mathematics and science education is a key to drive economic growth.

The Organization for Economic Cooperation and Development (OECD) has highlighted the importance of education provision that emphasizes the development of 15 years old students' science literacy and science literacy becomes the goal of lower secondary education for many countries including Thailand. However quality of science education in Thailand has not met the expectation of Thai people, which was evidenced by the fact that the PISA score for Thai students has been relatively lower than that of other Asian countries in the same region such as Singapore and Vietnam. Therefore it is recommended that quality of science education must be improved and research on quality of science education is needed to provide information for that improvement. By using diagnostic assessment of science performance of Thai students, this research was conducted to collect evidences for enhancing quality of science education.

Objectives

The objectives of this study aims to diagnose scientific literacy of night grade students with the following objectives: (1) to construct lower secondary school students scientific literacy diagnostic test, and (2) to identify and diagnose students' mastery of attribute according to their scientific literacy skills.

Significance of this study

This study used the diagnostic assessment to create learning profiles in science of students so as to identify their weaknesses and strengths. When weaknesses are known, some modifications can be made to improve their performance.

Research Method

Participations

A total of 270 Thailand ninth-graders nested within 45 schools participated in these study. The sample was lower Secondary School Students, which were selected by two-stage stratified cluster sample design (cluster by region and school size).

Instrument

The scientific literacy assessment included 20 items measuring 9th science literacy that were designed to diagnosis three attributes or competencies: identifying scientific issues, explaining phenomena scientifically, using scientific evidence. These items is multiple-choice items that created response items scored as dichotomous. They were classified by cognitive domains (25% identifying scientific issues, 60% explaining phenomena scientifically, 15% using scientific evidence) items. The Q matrix which describes what competency is needed to get a right response for 20 items is shown in Table 1.

Table 1. Number of involved attributes in the items of test.

Items	identifying scientific issues	explaining phenomena scientifically	using scientific evidence
1	0	1	0
2	0	1	0
3	0	0	1
4	0	0	1
5	1	0	0
6	1	0	0
7	0	1	0
8	0	0	1
9	0	1	0
10	1	0	0
11	0	1	0
12	0	1	0
13	0	1	0
14	0	1	0
15	1	0	0
16	0	1	0
17	0	1	0
18	0	1	0
19	1	0	0
20	0	1	0
total	5	12	3

Results

Quality of measuring items

Table 2 describes quality of items used to diagnosed science literacy in terms of item discrimination index (IDI), guess and slip parameters. The guess and slip parameters are item-level parameters that provide what would be the percentage of students who answered a certain item correctly without possessing all required attributes for the item (guess). Slip is defined as the percentage of students who answered another item incorrectly although having all required attributes for the item. Since the new version of CDM is not still out we manually computed G-DINA model IDIs with the following equation (de la Torre, 2009, 2011); $d_{iG-DINA} = (1-s_i) \cdot g_i$

The average values of the guessing, slipping and item discrimination parameters are .32, .41 and .26. The mean guessing parameter indicates that for the students who have not mastered all the required skills for an item, there is still, on average, a 32 percent chance that they will choose the correct response and the average slipping parameter indicates that for the students who have mastered all the skills required for an item, there is still, on average, a 41 percent chance that they will choose the incorrect response.

The last column of Table 2 shows global item discrimination indices. The pattern of IDIs show that most of values fall at low end of the distribution but some like 7, 2, 16 and 17 are in better condition ($>.5$) than the other items.

Table 2. Guessing, slipping and item discrimination parameters of the G-DINA model.

item	guessing	slipping	RMSEA	IDI
1	0.24	0.47	0.012	0.28
2	0.35	0.48	0.041	0.17
3	0.21	0.17	0.003	0.62
4	0.15	0.57	0.019	0.28
5	0.55	0.18	0.018	0.28
6	0.47	0.13	0.019	0.40
7	0.30	0.05	0.055	0.65
8	0.29	0.65	0.039	0.06
9	0.17	0.88	0.032	-0.05
10	0.39	0.27	0.018	0.34
11	0.35	0.43	0.028	0.22
12	0.37	0.53	0.035	0.10
13	0.31	0.42	0.006	0.26
14	0.47	0.79	0.034	-0.26
15	0.37	0.68	0.040	-0.05
16	0.32	0.12	0.015	0.56
17	0.35	0.13	0.010	0.52
18	0.12	0.67	0.011	0.21
19	0.34	0.28	0.038	0.38
20	0.29	0.39	0.006	0.33
Mean	0.32	0.41	0.024	0.26

**Student classification and classification quality:
Classification consistency and accuracy**

As the first row of Table 3 shows, the MLE classification accuracy (Pa) and MLE classification consistency (Pc) were .731 and .587, respectively. Pc indicates the degree to which the test takers were consistently while Pa indicates the degree to which the test takers were accurately classified as masters and nonmasters of each separate skill. The values for all the skills were relatively moderate. There are no clear-cut criteria for Pa and Pc values. Cui, Gierl and Chang (2012) suggested a value $> .5$ for the Pa and Pc as acceptable classification rates (Tatsuoka, 2002) reliability and validity of the classifications in the present study are acceptable.

Table 3. Classification Consistency (P_c) and Accuracies (P_a).

	P_a	P_c
MLE	0.731	0.587
MAP	0.942	0.966
MAP_Skill1	0.605	0.558
MAP_Skill2	0.927	0.866
MAP_Skill3	0.673	0.569

Table 4 shows attribute mastery probabilities for each of attributes being diagnosed. It was seen from Table 3 and Figure 1 that the likelihoods to master the identifying science issues, explaining phenomena scientifically, and using scientific evidence were 21.15%, 15.93%, and 21.16%, respectively

Table 4. Attribute mastery probabilities

Cognitive attribute	Mastery probability
identifying scientific issues	0.2115
explaining phenomena scientifically	0.1593
using scientific evidence	0.2116

Table 5. Latent classes and posterior probabilities.

Latent class	posterior probabilities	Class exp. frequency
000	0.7831	211.4419
100	0.0053	1.4351
010	0.0000	0.0000
110	0.0000	0.0002
100	0.0054	1.4554
101	0.0468	12.6489
011	0.0000	0.0000
111	0.1593	43.0185

Table 5 shows the estimates of latent classification exhibited the sample’s attribute mastery types and their posterior probabilities, which show all the possible eight latent classes of scientific literacy attributes and their posterior probabilities. It could be found that there were two dominant latent classes of scientific literacy attributes whose posterior probabilities summed up to more than 90% of the sum of posterior probabilities of all latent classes. The two dominant latent classes of attributes were “000” and “111” in descending order.

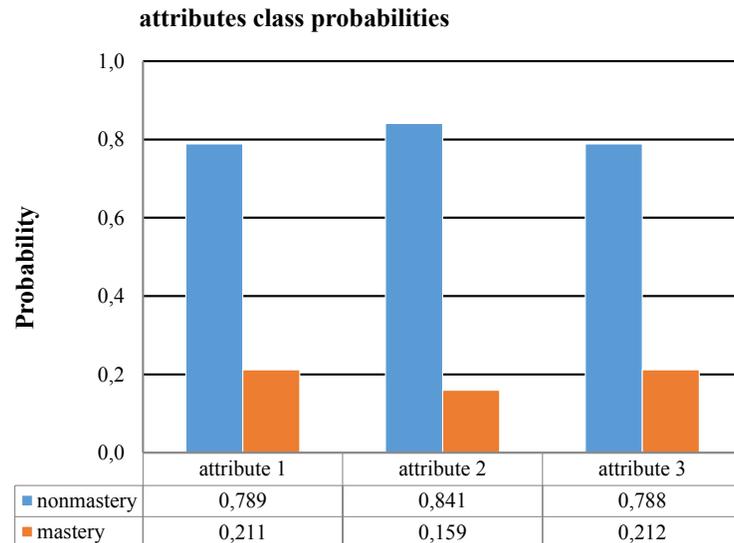


Figure 1. Comparisons of mastery probabilities in scientific literacy.

Summary, Limitations and Suggestions for Further Research

This study examined the utility of the CDM approach to compare the performance of scientific literacy assessment of Thailand's 9th grade samples. The main objective was to identify students' strengths and weakness of scientific literacy attributes in terms of identifying scientific issues, explaining phenomena scientifically, using scientific evidence. It was found that majority of students were still unlike to master all the three attributes. The second attribute of PISA assessment (explaining phenomena scientifically) was considered the most difficult for examinees. Through this careful investigation, the results can help sciences educators and researchers make curriculum-based decisions and, in turn, enhance classroom practices.

However, it was found that there is still a room for improvement. As the CDM approach provides detailed information, future studies should examine the mastery of more-specific attributes. In such further studies, we may separate some attributes that include the broad scope of knowledge, skills, and processes. To investigate in greater detailed, specific information about each strand, it would be interesting to conduct studies that analyze an individual strand or a smaller number of strands.

Acknowledgement

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TEACHING ACROSS BOUNDARIES: AN EVALUATION OF TECHNOLOGY USE IN A DOCTORAL EDUCATION PROGRAM

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This study examines technology use in an online Doctorate of Education (D.Ed.) program in the United States poised to serve students from across state lines. We employed a three-pronged framework focused on people, technology, and services. We surveyed five cohorts of current and former D.Ed. students ($n = 30$) that entered the program from 2012 to 2016. The survey format consisted of demographic, Likert scale, and open-ended items that asked respondents about (a) technology platform and delivery approach, (b) participant composition, and (c) classroom activities. Findings suggested that student learning would be enhanced through the use of online breakout rooms for small group discussions and the use of multiple activities during a single class session. Respondents also stressed the need to integrate virtual students alongside in-person students to increase virtual students' engagement. These findings have implications for individual faculty member instructional decisions and for department-wide policy related to virtual technology use.

Purpose

In November 2016, the Department of Educational Methodology, Policy, and Leadership (EMPL) in the University of Oregon's College of Education was approved by the University Senate to admit students not living in Oregon to the Doctorate of Education (D.Ed.) degree program. This approval will enrich the program by adding diverse student perspectives and teaching experiences, providing an opportunity for students to learn from their peers across state boundaries who face many of the same challenges in education. The department's goal is modest: to increase the annual enrollment from around 10 students per year to between 20 and 30 students per year. This will alleviate any need to hire additional faculty to serve as instructors and student advisors and will help maintain a cohesive cohort approach to the program.

However, opening the D.Ed. program beyond Oregon is not without challenges: in particular, it will require a heightened reliance on distance education. In the past five years, EMPL's D.Ed. program has evolved from a site-based program with clusters of students concentrated in a handful of specific locations around the state (e.g., Eugene, Portland, Bend), to a more dispersed student body with individual students enrolling from geographic regions across the state. This has pushed the faculty to use new approaches to instruction: video- teleconferencing has been replaced by a blend of synchronous and asynchronous approaches, with some faculty opting to maintain a classroom for local Eugene students while other students log on through a distance platform and other faculty moving completely to an online format.

While university professors have long enjoyed the autonomy to employ individual instructional choices based on their preference, comfort, or teaching philosophy, student dissatisfaction with the potpourri of instructional formats has led the department to consider what is working well and what should be improved in advance of the expanded student body, slated to start in summer of 2017. The immediacy of the need to engage in self-reflection led the department to enlist the research team – one faculty member and two current EMPL doctoral students – to conduct a survey of current and former EMPL D.Ed. students so that department decisions could be based on data rather than individual inclination.

Before presenting survey findings, we provide a description of the three-pronged framework used as a lens for the study. We then describe the study methods and key findings. The paper then presents a discussion of the importance of the study findings, highlighting implications for individual practice and departmental decision-making. We end with a description of how the paper connects to the assembly theme of Re-thinking Teacher Professional Education: Using Research Findings for Better Learning and the subtheme of Teaching in the Digital Era.

Theoretical Framework

There has been a marked increase in the use of online learning in higher education in recent years, resulting in a proliferation of studies aimed at examining the promise and the pitfalls of this burgeoning approach. Recent studies have examined various aspects of technology use in higher education including comparisons of the challenges and benefits of synchronous and asynchronous approaches (Alexander et al., 2014; Reese, 2014; Watts, 2016), comparisons of students' motivation, learning outcomes, and experiences in online versus traditional course delivery (Brocato, Bonanno & Ulbig, 2013; Butz, Stupnisky & Pekrun, 2015; Farooq & Matteson, 2016; Tseng & Walsh, 2016), online instructional delivery approaches (Essary, 2014; Ng, 2017; Power & St. Jacques, 2014; Marcos & Loose, 2015) curriculum design (Keengwe & Kidd, 2010; Mirriahi, Alonzo & Fox, 2015; Mbatia & Minnaar, 2015), and participants' interaction and community-building in online doctoral programs (Centner, 2014; Croxton, 2014; Myers et al., 2015; Martin & Parker, 2014)

Aparicio, Bacao, and Oliveira (2016) present a useful three-pronged framework through which to review the use of technology in EMPL's virtual D.Ed. program. They posit that virtual learning can be viewed as an ecosystem that should integrate people, technologies, and services, (see Figure 1) and argue that virtual programs should be studied with an eye to each of the three dimensions, as one falters without adherence to sound principles in the others.

People

Aparicio, Bacao, and Oliveira (2016) note that the people involved in virtual program delivery include customers, suppliers, professional associations, special interest groups, and boards and shareholders. For EMPL's virtual D.Ed. program, key people include students, teaching assistants, technology providers, technology support staff, and faculty. The needs and preferences of these disparate groups should inform individual and department decisions regarding virtual program delivery. For example, teaching assistants play a variety of roles in virtual classes: some serve as small group discussion facilitators in the breakout rooms provided in the online platform, while some provide technology support and others provide core content support through virtual office hours. Identifying the optimal role for teaching assistants would help the department allocate its limited resources to best serve student needs.

Technologies

In virtual programs, “technologies provide support to integrate content, enable communication, and provide collaboration tools” (Aparicio, Bacao, and Oliveira, 2016, p. 301). In EMPL's D.Ed. program, technology includes the various virtual delivery platforms (e.g., Adobe, BlueJeans, Obaverse), Learning Management Systems (e.g., Canvas, Obaverse) used for classroom components such as online forums, reading responses, and posting assignments, as well as delivery approach (synchronous, asynchronous, hybrid). Additional factors include the length of synchronous live classes, the number of transitions across delivery platforms in a single class, and the use of laptop cameras during synchronous virtual classes. The current approach is based on individual faculty preference; data about student experiences with the various technologies could help inform individual and department decisions.

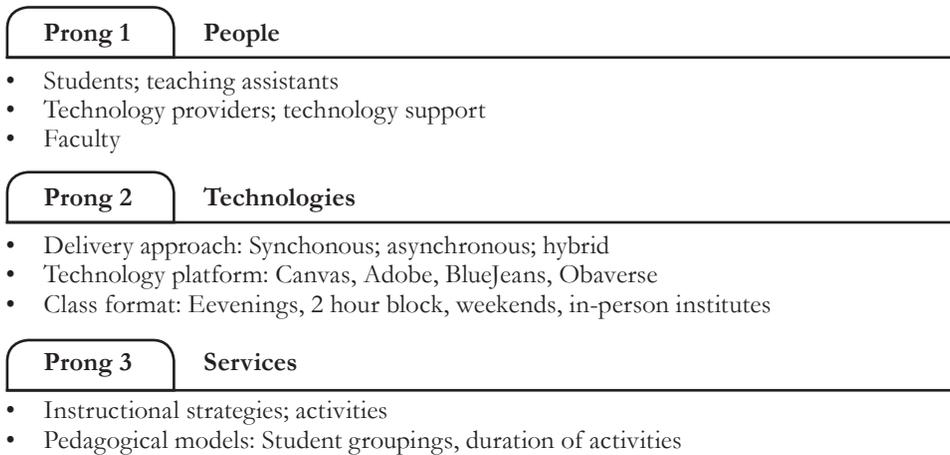


Figure 1. Three-pronged theoretical framework

Services

Aparicio, Bacao, and Oliveira (2016) posit that “service specifications are e-learning activities aligned with the e-learning pedagogical models and the instructional strategies” (p. 301) in a virtual program. In EMPL’s D.Ed. program, instructional strategies include activities on the virtual platform Adobe such as polls to generate discussion, online breakout rooms for small group discussions and application of the course core concepts (e.g., tasks, role plays, debates). Pedagogical decisions include student groupings (eg, similar research methods, topic area of interest, grade level taught, program, geographic area) in the breakout rooms and duration of activities. Survey data can help instructors decide whether to plan for a limited number of transitions such as from small group activities to whole class discussion to minimize technology interruptions or to switch to a new activity every 20–30 minutes to increase student engagement if data show that students wander to other online site during long stretches of class lecture.

We applied this three-pronged framework to answer the following research questions:

1. What is the preferred technology platform and delivery approach for EMPL’s virtual D.Ed. program?
2. How can EMPL best structure participant composition during synchronous distance or hybrid classes?
3. What types of class activities should be included in virtual program delivery?

Methods

In order to answer these research questions, we followed Dillman, Smyth, and Christian’s (2009) tailored design approach to guide our survey design and administration procedures. In line with their recommendations, drawn from a social exchange perspective on human behavior, we aimed to reduce four common sources

of survey error: coverage, sampling, nonresponse, and measurement (p. 16). To reduce coverage error, we included all EMPL D.Ed. students and graduates from the past five cohorts (2012–2016 entrants to the program). We thus avoided sampling error as well by including the population of EMPL students and graduates from these five cohorts. We attempted to minimize nonresponse error – when non-responders differ from responders in important ways – by removing barriers to response, taking steps to motivate responses, and using a range of contact strategies and messages (Dillman, Smyth, and Christian, 2009, p. 243). After the initial invitation email, we sent two short, targeted email reminders as well as a phone call reminder to select participants asking them to complete the survey and emphasizing the impact their responses would have on program improvement. Our response rate was 71% (30 out of 42 possible respondents). Finally, to reduce measurement error, we conducted three focus groups to guide the creation of survey items to minimize “poor question wording or design” (Dillman, Smyth, and Christian, 2009, p. 18). The focus groups, detailed below, included (1) a group of six current Ph.D. students in the EMPL program, (2) 14 faculty members in the EMPL department, and (3) a group of four current and former D.Ed. students.

Focus Groups

We asked the first focus group of current Ph.D. students seven broad questions to guide the discussion and identify topics to include in the survey. The seven questions focused on themes of technology platforms, types of online instruction/pedagogy, the variety of online course activities, and general strengths and weaknesses of EMPL’s use of technology. We then wrote a draft of the survey items and presented them at an EMPL faculty meeting for feedback. After incorporating suggested revisions to the survey questions, we then conducted a pilot test of the survey with four current and past D.Ed. students “in an attempt to identify problems with the questionnaire and related implementation procedures” (Dillman, Smyth, and Christian, 2009, p. 228). After these four students took the test survey, we hosted a final focus group to gather their feedback on survey duration, clarity of instructions, and organizational flow. They offered several suggestions for improvement of the survey design, based on its online format.

Survey Items

We followed Dillman, Smyth, and Christian’s (2009) nine guidelines for effective survey item creation:

1. *Make sure the question applies to the respondent* (p. 79). Focus group participants helped us shape the wording of the questions to ensure that the questions asked were relevant to the experiences of the survey population
2. *Make sure the question is technically accurate* (p. 80). The suggestions offered by focus group participants also helped increase the credibility and authenticity of the question wording.

3. *Ask one question as a time* (p. 81). We separated questions with two or more components to ensure that we weren't asking respondents to assign a single agreement to multiple concepts.
4. *Use simple and familiar words* (p. 81). We avoided abbreviations or jargon unfamiliar to respondents; the pilot test of the survey helped verify the language was understandable to the population of interest.
5. *Use specific and concrete words to specify the concepts clearly* (p. 84). We minimized the amount of interpretation needed through the pilot test of the survey with a sample of the population of interest. We used their feedback to clarify questions they felt needed definition or could be interpreted in multiple ways.
6. *Use as few words as possible to pose the question* (p. 85). We used a common stem of "My learning is (or would be) enhanced by" followed by the question content to minimize the length of the questions.
7. *Use complete sentences with simple sentence structures* (p. 86). The stem plus content format resulted in each question being a complete sentence (e.g., "My learning is (or would be) enhanced by... small group discussions across geographic areas.")
8. *Make sure "yes" means yes and "no" means no* (p. 88). We avoided double negatives or responses where a yes would mean no by wording questions in the positive. For example, instead of wording a language question "English was not my first language (Y/N), we revised this question to say, "English was my first language (T/F)."
9. *Be sure the question specifies the response task* (p. 89). We ensured that the question stem matched the response option by wording the Likert scale items to align to the response or disagree/agree. The demographic questions specified when respondents should select one response or all that applied, and gave a T/F option when appropriate.

The final survey instrument included demographic items as well as 25 items divided into three themes aligned with the framework described above: technologies (eleven items), people (seven items), and services (seven items). Respondents were asked to indicate agreement using a four-point Likert scale of "strongly disagree" to "strongly agree." Following each of the three themes, we asked respondents to rank which item within the theme the EMPL department should prioritize. Ranked priorities were tabulated by frequency. We asked three open-ended questions at the end of the survey related to departmental strengths and weaknesses with technology use, and any additional comments respondents wanted to offer.

Survey Administration

We invited 42 current and former D.Ed. students to take the survey via email. These 42 students were the entire population of students who entered EMPL's D.Ed. program between 2012 and 2016 except for a few students who did not complete the program and were not able to be reached via email. Depending on the academic term in which the students started the program, they experienced different technology

platforms during their courses which allowed for consideration of multiple perspectives in the analysis of technology use. Additionally, respondents represented students both geographically local and distant from campus which allowed for consideration of perspectives from students who have taken a mix of in-person courses and online-only courses. As noted above, of the 42 students who received the survey, 30 responded, for a response rate of 71%. Of the 12 non-responders, two declined to participate and three had email addresses that were no longer valid.

Results

Our small sample size meant we were unable to analyze the quantitative survey items using Analysis of Variance (ANOVA) or factor analytic methods. Instead, we focus on reporting descriptive statistics for the demographic items and means and standard deviations for the survey results. We complement the findings from the quantitative survey items with qualitative data from the open-ended questions, which asked respondents what items in each section they felt EMPL should prioritize. Throughout, we focus on explaining which aspects of EMPL's technology use enhance respondents' learning. We start with descriptive statistics about the survey respondents and then present findings organized by research question.

Descriptive Statistics

We received a total of 35 unique survey responses. Of those 35 responses, three were duplicate responses (i.e., a respondent starting a survey but not finishing it, and then starting and finishing a separate survey) and two respondents did not complete any items. These five responses were removed from the analytical sample. Only one of the 30 respondents did not finish the survey, although some respondents did not provide an answer for each individual question. Appendix A, B, and C present demographic data of the sample.

There was a reasonable split across the five different cohorts of D.Ed. students, with the 2013 and 2015 cohorts being slightly overrepresented and the 2012, 2014, and 2016 slightly underrepresented. The majority of respondents came from backgrounds traditionally represented in higher education (76.7%) and spoke English as their first language (86.7%). There were slightly more respondents who identified as introverted (53.3%) held a small advantage than extroverts (46.7%).

In terms of student status, 46.7% were full-time students at the time the survey was administered, 13.3% were part-time students, and 36.7% had graduated from the program and earned a D.Ed. degree. In general, respondents either lived in the campus (36.7%) or further than an hour away from campus (43.3%). A much smaller percentage (16.7%) lived outside of the town but within an hour drive. Nearly half of all respondents attended all-day weekend classes in person (46.7%) whereas the rest of respondents used a combination of approaches to attending (e.g., in person, virtually by themselves or with others). Finally, the majority of respondents reported

being comfortable with technology (86.6%) and attending online classes at home (76.7%) on a laptop (96.7%) with a solid wireless connection (83.3%). It is also worth noting that the majority of respondents, 83.3%, said they would recommend the D.Ed. program to peers in similar circumstances to them.

Research Question 1

Table 1 presents the means and standard deviations for the survey items that focused on *technologies*, which included the department's technology platform and delivery approach. The items are ranked in the order by which respondents indicated that the idea at hand would enhance their learning. In other words, the higher the mean for an item, the more respondents agreed that it would enhance their learning. For example, 86.6% of respondents either somewhat or strongly agreed that reviewing recorded lectures to review class material would enhance their learning. The mean response for this question was 3.53 (i.e., between 3—somewhat and 4—strongly agree), the highest among all the technology platform and delivery approach items. The next two highest ranked items were (a) a limited number of transitions from one delivery platform to another within individual class sessions and (b) consistent use of Learning Management Systems across courses.

Table 1. Descriptive Statistics for Technology Platform and Delivery Approach Items

My learning is (or would be) enhanced by...	N	M	SD
...recorded lectures so I can review the material as needed	30	3.53	0.73
...a limited number of transitions across delivery platforms in a single class to minimize technology challenges	28	3.25	0.93
...consistent use of Learning Management Systems (e.g., Canvas, Obaverse) across courses	29	3.24	0.79
...the option to attend class in person or online	30	3.17	0.95
...consistent use of virtual delivery platforms (e.g., Adobe, BlueJeans, Obaverse) across courses	30	3.17	0.83
...a mix of asynchronous and synchronous format for a single class (e.g., alternating weeks)	30	3.10	0.85
...a maximum 2-hour block for online synchronous classes	29	3.00	0.85
...a mix of asynchronous and synchronous format across courses (e.g., synchronous for content and asynchronous for methods courses)	30	2.97	0.93
...a maximum of 20 students for synchronous online classes/class portions	29	2.79	0.86
...intensive format classes/institutes (e.g., Friday night and all day Saturday once a month or during the summer)	30	2.13	0.82

As shown in the table, seven of the 11 survey items had means between 3 and 4, indicating that on average respondents agreed that the issue embedded in the item would enhance their learning. On the low end, intensive format classes (e.g., Friday night and all day Saturday once a month or during the summer) was the lowest ranked

item ($M = 2.13$), which implies a relative split on whether respondents felt these courses enhanced their learning. Respondents were also asked, in an open-ended question, to identify which technology platform and delivery approach issues EMPL should prioritize. There were a variety of suggestions, none of which emerged as a clear consensus among respondents, it does appear that issues pertaining to mixing asynchronous and synchronous methods across platforms and consistent use of learning management software and technology platforms merit further examination. For instance, one respondent indicated that a mix of asynchronous and synchronous formats “is ideal for a learning environment,” whereas another respondent indicated that “EMPL should focus on quality of instruction regardless of the delivery method.” Approximately a quarter of respondents indicated that EMPL should prioritize these issues.

Research Question 2

The second subset of items related to *people*, what we termed participant composition. Table 2 presents the means and standard deviations for these seven items. The vast majority of respondents (83.3%) somewhat or strongly agreed that the intentional integration of virtual students into class discussion would enhance their learning. This issue was ranked highest among all respondents ($M = 3.28$). Arranging small group discussions by student characteristics (e.g., similar research methods, topic area of interest) had the second highest mean (3.25) and by program type (e.g., masters, D.Ed., Ph.D., masters students) had the third highest mean (3.07).

In EMPL, many instructors divide students into small groups to engage in various types of class activities. Survey results indicate that being intentional about how these small groups are formed may enhance student learning. All other items had a mean between 2 and 3, somewhere between somewhat disagree and somewhat agree. Interestingly, it appeared that respondents disagreed on whether teaching assistants enhanced their learning. Respondents were relatively split on whether they agreed that teaching assistants helped facilitate small group discussions ($M = 2.38$).

Table 2. Descriptive Statistics for Participant Composition Items

My learning is (or would be) enhanced by...	N	M	SD
...intentional integration of virtual students into class discussion	29	3.28	0.80
...small group discussions arranged by student characteristics (e.g., similar research methods, topic area of interest, grade level taught, EMPL program, etc.)	30	3.23	0.82
...small group discussions across programs (e.g., masters, licensure, D.Ed., Ph.D.)	30	3.07	0.83
...small group discussions across geographic areas	30	2.80	0.66
...additional core content support (e.g., office hours)	29	2.79	0.73
...additional technology help provided by teaching assistants	29	2.59	0.78
...teaching assistants to help facilitate small group	29	2.38	0.62

Unlike the technology platform and delivery approach section, a notable number of respondents (36.6%) seemed to agree that EMPL should prioritize the intentional integration of virtual students into class discussions. In EMPL, many D.Ed. courses include students in person and online, creating a split classroom. Instructors are tasked with facilitating discussion between students in the physical classroom and those online, usually appearing on a video teleconferencing screen in the classroom. One respondent stated that EMPL should prioritize “strategies to better include virtual students,” particularly with the BlueJeans platform. Thus, it appears that respondents believe their learning would be enhanced by intentionally integrating online students and that EMPL should prioritize this issue. Moreover, this issue was the highest ranked item among respondents in the quantitative portion of the survey.

Research Question 3

Table 3 presents the results for the last set of quantitative items, which were specific to what Aparicio, Bacao, and Oliveira (2016) call *services*. These are the various class activities used in the virtual program delivery. The results from these seven items followed a similar pattern as the first two sections. Only two items had means below three, suggesting that respondents on average agreed that most of the class activities included in the survey would enhance their learning. The two lowest ranked class activities—(a) the chat box and (b) a limited number of transitions across activities in a single class to minimize technology challenges—had means close to three (2.86 and 2.83, respectively), indicating that respondents tended to agree more than they disagreed about whether these class activities enhanced their learning. Online breakout rooms for small group discussions ($M = 3.27$), discussion prompts tied directly to class readings ($M = 3.17$), and using multiple activities in a single class to increase engagement and reduce online distractions ($M = 3.17$) were reported to enhance respondents’ learning.

Similar to the participation composition section, one class activity emerged as a topic of clear consensus among respondents: the use of multiple activities (changing every 20–30 minutes) in a single class period to increase engagement and reduce online distractions. This item also was ranked highly among respondents in the quantitative section ($M = 3.17$). One respondent asserted, “Multiple activities is how people learn best. It’s good practice whether you are teaching children or adults.” Another respondent agreed that multiple activities are useful, but argued that there are “only a few instructors who do this.” For many respondents, multiple activities was the only topic mentioned whereas other respondents elaborated and suggested that multiple activities helped improve focus and stimulate the learning conditions that benefit adult and adolescent learners alike. There was no other issue that received support from more than 10% of respondents. Other issues mentioned included tying discussion prompts directly to readings assigned for homework and employing small group discussions. On the latter issue, respondents did not indicate their preference for how instructors should construct small groups (e.g., by program type, student characteristics).

Table 3. Descriptive Statistics for Class Activity Items

My learning is (or would be) enhanced by...	N	M	SD
...online breakout rooms for small group discussions	30	3.27	0.58
...discussion prompts tied directly to readings, not just experiences	30	3.17	0.83
...multiple activities (changing every 20-30 mins) in a single class to increase engagement/reduce online distractions	30	3.17	0.79
...polls to generate discussion (Adobe)	30	3.03	0.72
...online breakout rooms for application of the course core concepts (e.g., tasks, role plays, debates)	30	3.00	0.91
...the chat box (Adobe)	29	2.86	0.95
...a limited number of transitions across activities (e.g., small group to whole class) in a single class to minimize technology challenges	29	2.83	0.85

Educational Importance

The results of this study present useful student feedback to inform the instructional strategies of individual faculty as well as departmental decision-making. Survey findings suggest individual faculty may want to incorporate specific approaches such as recording lectures so that students can review the material as needed and minimizing the number of transitions across delivery platforms in a single class to minimize technology challenges. Survey findings also suggest individual instructors may want to include activities during synchronous virtual classes such as small group discussions arranged by student characteristics. For example, students can be grouped through the Adobe platform according to preferred research methods, topic area of interest, grade level taught, etc. to engage in class activities and discussions as well as creating homogenous or heterogeneous groupings by program (i.e., masters, licensure, D.Ed., Ph.D.). Additionally, individual instructors may want to reduce the use of teaching assistants in giving core content support, technology help, or facilitating small group discussions.

Findings also contained aspects of department-wide policy that could be improved to further enhance D.Ed. student learning. For instance, it appears that consistent use of both Learning Management Systems (e.g., Canvas, Obaverse) and virtual delivery platforms (e.g., Adobe Connect, BlueJeans) is a critical issue that deserves attention from the department, decisions currently left open to individual faculty. As one student responded, EMPL's "biggest weakness is that people use different platforms to access the EMPL program technology and that causes access issues that can be pretty disruptive." Another student argued that keeping track of "multiple platforms and learning management systems" can "overwhelm" new students. This finding comes as no surprise as this issue, which was raised by a group of D.Ed. students, led EMPL to conduct this survey to determine what can be done to improve technology use overall. However, despite receiving confirmation on this particular finding, requiring all instructors to use the same Learning Management System and virtual delivery platform is not without its challenges, especially considering the wide

range of virtual classroom technology available to instructors as well as periodic changes to the Learning Management Software adopted by the University of Oregon as a whole.

Four other findings may warrant further examination by EMPL as a department. First, it appears that students want the option to attend class in person or online, and not be required to do one or the other. This option is available in a handful of EMPL D.Ed. courses, but many classes allow for only online attendance. Second, and related, the vast majority of students agreed that EMPL should prioritize methods for intentionally integrating virtual students in classrooms where there are both students in-person and online. Facilitating engaging interactions between students physically located in a classroom and their peers who attend remotely, on a television screen in the physical classroom, is a challenging task. EMPL may opt to prioritize this issue through department-wide policy or professional development opportunities for instructors. Third, EMPL should examine the efficacy of intensive format classes (e.g., all day Saturday)—the lowest rated item on the survey. Respondents were roughly split on whether they thought these classes enhanced their learning. Finally, survey responses suggest that EMPL should consider limiting online synchronous class time to a maximum of two hour blocks to reduce the likelihood of students becoming disengaged when logging on in isolation.

Connection to the Assembly Themes

This study of technology use in EMPL's D.Ed. program fits well with the conference theme, *Re-thinking Teacher Professional Education: Using Research Findings for Better Learning*, specifically, the sub-theme, *Teaching in a Digital Era*. The findings from this study suggest areas to improve online teaching which will likely result in better student learning, but the study itself points to the necessity of departmental self-reflection necessary to meet the needs of a changing environment of education in a digital era. Teachers must engage in self-reflection of their pedagogy to remain grounded in theory and remain relevant to the changing nature of education.

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Appendix A

Cohort Year, Cultural Background, Language, Personality, and Recommendations of the D.Ed. Program

Variable	N	%
Cohort Year		
2012	5	16.7
2013	7	23.3
2014	4	13.3
2015	8	26.7
2016	5	16.7
Cultural background		
Represented	23	76.7
Underrepresented	6	20.0
Language		
English is first language	26	86.7
English is not first language	4	13.3
Personality		
Extrovert	14	46.7
Introvert	16	53.3
Recommend the DEd program?		
Yes	25	83.3
No	5	16.7

Appendix B

Student Status, Distance to UO, Weekend Participation

Variable	N	%
Student status		
full-time student	14	46.7
taking classes part time	4	13.3
not currently enrolled (i.e., DEd graduates)	11	36.7
Distance to UO		
in Eugene/Springfield	11	36.7
within a 1-hour drive from Eugene	5	16.7
further away from Eugene than a 1-hour drive	13	43.3
Type of participation in all-day weekend classes		
in person	14	46.7
virtually, in a room with others (e.g., V-Tel)	1	3.3
in person, virtually, in a room with others (e.g., V- Tel), virtually, in a room by myself	9	30.0
in person, virtually, in a room with others (e.g., V-Tel)	2	6.7
in person, virtually, in a room by myself	3	10.0

Appendix C

Comfort with Technology, Log-on Location and Device, Connection Type

Variable	N	%
Comfort with technology		
am comfortable with technology	10	33.3
had experience with online coursework prior to becoming an EMPL DEd student	4	13.3
am comfortable with technology, had experience with online coursework prior to becoming an EMPL DEd student	16	53.3
Most typical log-on location		
my home	23	76.7
my office	5	16.7
a public space (e.g., coffee shop)	1	3.3
Most typical connection type		
an Ethernet cable	4	13.3
a fairly solid wireless connection	25	83.3
a somewhat erratic wireless connection	1	3.3
Most typical log-on device		
a laptop	29	96.7
a phone	1	3.3

A REVIEW OF SCHOOL BULLYING IN VIETNAM – STUDENTS’ VOICE

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Bullying at schools is always a big problem to students, parents, educators and society during decades. While some bullying is physical and easy to recognize, bullying can also occur secretly and covertly, through gossips, on a smart phone or internet. For victims, especially young kids, the results then may influence a personality. It causes not only physical but also emotional damage. In Vietnam, bullying crosses the line into teachers and students. This study is tried to investigate the impact of such bullying on victims and highlight the current situations in Vietnam.

Key words: bullying, Vietnam, demands, punishment

Introduction

Bullying at schools is defined by the Centers for Disease Control & Prevention as “unwanted, aggressive behavior among school-aged children that involves a real or perceived power imbalance. The behavior is repeated, or has the potential to be repeated, over time.” Sometimes bullying crosses the line into harassment, when it is based on race, ethnicity, sex, disability, sexual orientation, national origin, or different component (Steele). In a research at two secondary schools in the North of Vietnam, Horton (2011) found that 56.8% of students reporting they have been bullied. A previous survey conducted among 3,000 students in thirty secondary schools in Ha Noi indicated that about 80% of participants said they had experienced school bullying, including sexual abuse (Nguyen 2015).

Cyberbullying now happens easily apart from traditional bullying due to information technology development. This may include sending harassing messages (via text or Internet), posting disparaging comments on a social networking site, posting humiliating pictures, or threatening someone electronically. Unfortunately, cyberbullying behavior has come to be accepted and expected among adolescents (Nixon, 2014).

Research method

In this study, the ethnography research is applied to collect data appropriately. The aims of this study are to examine the prevalence of school bullying in Vietnam and surroundings; and to some extent, identify another type of bullying among teacher-student relationship in Vietnamese schools. The findings are hoped to provide a deep insight for parents, educators and society towards the problem so that positive actions can promptly happen.

Bad effects on victims, bullies and observers

School bullying causes serious effects to involved individuals. For victims, especially young kids, the results then may influence a personality that tends toward caution and shyness, introversion, low self-confidence, unhappiness and anxiety. If they were already quiet, shy and self-contained, they may turn out to be more so, to the point where they experience difficulty communicating with their companions. On the outside, the child may appear more anxious, may seek to avoid settings where bullying frequently occurs, and may fall ill (or seem to) more often than normal. If they had friends, they may isolate themselves from them. They may even be at increased risk of suicide. Depression and anxiety tend to characterize their emotional outlook well beyond the bullying years and extend into their adult lives. They also find it more difficult to make and keep relationships, whether with friends or romantic partners. This results in the bully victim's inability to trust himself or herself as a capable individual. They also have difficulty of trusting people, reduced occupational opportunities, and grow into adulthood with the tendency to be loners.

Although not as well documented, the effects of cyberbullying victimization are also related to adolescents' externalizing problems. For example, among a sample of youth living in the US, Ybarra et al (2011) found that those adolescents who were harassed online were more likely to use alcohol, drugs, and carry a weapon at school. In a study of Asian and Pacific Islander youth, Goebert et al (2007) found that cyberbullying victimization was associated with adolescents' increased substance abuse. Their results revealed that targets of cyberbullying generally cope with cybervictimization by telling someone, avoiding friends, getting revenge, and withdrawing from events, thus potentially undermining important social connections.

Not only the victims but also the bullies and the observers bear the serious consequences of bullying. For the bullies, because they can be violent, manipulative, cruel, without empathy and generally unpleasant, they may not have many friends. It is unclear how much the behavior in which bullies engage contributes to their emotional problems, and how much of it is simply symptomatic of other troubles. However, bullies are at greater risk for alcohol and drug abuse as adolescents, as well as for engaging in sexual behavior at a young age. They often get into fights, vandalize and drop out of school. Bullies often grow up to be unhappy adults. Their methods of relating to the world around them often don't work very well in adulthood, where

quick tempers and violent actions are generally evaded by society. They may have difficulty keeping a job, retaining friendships and maintaining romantic or even family relationships.

For observers, when they do nothing, they are actively making a choice: to either ignore it, pretend it has nothing to do with them, or sometimes even watch with enjoyment. No matter what the case, observing without intervening is harmful, and not just to the victim or bully. It is harmful to bystanders themselves, making them more likely to drink and smoke, skip schools, and become anxious or depressive. These behaviors can in turn lead to long-lasting psychological impacts. Use and abuse of alcohol and tobacco can wreak havoc on bodies, and depression and anxiety can cause long-lasting problems with relationships, work and happiness. Skipping schools or dropping out can also affect success later life. When children feel as though they can do something about unfair behavior, they avoid the issues that often attend helplessness, such as depression and anxiety.

Similar to face-to-face bullying, there are often many peers who witness or are exposed to cyberbullying. Fortunately, some observed actions that were most likely to lead to positive outcomes for targeted youth were not confrontational, but instead were quiet acts of support (ie, spent time with the targeted students, talked to them, encouraged them, listened to them, and called or messaged them at home). However, the Youth Voice Project data revealed that over half (51%) of the mistreated youth reported that their peers “did nothing” about the situation and “ignored what was going on”.

Family social support

Fanti et al (2012) found that adolescents’ family social support was a protective factor for both cyberbullying victimization and cyberbullying perpetration. Such that family social support was related to decreases in cyberbullying behaviors one year later, even after accounting for other risk factors. These outcomes propose that family social support may be an important protective factor in guarding against the negative health correlates of cyberbullying, and thus merits further scrutiny. Empathy training seems particularly important given the nature of cyberspace and the absence of nonverbal cues available. For example, adolescents may be less inclined to experience empathy for targets online to some extent since they are not aware of the targets’ facial expressions.

Past studies have shown that the frequency of online communication increases the risk of cyberbullying victimization and perpetration. Subsequently, helping adolescents to self-regulate their time spent online may decrease their involvement with cyberbullying behaviors. This is particularly important given adolescents’ struggles to manage their impulses. However, several studies suggest that targets of cyberbullying rarely seek help from adults at school (for example, from teachers). Instead, the majority of adolescents is silent and is not likely to tell adults when they are cyberbullied. Slonje and Smith (2008) found that 50% of targets did not tell anyone, 35.7% told a friend, 8.9% told a parent or guardian, and 5.4% told someone

else. Notably, the majority of targets do not tell adults, with one study reporting up to 90% of adolescents not telling an adult about their experiences related to cyberbullying.

There are at least four possible reasons why teenagers are not likely to tell adults about their bullying experiences. First, it could be that they do not feel connected to adults, and subsequently do not seek their help when in distress. If this is true, then it is imperative that adults at school intentionally reach out to teenagers in an effort to establish trusting and caring relationships. This can be done through a variety of strategies including the development of engaging classroom activities, as well as activities designed around special adolescent interests. Prevention efforts could include helping adolescents build up and keep up meaningful social interactions with their peers. Adults at school can be trained to connect older peers with students who are at risk for having fewer peer connections. A recent study conducted by Burton et al (2013) found that teenagers who were more attached to their peers were less likely to be involved in cyberbullying. Effective mentoring programs could be another strategy used to increase positive peer attachments among teenagers. These programs can be developed to connect adolescents to caring mentors and/or adults.

Another reason for teenagers not be willing to tell adults about their experiences related to cyberbullying may be the thought that cyberbullying is not a serious issue, and thus, they do not need help (Agatston et al, 2007). A third reason is that they do not consider the adults in their school to be helpful resources in addressing cyberbullying. These results suggest that additional training may be needed for school personnel to identify effective ways to address cyberbullying in the school setting. Several good resources have been provided online for educators. A fourth reason why teenager victims may not be willing to seek help could related to their increased feelings of shame and helplessness. Letting targeted youth know it is not their fault may be one promising cognitive strategy that may increase adolescents' likelihood to seek help. Recent findings from the Youth Voice Project (2013) suggest that adolescents' use of cognitive reframing strategies are effective tools that are likely to lead to positive outcomes for targeted youth.

In order to heal from this damage, the victim needs help building a strong, resilient and flexible identity that will allow him or her to deal with the challenges in life without giving up or perceiving the same lack of control instilled during childhood bullying. They must develop the inner trust that allows them to believe they can accomplish what they set their minds to, or else life may feel hopeless and pointless. Help the child find tasks at which they can succeed, cultivate hobbies and interests at which they excel, and spend time doing activities they enjoy. This gives the victims agencies, helps heal the wounds created by helplessness, and builds back up a self-image that they can rely on.

To adolescent victims, raising awareness among educators, health care professionals, parents regarding the serious nature of bullying may be a first step in addressing the harmful effects of bullying. Moreover, it is important for caring adults and mentors to proactively reach out to adolescents and establish meaningful relationships with

them that persist over time. Additionally, training adults and adolescents in effective strategies to address bullying is needed to mitigate the associated negative impacts. Finally, addressing adolescent' beliefs around bullying both at the individual and classroom level should be at the core of prevention and intervention endeavours (Burton et al 2013). School counselors and health care providers may be in a prime position to initiate training for school personnel, parents, and adolescents alike (Bhat 2008).

Bullying in Vietnam

Students to students

Le et al (2017) showed that about 60% of students engaged in bullying roles as victim, bully, or bully-victim at some point during the year. It is clear that traditional bullying victimisation and perpetration are much more common than cyberbullying victimisation and perpetration among Vietnamese school students. This pattern is unlikely to be due to limited online activity, as over 90% of students reported using mobile phones and other devices that connect to the Internet and most spend at least one hour daily online. (Le et al., 2017). It is possible that if students are aware of their teachers trying to stop bullying in school, they change their strategy to bully their peers in covert forms, including cyberbullying, where the teachers are less able to monitor the behaviour (Elledge et al., 2013).

Nguyen (2015) stated that a recent survey by the HCM City-based Centre for Life Skills Training at two senior secondary schools startled many people that up to 45% of participants considered school bullying was normal. Another 30% said school bullying was acceptable. Reliable with global trends, age differences were observed among the bully-victim groups in Vietnam. Students were more likely to be victimised in early secondary school (sixth and seventh grade) while transitioning from primary school to a new environment (Cook et al., 2010; Olthof, Goossens, Vermande, Aleva, & van der Meulen, 2011). The circumstance is further complicated because children's experience at violence at home influence their bullying experiences outside. Similar to past reviews, Vietnamese students who witness parental conflict or are bullied by siblings are more prone to perpetrate bullying (Hemphill et al., 2012; Hong & Espelage, 2012).

It seems that school violence in Vietnam has being broken out in the 2010s. It is common to hear about violence in school and find videos on the internet of students fighting each other. Early in the 2011–2012 academic year, the Ministry of Education and Training released a report that more than 1,620 cases of fights between students had been discovered nationwide in the 2010–2011 school year. School violence in Vietnam was getting more complicated and dangerous. Although schools applied several ways to stop violence (for example, students who involved in the fights, were forced to stay out of school for certain periods), the measures prove to be in vain attempts (Hien 2010).

Teachers to students

The problem in Vietnam is that no matter how hard the government and schools try to build better environments for the students, the number of cases reported regarding bullying at schools is increasing, and that is not exclusive to student-to-student encounters but includes bullying cases where the teachers are also involved. Bullying performed by teachers on their students is believed to have different forms as the UNICEF mentioned. Physical punishment, according to UNICEF, may take various forms, with the most common one being beatings by hand, or using a cane, rod, or any other sticks. Besides, other ways are also used including knocking a child's head, hitting the buttocks, slapping the thighs, or depriving a child of food (UNICEF, 2004). In addition, emotional abuse including shouting, humiliating and blaming children in public is very common, both at school and in the family.

According to another survey done by the Institute of Development Studies in Ho Chi Minh City in 2008, under the Child Abuse in school and family, 26.3% of the students were subjected to bullying acts from their teachers and got punishments that ranged from frightening them, punching them on the heads to pinching their ears and making them stand in the sun, while 16.7% of the students faced bullying by their peers where they were forced to do class duties for them. An online newspaper report from 2011 gives an example of violence by teachers against students. Four girls were beaten by their teacher, who then, after her hands started hurting, made the class representative beat 16 other pupils. (Nguyen & Tran, 2013)

Also in Norton (2011) research, sometimes teachers appeared to punish some students more readily than others. While a student who committed a perceived minor offence would most commonly be verbally scolded or made to stand, on some occasions teachers reacted by slapping a student, or threatening to slap them. Hitting students because they do not do what they are told constitutes a similar pattern to how bullying was explained as the use of hitting and other actions to get someone to do something they otherwise would not do. The irregularity in the type of punishment meted out for the same offence tended to be related to particular students' relations with the teachers meting out the punishment. Indeed, the ways in which certain students were punished *vis-à-vis* their classmates serve to question the distinctions between punishment and the bullying of students by teachers.

If the use of negative actions or the threat of such actions to get someone do something they otherwise would not do is understood as bullying, then such use of punishment by teachers to punish specific students can be understood as a form of teacher-student bullying. Teacher-student bullying not only has implications for those being bullied by the teacher but also for the broader climate of schooling as some teachers' use of bullying may signal to students that bullying is acceptable in certain situations (Browne 1995; Rivers, Duncan, and Besag 2007; Sullivan, Cleary, and Sullivan 2004).

Prevention from society

Until now, there has been little focus on the issue of school bullying as well as student relations in Vietnam. Instead, it tends to be on the quantity of education, in the form of enrolment and literacy rates. While the government has indicated a political commitment to addressing school bullying, by ratifying the United Nations Convention on the Rights of the Child (UNCRC) and through the promotion of the education program „Building Friendly Schools and Active Students’ for example, the Ministry of Education and Training’s Department of Student Affairs has yet to implement any policies directed at dealing with or preventing bullying in schools. Instead the focus has tended to be on more explicitly violent threats such as the carrying of weapons and organized fights (Tran Thi Kim Thuan 2011).

One of the first significant laws issued in Vietnam as a legal document relevant to school violence is the law on child protection, care and education issued in 2004. It provides protection for the children who have previously suffered from abuse. Anti-school violence had been addressed more legally in 2011, which provides guidance under the law of child protection, care and education, which stipulates that using punitive ways to educate, injure or hurt children, either physically or verbally are in violation of child’s rights.

Some initiatives were being taken in Vietnam apart from the legal laws and regulations to help build an environment for the children where they could grow and thrive. Among these initiatives were the measures taken by the Ministry of Education and Training (MOET) that focuses on building a friendly school environment, more collective activities, stronger ties between the school and the family, and a better school security system. The Directive No. 70/2008/CT-BGDDT was issued in 2008 to strengthen the cooperation between students, family, and society in the education of children, pupils and students. Another example is Directive No. 40/2008/CT-BGDDT which launched the campaign “Child friendly schools, active students” which aimed at building a safe and effective school environment and to encourage students to actively participate in learning.

Another initiative was Vietnam’s first National Program on Child Protection started in 2011, targeting all the children especially those who were being abused or exploited. This program was aiming at establishing a child protection service, including a child protection network, social work service centers, counseling centers, and community networks of child protection collaborators.

Conclusion

Vietnam is mentioned to be one of the countries deeply care for the improvement of their education. Vietnam works hard to provide its students with suitable environment and materials to bring them up successfully. However, they put too much academic learning into students’ curricula. Some students end up being stressed, worried, tensioned, or even suffer insomnia from the pressure of studying. Besides, demands

on teachers to get through the required curricula content so that their students may pass national examinations, together with expectations that they should control students' behavior also place teachers in a difficult position toward their students. In attempts to meet the demands, teachers may utilize a variety of ways and the effects of which may bring them into increasing opposition with some of their students. Lack of agreed standards of behavior, for both teachers and students, may lead to teachers administering increasingly punishment, especially in the face of continued student opposition. This may lead to some teachers blurring the boundaries between fair punishment and that which takes the form of teacher-student bullying, and may serve to further exacerbate the teacher-student opposition.

In some cases, school leaders did warnings to teachers who involved regularly with serious consequences, but in many other cases, especially in private schools, such punishment were acceptable and to be understood as the best way to train their students. Rather than restricting the discussion surrounding teachers to one of teaching styles or teacher types, it is necessary to consider the demands placed on teachers and the educational framework within which they work. Large class sizes, low pay, overloaded curricula, and lack of training and support may leave teachers struggling to manage classes, which in turn may serve to create a climate wherein bullying is more likely to occur and wherein student opposition to teacher authority is most vociferous. In Vietnam, anti-bullying policies have yet to be implemented to deal with the issue of bullying in schools (Martin et al. 2013; Tran 2011), and it is hope that the issues presented in this article will go some way to addressing the lacuna in knowledge about Vietnamese school bullying and thereby, provide relevant information to those assigned the task of tackling the problem in Vietnamese schools.

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SUSTAINABLE TEACHER EDUCATION FOR THE 21ST CENTURY WORLD BANK/KADUNA STATE EXPERIENCE

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The paper discusses a three-year (2008–2011) in-service teacher professional development project sponsored by the World Bank on behalf of Kaduna State (Nigeria). Some 500 project schools (421 primary and 79 junior secondary schools) were involved. This report covers only 169 of these schools (139 primary and 30 JSS) in two of the six local governments involved, i.e. Birnin Gwari and Chikun. Altogether some 2,663 teachers, head teachers and principals, supervisors and inspectors were trained within the three years, using well-designed seven sets of handbooks. The workshops were delivered in four face-to-face block sessions of eleven days each for a total of about 44 face-to-face days per year for each set of teachers. Four teachers were trained for a year from each of the 169 project schools. They were to serve as mentor teachers in their schools as well as in non-project schools that did not benefit directly in the three years. The 169 head teachers (139) of primary schools and principals of JSS (30) as well as the 16 supervisors of the two local governments were retained throughout the three years so that they could organize similar workshops in a train-the-trainer process in their local governments and schools, monitor trained teachers, and eventually sustain the project long after its three year lifespan. Nine seasoned educator mentors ran the workshops throughout, after a ten-day train-the-trainer session with international consultants. These educator mentors, working collaboratively with trained supervisor and inspector mentors, visited teachers in their schools to monitor the application of the approaches taught at the training workshops. The workshops were evaluated based on designed open and close-ended criteria covering the workshops as a whole, the materials, facilitators, and the participants' perception of their participation rate as well as the training venues/logistics. All groups rated the workshops very highly (over 90%). However, teachers could not always implement all they got at the workshops. Inspectors and supervisors did not visit schools on a regular basis to monitor teachers, and head teachers and principals, did not organize school workshops as often as expected. Materials available

at the workshop centers were not available in schools and cluster sessions, and local funding was a problem. Attitude and enthusiasm expressed at the workshops were not carried through thereafter. The ministry of education had no well-articulated sustainability plans. Detailed recommendations are made on how to improve future in-service training and how to sustain their gain.

Introduction

Changing society and technologies have reshaped the image of education to prepare people for new ways of working and living in the 21st century. Teachers are the torch-bearers of any society serving as the catalysts for development as they mold its citizens. Therefore, the role of professionally trained teachers has changed dramatically. A modern teacher does not just pump knowledge into learners but allows them to fully participate in learning activities, thereby developing his natural powers and abilities from within. In the 21st century teachers are also agents of change. It is therefore, imperative that measures be put in place to bridge the gap created by these challenges. The Kaduna State Sector Project on Teacher Professional Development SESPTPD is aimed at rising up to these challenges by instilling appropriate skills in teachers to improve teaching and learning as well as instilling leadership qualities in them. The project provided professional development to teachers in both Primary and junior secondary schools, their head teachers and principals, and affiliated school supervisors and inspectors who are already in positions of authority/leadership.

This paper therefore, discusses sustainable teacher education for the 21st century. The project is sponsored by the World Bank and aimed at training teachers for Kaduna State in Northern Nigeria. The paper critically examines the implementation of the project, challenges, its impact on learning outcomes and to make appropriate recommendations on how to improve future in-service training and how to sustain it gains.

- i. Personal sustainability: Can our teachers communicate through language, number and the arts? Are they independent learners/teachers? Are they resilient? Do they have strategies to manage stress in their lives and in the classroom? Do they have joyous hobbies and activities? Do they understand health issues, from AIDS to obesity to mental illness?
- ii. Environmental sustainability: What do biology, chemistry, and physics teach us about our world. How do teacher actions affect nature/environment?
- iii. Cultural sustainability: Do teachers understand other cultures, their values and systems? Do they understand that political decisions have social, economic and cultural components? Over-riding all of these questions is the need for teachers to place issues in a global context, to connect themselves and compare their experiences to communities in other parts of the world and to consider the effects on future generations.

NTI TPD Worldbank Project

The central idea was that unless all involved were carried along, there might be friction somewhere in the full implementation of the project.

NTI conducted a three-year (2008–2011) World Bank project on behalf of Kaduna State and trained 2,663 teachers, their head teachers, JSS principals in 169 schools as well as supervisors and inspectors of two LGEAs.

Specific TPD Objectives

These were to:

- improve the school experiences and learning achievements of pupils served by the project schools;
- support school-based professional development;
- raise the performance and effectiveness of teachers;
- build the leadership capacity of head teachers and principals;
- develop a cadre of teacher educators as an effective training resource for improving teacher competencies.

The TPD's approach (philosophy) to teacher improvement was to transmit:

- self-confidence, respect, professionalism and personal excellence.
- life-long, self-motivated, reflective learning and practice.
- development of knowledge, skills, attitudes, professional satisfaction and motivation.
- learning for all and from each other: equality, inclusivity, collaboration, teamwork and peer learning.
- sharing experiences and exploring strategies to address common challenges.

GROUPS WHO RECEIVED FACE TO FACE TRAINING OVER THE THREE = YEAR PROJECT CONDUCTED BY THE NTI IN TWO LGEAs were:

- trainers who comprised eight educator mentors (EMs) and their contract manager, fourteen school supervisors and two inspectors, teachers, head teachers and principals in 169 schools.
- School supervisors and inspectors.
- primary head teachers (139) and JSS principals (30) received training throughout the project's three years.
- four teachers from each of the 169 project schools for one academic year, and who continued to be involved throughout school workshops and school cluster workshops and were visited by educator mentors, supervisors and inspectors throughout the three years.

The capacity-building over the three-year project conducted by the NTI in two LGEAs.

As stated earlier, the capacity-building was for all involved in primary education in order to enable them support each other towards achieving quality learning in pupils. Everyone was trained in the three years. The buzz word for all groups was “mentoring,” as everyone was expected to pass on the concept learnt to others along the line.

Each term face-to-face training for teachers was followed by:

- school workshops which included non-**project teachers** (i.e. teachers in 169 project schools who did not take part in the face-to-face training).
- School cluster workshops which included non-**project schools** in the two LGEAs, i.e. the ones not included among the 169 schools.
- There were follow-up school support visits from Educator Mentors (EMs), MSs and MIs.

The Capacity-building Process Train-the-Trainer (TOT₁)

The project began with an intensive ten-day workshop for the EMs titled **Train-the-Trainer (TOT₁)** meant to prepare them to conduct the workshops for the three years to follow. This was conducted by three international consultants supported by a national consultant and Kaduna State Ministry of Education officials. It focused exclusively on actualizing a child-centered approach to teaching that emphasized interactive, participatory, and collaborative group activities with adequate resources.

Educator mentors were shown how to provide leadership in organizing and running effective teacher professional development through practical involvement. There was elaborate discussion on every manual covered, especially as regards possible challenges in actualizing ideas in a real classroom situation.

Training of Inspectors and Supervisors (TOT₂)

The first assignment of the educator mentors [EMs] who had been trained for ten days as TOT₁ was to train the mentor inspectors (MIs) and mentor supervisors (MSs) who were referred to as TOT₂. In addition to the initial three days of training given them, they were also trained for one day before the beginning of each of the four blocks in a year for three years. Throughout the project, they job-shadowed the EMs for all other training workshops for head teachers (139) and principals (30) (dubbed TOT₃) as well as for school teachers. They also participated in school visits and school cluster workshops throughout. Basically, TOT₂ were to internalize the same concept of learner-centeredness and related issues and to show primary and JSS teachers how to actualize them. They would eventually run their Local government education areas [LGEA] workshops, after the EMs had left.

The following were the details explicitly transmitted to them:

- The need for establishing ground rules in order to control the smooth running of LGEA workshop and discipline.
- The use of grouping and the assignment of responsibilities within groups to ensure full participation by all.

- The techniques of listing, pairing, and sharing ideas in problem-solving.
- How teachers/children were to learn from each other cooperatively.
- Language across the curriculum and the techniques associated with its integration/actualization.

From the summary of their evaluation forms, **MI**s and **MS**s (TOT₂) believed that they learnt the following:

- Learner-centered teaching methods and related techniques.
- The importance of assessment and evaluation and how to go about them.
- Using PBI (Practice-Based Inquiry) to evaluate and assess teaching and learning.
- Family Life and Health Education and HIV/AIDs and related issues.
- Using religion and culture to teach FLHE and HIV/AIDs.
- The importance of resources in teaching and the use of storytelling, people, and culture as resources.
- Managing school resources, classrooms, and the school.
- Application of knowledge, skills and culture to teaching.
- Sharing experiences in solving common problems.
- Working together cooperatively and collaboratively among teachers and learners.

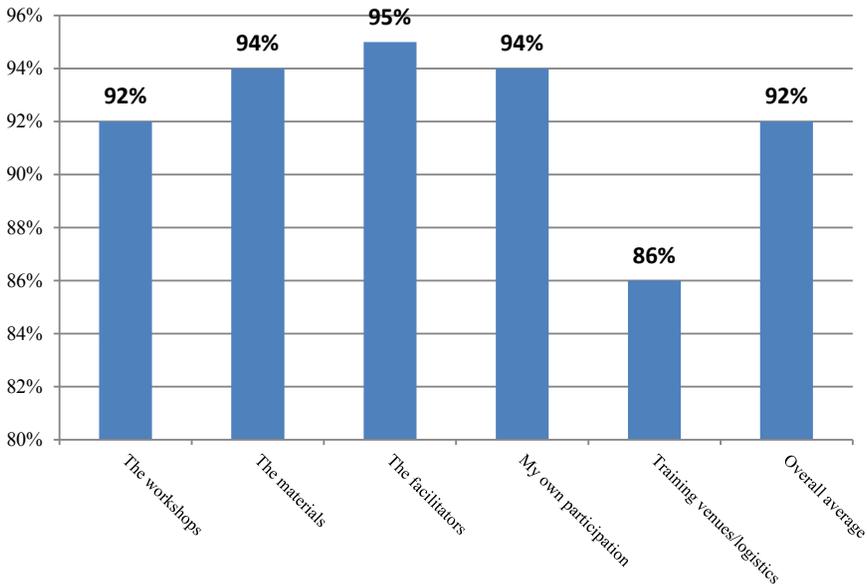
Table 1 figure 1 below represents TOT₂'s evaluation of the workshops delivered to them by the EMs.

Table 1. Supervisors' and Inspectors' (TOT2) Evaluation of Workshops

S/No	Categories	Cumulative Scores of V. Good – Good only.
1.	The workshops	92%
2.	The materials	94%
3.	The facilitators	95%
4.	My own participation	94%
5.	Training venues/logistics	86%
	Overall average	92%

Venues and logistics were consistently scored lower than any other category.

Cumulative Scores of V. Good-Good only.



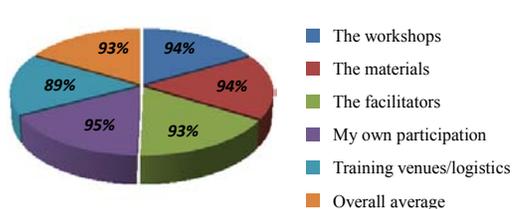
Training Head Teachers and Principals (TOT)

The EMs collaborated with the MSs and MIs in the training of head teachers and principals. Presentations by EMs varied in quality, but, wherever necessary, other EMs came in to support or shed more light in a team teaching fashion. The handbook on language across the curriculum generated much discussion, due to the problems of communication through the medium of English, especially in rural Hausa communities such as Birnin Gwari. The contract manager, a language educator, provided clarifications here and there. When well-trained, head teachers and principals should be able to ensure quality teacher performance in their schools.

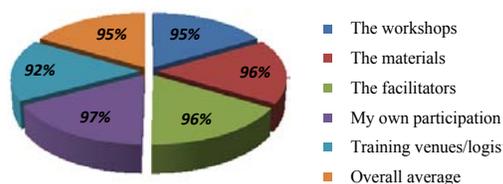
Table 2. TOT₃ Evaluation of Workshops

S/No		Cumulative Scores of V. Good – Good only.	
		B/Gwari	Chikun
1.	The workshops	94%	95%
2.	The materials	94%	96%
3.	The facilitators	93%	96%
4.	My own participation	95%	97%
5.	Training venues/logistics	89%	92%
	Overall average	93%	95%

Cummulative Scores (V.Good-Good) B/Gwari



Cummulative Scores (V.Good-Good) Chikun



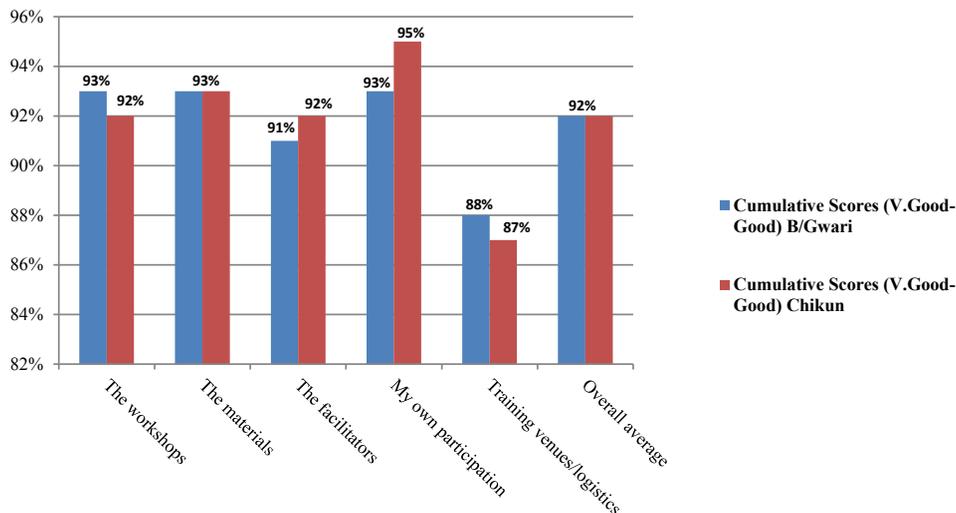
Teachers Face-to-Face Workshops

Head teachers and principals (TOT₃) from the two local governments, Birnin Gwari and Chikun, rated their workshop as high, in virtually all of the five categories and appeared to have learnt much. **Teachers Face-to-Face Workshops:** Teachers had eleven days of contact per year with the EMs, MS, and MIs at the workshop venues in both LGEAs and were visited in schools for a total of six days in the year, i.e. two days each at the end of each term's workshop in the first three terms of the year. This continued for three years. Participants to each workshop showed much enthusiasm because most never had this kind of opportunity for very many years. There were lively exchanges within groups. Mentor supervisors and inspectors as well as mentor educators guided the discussion wherever needed. The workshops were a perfect model of learner-centered approaches: teachers sat in groups of 6–8 to interact on assigned tasks. There were lots of activities and resources. They shared responsibilities and learnt from each other. They reflected on the modules and critically examined the practicability of their ideas to their school situations. Mentor educators used Hausa as an auxiliary language to allow for free exchanges in a relaxed atmosphere. Teachers rated the workshops as consistently above 90% for every category, **except for the venue and logistics.**

Teachers Face-to-Face Workshops

S/No	Categories	Cumulative Scores of V. Good – Good only.	
		B/Gwari	Chikun
1.	The workshops	93%	92%
2.	The materials	93%	93%
3.	The facilitators	91%	92%
4.	My own participation	93%	95%
5.	Training venues/logistics	88%	87%
	Overall average	92%	92%

Teachers Face-to-Face Evaluation



School Workshops and School Cluster Workshops

As noted earlier, one most disheartening aspect of the TPD three-year workshops for teachers of Kaduna state was that the head teachers (139) and JSS principals (30) attended virtually every workshop, in order for them to replicate same in their schools and to mentor staff generally, but failed to organize expected workshops themselves. School and cluster workshops were all conducted once a term across each LGEA, bringing together 676 teachers from non-project schools in the two LGEAs.

However, there was constant complaint of lack of instructional materials to share with these teachers. Often, far more teachers turned up than expected. Word had spread about the benefits derived from the workshops funded by the World Bank. It was, therefore, near impossible to control attendance at the initial stage. So enthusiastic were teachers to attend the one-day school cluster workshops that 1,252 turned up in the two local governments, i.e. 745 from Birnin Gwari and 506 from Chikun, instead of the expected 676 (328 and 348 respectively) making it difficult to pay the full stipulated transport fares. No provision was made for cluster schools to get the seven manuals and private schools were left out of the TPD programme. Even so, participants' responses and questions showed that they appeared to have benefitted from the workshops.

School Visits

Cluster workshops were generally followed by school visits lasting two days in each case. In some cases, a few trained teachers in the TPD programme were discovered to have been transferred to schools not in the SESP project. These at first seemed like undermining the project, but such teachers could actually spread the gospel in their new schools in the same LGEA.

A total of 135 out of 169 schools were visited representing 80%. However, it was clear that, even though there was improvement in the supply of textbooks on core subjects to all schools by Kaduna government in the second year of the project (2009), good teaching and learning were still lacking in most schools visited. Only few teachers complied with the learner-centered approach. Pupils were still sitting in the traditional church-like manner. It was clear that, due to insufficient classrooms, and furniture, there was difficulty in actualizing this approach.

Other problems observed during the school visits

Other problems observed during the school visits included inadequate and unqualified teaching staff, (especially in the four core subjects), poor toilet facilities, children travelling long distances to fetch water during school hours, overcrowding, and termite attack on textbooks, and roofs/ceiling of classrooms. Poor remuneration and late payment of salaries also demoralized teachers. Did these anyway relate in to the constant demand for more allowances at the workshops?

Lesson plans were checked, and suggestions/recommendations made for improvement.

Other lapses were:

- poor record keeping, especially assessment and evaluation records.
- non-sensitization of teachers on the TPD programme in some schools, except in those where head teachers or principals were doing well.
- poor supervision of teachers and learners by school heads, leading to ineffective school management/control.

Teachers from non-project schools cited the following:

Nonetheless, these teachers from non-project schools cited the following as things they learnt at the one-day workshops:

- Grouping learners for effective learning whether e.g. according to mixed activity or gender.
- Learner-centered approach.
- Classroom and time management.
- Various methods of assessment, evaluation and record keeping, including self-assessment.
- Sharing ideas with other teachers.
- How to move from the curriculum, to the scheme of work, and lesson planning, using appropriate resources.
- How to be a role model.
- Materials/resources improvisation and use.

Challenges

Effective leadership always calls for communicative competence. However in this project

- teachers and many supervisors and inspectors were weak in communication and reading skills, and were far more at home in Hausa, the local language than in English, the official language of education.

- Educator mentors often dominated the presentations and assigned very little responsibility to the mentor supervisors and inspectors who were to eventually sustain the TPD in their LGEAs after 2011.
- Perhaps, even more disheartening, state and LGEAs didn't take the notion of sustaining the project after June 2011 very seriously. Thus, at the end of the three years the project merely stopped without any clear road map thereafter.

Recommendations

- There was therefore the need to change attitude towards donor-sponsored projects and to get local officials to genuinely buy into the project for any hope of sustainability.
- Head teachers, principals, supervisors and inspectors, parents, state ministries and SUBEBs are especially critical, if teachers are to sustain gains from painstakingly organized and effectively delivered workshops projects.
- Regular school visits by supervisors and inspectors are absolutely necessary to monitor teachers' implementation of the inputs aimed at improving pupils

Conclusion

The teacher professional development discussed in this paper illustrates some of the problems associated with providing a democratic leadership that aims at carrying everyone along in the education system. Everyone is assigned a specific role that enables him or her to contribute to quality of education. Failure to involve any level of officials may mean a break down in the implementation of the gains made and, therefore, not sustaining the project.

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- For updated links, consult the Web page of the International Bureau of Education of UNESCO: <http://www.ibe.unesco.org/links.htm>.

O-NET RESULT AND DIAGNOSTIC ASSESSMENT OF STUDENTS' SCIENCE ABILITY

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In 2015 the Ministry of Education together with National Institute of Educational Testing Service (Public Organization)-NIETS agreed to include the result of Ordinary National Education Test (O-NET), as a part (10%) of the completion of the student achievement at Grade 6, 9 and 12. This leads to the higher concern of those involved, ministry of education, educational organizations at all levels, parents and other stake holders. Each needs information of test results in different aspects to fulfill their utilization needs.

This research was undertaken emphasizing in finding out the O-NET result report pattern suitable to meet the needs of all concerns for diagnostic purposes, focusing on science, one of the five subjects tested in O-NET. The proficiency pattern of test takers was analyzed from the student responses and reported using the results of the diagnostic model called DINA (de la Torre, 2011). The findings of the study were 1) only 16.49–49.04 percent of Grade 6, 9 and 12 students were master in the subject matter like Life and Environment, astronomy and space, force and motion, living things and life processes, substance and substance properties. 2) More than half of the students attended the test did not pass Core Curriculum on sciences. Most were those in small-sized and medium-sized schools, and those in schools located in up country, especially in the north-eastern and the southern parts of the country.

Introduction

According to the results of O-NET from The National Institute of Educational Testing Service (Public Organization) (NIETS), academic year 2015, the mean score of Grade 6 level in science subject is at 42.59; Grade 9 is at 37.63; and Grade 12 is at 33.40 out of 100. The overall means of the three levels are below 50 percent. (NIETS, 2016) This reflects failure in fundamental education providing in Thailand. According to the Programme for International Student Assessment (PISA), Thailand is ranked

among the countries with the lowest mean. There are only 0.02-0.03 percent of students who achieve an outstanding performance, which is considered very little. This highlights the needs to improve Thailand's science instruction to meet the international standards.

The data clearly indicates that Thai children urgently need improvement. One way to effectively improve them is to diagnose their level of mastery and non-mastery in each learning content and strand. The results of diagnoses show a student's strengths and weaknesses and can be used to pin-point improve their misconceptions. This research uses quality diagnoses of the students in the 3 grades, including Grade 6, Grade 9, and Grade 12 in science contents, to obtain data for making a guideline for improving the quality of learning of teachers and students for schools and concerned organizations.

Purposes of the research

1. To diagnose the results of O-NET in science by strands and standards.
2. To diagnose the results of O-NET in science by school backgrounds.

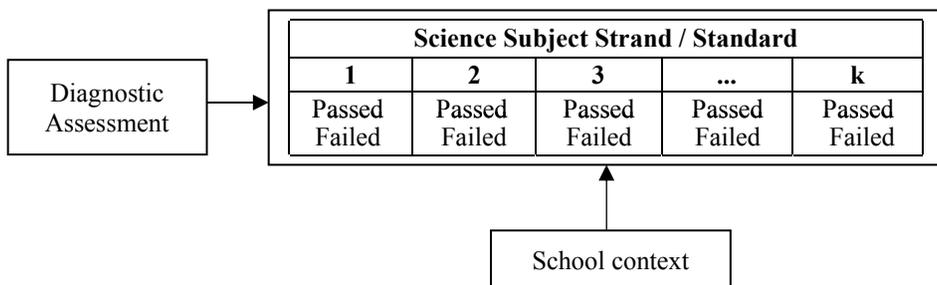
Scope of Study

1. Contents to be diagnosed are science contents according to the Basic Education Core Curriculum for Grade 6, Grade 9, and Grade 12 only.
2. The study uses data from the Ordinary National Educational Test (O-NET) science subject, academic year 2015 only.
3. The diagnosis uses students' response patterns in science subject, academic year 2015, analyzed with DINA model.

Definitions

1. Profile means mastery and non-master standard patterns according to The Basic Education Core Curriculum B.E. 2551 (A.D. 2008) obtained from diagnosing with the diagnostic model.
2. Weakness means contents where students can possibly achieve less than 50 percent.
3. Strength means contents where students can possibly achieve more than 50 percent.

Theoretical framework



Learning Areas of Science (The Basic Education Core Curriculum, 2008)

Learning Areas of Science can be divided into 8 strands as follows:

- Strand 1: Living things and processes of life
- Strand 2: Life and the environment
- Strand 3: Substances and properties of substances
- Strand 4: Forces and motion
- Strand 5: Energy
- Strand 6: Change process of the Earth
- Strand 7: Astronomy and space
- Strand 8: Nature of science and technology

DINA model

Cognitive diagnostic model is a type of student assessment used to diagnose whether the student has any misconceptions in respective contents and whether they achieve mastery in the contents or partial skills. The purpose of the cognitive diagnostic model is to provide feedback to concerned individuals, indicting weaknesses or specific issues of an exam-taker which can be used to solve the learning problems holistically.

Deterministic–input, noisy–and–gate model or DINA model is a diagnostic model used to assess an exam-taker’s attributes used in solving the problems in the exam paper. The model will classify an exam-taker as mastery and non-mastery without finding an intercept like other assessment. This provides a profile of each student who took the exam. The mastery diagnosis by strand requires a Q-matrix with its rows as items (i) and its columns (j) as skills to diagnose. In this research, the columns will be strands or learning standards to diagnose. (de la Torre,2009, 2011)

An example for making a Q-matrix for 10 items in a science subject exam that assess 5 strands. Number 1 in the Q-matrix indicates that the exam assesses mastery in strand (j). Number 0 indicates that the exam does not assess mastery in strand (j). For example, item 1 or $q_{11} = 1$ indicates that this exam assesses mastery in strand 1 (Living things and processes of life) t only, as shown in Table 1.

Table 1. An example of Q Matrix for science subject

Item	Strand				
	Living things and processes of life	Life and the environment	Substances and properties of substances	Forces and motion	Energy
1	1	0	0	0	0
2	1	0	0	0	0
3	0	1	0	0	0
4	0	1	1	0	0
5	0	0	1	0	0
6	0	0	1	0	0
7	0	0	0	1	0
8	0	0	0	1	0
9	0	0	0	0	1
10	0	0	0	0	1

The DINA model is defined as follows:

$$P_j(\alpha_i) = P(X_{ij} = 1 | \alpha_i) = g_j^{1-\eta_{ij}} (1 - s_j)^{\eta_{ij}}$$

where

$P_j(\alpha_i)$ is the probability of examinee i with the skills vector α_i answering item j correctly;

s_j is the slip parameter of item j is defined as $s_j = P(X_{ij} = 0 | \eta_{ij} = 1)$; and

g_j is the guessing parameter of item j is defined as $g_j = P(X_{ij} = 1 | \eta_{ij} = 0)$

Data

Data used in the research is the response patterns of students in Grade 6, Grade 9, Grade 12, academic year 2015.

Science exam for Grade 6 assesses 7 strands as follows: 1) Living things and processes of life; 2) Life and the environment; 3) Substances and properties of substances; 4) Forces and motion; 5) Energy; 6) Change process of the Earth; and 7) Astronomy and space. The total number of exam-takers is 716,778. The diagnosis results suggest that there are 23 patterns of students' profiles, starting from the first pattern, 0000000, or non-mastery in all strands. (Non-mastery in Living things and processes of life; Life and the environment; Substances and properties of substances; Forces and motion; Energy; Change process of the Earth; and Astronomy and space, respectively), mastery in some strands, to pattern 1111111, or mastery in all strands.

Grade 9 assesses 6 strands as follows: 1) Living things and processes of life; 2) Life and the environment; 3) Substances and properties of substances; 4) Forces and motion; 5) Energy; and 6) Astronomy and space. The total number of exam-takers is 656,463. The overall diagnosis with DINA model suggests that there are 37 patterns of students' profiles starting from the first pattern, 000000 or non-mastery in all strands. (Non-mastery in Living things and processes of life; Life and the environment; Substances and properties of substances; Forces and motion; Energy; and Astronomy and space, respectively), mastery in some strands, to pattern 1111111, or mastery in all strands.

Grade 12 assesses 8 strands as follows: 1) Living things and processes of life; 2) Life and the environment; 3) Substances and properties of substances; 4) Forces and motion; 5) Energy; 6) Change process of the Earth; 7) Astronomy and space; and 8) Nature of science and technology. The total number of exam-takers is 422,718. The overall diagnosis with DINA model suggests that there are 34 patterns of students' profiles starting from the first pattern, 000000 or non-mastery in all strands. (Non-mastery in Living things and processes of life; Life and the environment; Substances and properties of substances; Forces and motion; Energy; Astronomy and space; and Nature of science and technology, respectively), mastery in some strands, to pattern 1111111, or mastery in all strands.

Method

The diagnosis of O-NET results is an analysis of students' mastery profiles to examine strengths and weaknesses in each learning strand. This analysis shows the percentage of students who pass all strands /fail all strands, the percentage of students who pass some strands /fail some strands. It also shows the relation between school backgrounds and students' profiles. The processes are as below:

1. Develop a Q-matrix for science subject in all the 3 levels. The researcher will analyze the structure of each item in O-NET, creating a Q-matrix for each level, approved by content experts.
2. Analyzing the data with DINA model to obtain students' profiles that show their mastery and non-mastery in each strand.

Results

Diagnosis on science subject, academic year 2015, by strand and by standard shows that:

The number of Grade 6 students who achieve mastery or pass each strand of the Basic Core Curriculum only 30.22 – 39.02 percent. The strand with the lowest pass rate is Life and the environment (30.22%) followed by Astronomy and space (30.94%) Forces and motion (32.58%) Living things and processes of life (35.50%) Substances and properties of substances (36.47%) Energy (37.86%) and Change process of the Earth (39.02%) respectively. This shows that there are 60–70% of students who do not achieve mastery in these strands. Instruction for science subject needs improvement, especially the Life and the environment strand.

The number of Grade 9 students who achieve mastery or pass each strand of the Basic Core Curriculum only 16.49 – 22.20 percent. The strand with the lowest pass rate is Living things and processes of life (16.49%) followed by Energy (18.83%) Forces and motion (19.99%) Substances and properties of substances (20.88%) Astronomy and space (21.37%) and Life and the environment (22.20%) respectively. This shows that there are a lot of students who do not achieve mastery in these strands. Instruction for science subject needs improvement, especially the Living things and processes of life strand.

The number of Grade 12 students who achieve mastery or pass each strand of the Basic Core Curriculum only 34.36 – 49.04. The strand with the lowest pass rate is Substances and properties of substances (34.36%) followed by Living things and processes of life (35.63%) Change process of the Earth (41.96%) Astronomy and space (42.17%) Energy (43.53%) Forces and motion (46.67%) Life and the environment (46.72%) and Nature of science and technology (49.04%) respectively. This shows that there are a lot of students who do not achieve mastery in these strands. Instruction for science subject needs improvement, especially the Substances and properties of substances strand.

Table 2. Percentage of students who are diagnosed as achieving mastery in each strand according to the Core Curriculum for science subject

Strand	Percentage of passing students		
	Grade 6	Grade 9	Grade 12
Living things and processes of life	35.50	16.49	35.63
Life and the environment	30.22	22.20	46.72
Substances and properties of substances	36.47	20.88	34.36
Forces and motion	32.58	19.99	46.67
Energy	37.86	18.83	43.53
Change process of the Earth	39.02	na	41.96
Astronomy and space	30.94	21.37	42.17
Nature of science and technology	na	na	49.04

na = No exam

The diagnosis of O-NET by school backgrounds shows that:

The diagnosis by the 4 school sizes, small, medium, large, and extra large

The most prevalent profile among Grade 6 students is profile 0000000, meaning non-mastery in all strands which is mostly seen in small schools (68.83 percent). The second most prevalent profile is 1111111, or mastery in all strands, mostly seen in extra large schools (40.18 percent).

The most prevalent profile among Grade 9 students is profile 0000000, meaning non-mastery in all strands which is mostly seen in small schools (87.95 percent). The second most prevalent profile is 1111111, or mastery in all strands, mostly seen in extra large schools (16.33 percent).

The most prevalent profile among Grade 12 students is profile 00111011, meaning non-mastery in some strands, which are Living things and processes of life, Life and the environment, and Change process of the Earth, respectively. This is mostly seen in large schools (30.15 percent) followed by profile 11000100, mastery in some strands, including Living things and processes of life, Life and the environment, and Change process of the Earth, respectively. This is mostly seen in extra large schools. (29.87 percent) as shown in Table 3.

Table 3. Students' profiles for science subject, Grade 9, Grade 9 and Grade 12, academic year 2015, classified by school size.

Profile	Small		Medium		Large		Extra Large	
	No.	%	No.	%	No.	%	No.	%
Grade 6								
00000000	183,764	68.83	159,617	67.85	73901	57.46	37,924	44.13
11111111	49,787	18.65	46,764	19.88	36226	28.17	34,535	40.18
Other: The number of other profiles is very limited so it's not shown here.								
Grade 9								
000000	75,842	87.95	173,444	86	111,597	81.38	148,055	63.98
111111	3,297	3.82	9,810	4.86	9,609	7.01	37,789	16.33
Other: The number of other profiles is very limited so it's not shown here.								
Grade 12								
00111011	6,511	30.01	29,672	30.04	29079	30.15	57,742	28.06
11000100	4,262	19.65	21,906	22.18	23043	23.89	61,477	29.87
Other: The number of other profiles is very limited so it's not shown here.								

The diagnosis classified by the region, Bangkok, North, Northeast, Central, South, East, and West

The most prevalent profile among Grade 6 students is profile 00000000, meaning non-mastery in all strands which is mostly seen in the Northeast. (68.19 percent) followed by the South (66.42 percent) and the East (63.94 percent). The second prevalent profile is 11111111, mastery in all strands, mostly seen in Bangkok. (33.55 percent) followed by the North (26.57 percent) and the Central (24.55 percent).

The most prevalent profile among Grade 9 students is profile 00000000, meaning non-mastery in all strands which is mostly seen in the Northeast. (82.16 percent) followed by the West (78.99 percent) and the South (78.15 percent) The second prevalent profile is 11111111, mastery in all strands, mostly seen in Bangkok. (16.69 percent) followed by the North (10.37 percent) and the East (9.73 percent)

The most prevalent profile among Grade 12 students is profile 00111011, meaning non-mastery in some strands, which are Living things and processes of life, Life and the environment, and Change process of the Earth, respectively. This is mostly seen in the Northeast (30.61 percent) followed by profile 11000100, mastery in some strands, including Living things and processes of life, Life and the environment, and Change process of the Earth, respectively. This is mostly seen in the Northeast (30.61 percent) followed by the West (29.83 percent) and the Central (29.06 percent). The third most prevalent profile is 01000100, mastery in some strands including Life and the environment and Change process of the Earth, mostly seen in the Northeast. (17.49 percent) followed by the Central (15.77 percent) and the South (15.73 percent) as shown in Table 4

Table 4. Students' profiles for science subject, academic year 2015 classified by region

Profile	Bangkok		North		Northeast		Central		South		East		West	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Grade 6														
0000000	35,058	51.72	34,258	59.27	153,206	68.19	94,489	61.93	77,399	66.42	35,744	61.38	25,052	63.94
1111111	22,740	33.55	15,357	26.57	43,561	19.39	37,453	24.55	25,052	21.5	14,240	24.45	8,909	22.74
Other: The number of other profiles is very limited so it's not shown here.														
Grade 9														
0000000	42,875	64.72	42,891	74.2	173,936	82.16	107,845	77.64	75,873	78.15	39,651	76.3	25,867	78.99
1111111	11,056	16.69	5,993	10.37	14,283	6.75	12,801	9.22	8,630	8.89	5,059	9.73	2,683	8.19
Other: The number of other profiles is very limited so it's not shown here.														
Grade 12														
00111011	13,232	26.29	12462	29.79	41872	30.61	25,210	29.06	16,612	27.64	8,191	28.50	5,425	29.83
01000100	6,366	12.65	6261	14.97	23928	17.49	13,678	15.77	9,451	15.73	4,309	14.99	2,799	15.39
11000100	14,993	29.79	11827	28.27	33399	24.42	22,931	26.43	14,716	24.49	7,961	27.70	4,861	26.73
Other: The number of other profiles is very limited so it's not shown here.														

Conclusions

The results show that the majority of students (more than half or two-thirds of the students taking the exam) failed strands according to the Basic Education Core Curriculum. There were only 10,000 students out of 5–7 hundred thousand passing strands according to the Basic Education Core Curriculum. This reflects that there are only 2 percent of students passing the criteria according to the Basic Education Core Curriculum.

The analysis shows that students from medium and small schools most failed the assessment. Analysis by the region shows that schools from the Northeast and the South most failed the assessment.

Suggestions for educational institutes and concerned organizations for using the results of O-NET to improve students.

The result of the diagnosis shows that there are many students who fail the desired strands according to the curriculum. The researcher would like to suggest a guideline to improve instruction as follows:

1. For Grade 6 science, strands that need improvement the most, respectively, are Life and the environment, Astronomy and space, Forces and motion, Living things and processes of life, Substances and properties of substances, Energy, and Change process of the Earth.

2. For Grade 9 science, strands that need improvement the most, respectively, are Living things and processes of life, Energy, Forces and motion, Substances and properties of substances, Astronomy and space, and Life and the environment.

3. For Grade 12 science, strands that need improvement the most, respectively, are Substances and properties of substances, Living things and processes of life, Change process of the Earth, Astronomy and space, Energy, Forces and motion, Life and the environment, and Nature of science and technology.

Organizations concerning instruction providing should encourage and develop instructional materials that empower learning in these strands.

The results show that more than half of the students taking the exam failed and did not achieve mastery in the strands according to the Basic Education Core Curriculum, most of which are students from remote provinces, particularly from the Northeast and the South regions. Improvements are needed in these regions. Educational Service Area should play its part to help and support the teachers' instruction.

The results of this research are merely part of information. Concerned organizations should study the findings further to better understand the real problems each region is experiencing, and find solutions to education problems in the respective region.

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COGNITIVE DIAGNOSTIC REPORT FOR LARGE SCALE TESTING: A CASE OF ORDINARY NATIONAL EDUCATION TESTING (ONET) IN THAILAND

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In the standards-based curriculum era, Cognitive Diagnostic Assessment (CDA) has been increasingly used to diagnose the strengths and weaknesses of students. CDA can provide valuable feedback to teachers and students to improve students' learning. This research aims to use CDA to analyze assessment data from large scale testing in Thailand called Ordinary National Education Testing (O-NET) comprising the five subjects in the core curriculum: Thai language, Mathematics, Science, Social Studies, Religion and Culture and Foreign Languages with three levels of students (Grade 6, 9 and 12) to create mastery profiles of students taking the assessment. The Mastery profile which shows strengths and weaknesses of individual students for each standard will then be reported through the online format to allow stakeholders better accessibility. Data used in this study were collected from the O-NET assessment data from 2011 to 2015 and approximated twenty million records of student responses. The diagnostic report consists of three parts including demographic data, student response items and diagnostic feedback, which can be searched by individual students and stakeholders.

Introduction

Standards-based curriculum is now favored because it outperforms traditional curriculum (Rick Billstein, 2007). Many countries focus on developing students by using standards-based curriculum, including Thailand. Thailand has its own standards-based curriculum and developed a national standards-based assessment called Ordinary National Education Test or O-NET which was organized by National Institute of Educational Testing Service (Public Organization) or NIETS. O-NET is a national test assessing knowledge and skills of 6th, 9th and 12th grade

students, comprising 5 subjects: Thai language, Mathematics, Science, Social Studies, Religion and Culture and Foreign Languages (National Institute of Educational Testing Service (Public Organization), 2017). Currently, the general ONET report uses only the sum score and yet it still lacks information needed for improving students.

In previous decades, CDA was the favorite method in examining students who have mastery in necessary skills because it was not concerned with item calibration and parameter estimation which must be a unidimension required by Rash model and Item Response Theory models or IRT. In addition, Deterministic inputs, noisy and gate or DINA model is frequently used because it is the simplest method in cognitive diagnostic model (de la Torre & Minchen, 2014).

The world is currently living in the digital era. This affects not only the business sector but also the education sector, especially in testing and test score reporting. Therefore, this research aims to develop a cognitive diagnostic report for large scale testing which uses the data from ONET in Thailand. The report was developed in the on-line system that can be accessed via the internet in real time.

Objective

The objective of this research aims to develop an online format of Cognitive Diagnostic Report for Large Scale Testing, ONET in Thailand. The on-line system can be used to provide feedback for student improvement.

Significance of this study

In many national tests, we usually use score report to give a reflection of students' abilities. But it is still lacking in suggestions for student improvement. In this research we proposed a cognitive diagnostic assessment report for student improvement which helps stakeholders fill gaps in the general report. The report developed in on-line system would facilitate stakeholders to understand students' abilities and skills and thus will provide information for student improvement.

Literature Review and Conceptual framework

This section consists of four parts including 1) cognitive diagnostic assessment (CDA), 2) National Education Testing (ONET) in Thailand, 3) the on-line test score report system and 4) conceptual framework, which are detailed as follows:

1) Cognitive Diagnostic Assessment (CDA)

CDA is the development of educational psychometric measurement, examining students who have mastery in necessary skills. It is more specific than other models such as Rash model or Item Response Theory model or IRT. The assumption of Rash and IRT are concerned with item calibration and parameter estimation that

must be a unidimension but this is not necessary for CDA. The problem of unidimension usually happens with many assessments such as language assessment since most psychometric models are forced to be unidimensional. Whereas in many researches it was found that educational and language assessment have a dimension which separates in each attribute or sub-skill (Aryadoust, 2011). So CDA is a very attractive alternative in previous decades. The favorite cognitive diagnostic model is the Deterministic inputs, noisy and gate or DINA model, because it is the simplest in the cognitive diagnostic model (de la Torre & Minchen, 2014).

2) National Education Testing (ONET) in Thailand

ONET is a large-scale testing in Thailand, standards-based curriculum, organized by National Institute of Educational Testing Service (Public Organization), comprising five subjects in the core curriculum: Thai language, Mathematics, Science, Social Studies, Religion and Culture and Foreign Languages with three levels of students (Grade 6, 9 and 12) (National Institute of Educational Testing Service (Public Organization), 2017)

3) The report in on-line system

The digital era that we currently live in not only includes the business sector but also the education sector. The modern testing such as Computerized Adaptive Testing (CAT) is an example of using on-line report system and this type of report system has received much attention. For example, Chaimongkol, Pasiphol, & Kanjanawasee, (2016) used instant reporting which can provide feedback immediately after a test, comprising of the sum score and reflective feedback in information technology professional examination. Instant reporting is very important in the digital era.

4) Conceptual framework

The focus of this research is the development of score reporting system which requires three inputs: assessment data (ONET), CDA, and the on-line system. Data used to create this system was obtained from the large-scale testing in Thailand (ONET). The cognitive diagnostic model used in this research is the DINA model and the on-line system was developed using the PHP language.

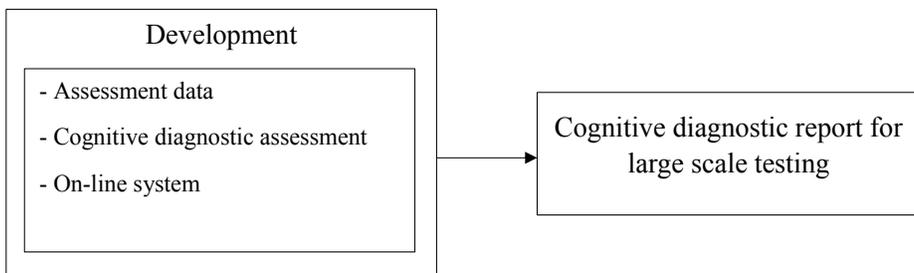


Figure 1. Conceptual Framework

Research Method

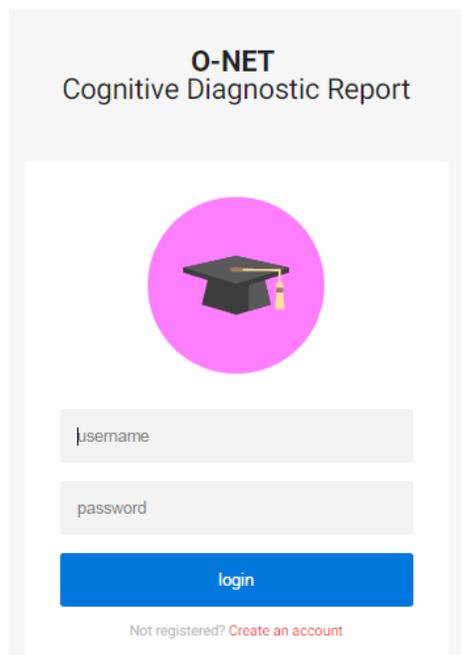
This research uses the research and development method for implementation. The development comprises of two phases, design and implementation, and it is developed in the on-line system that uses PHP language for coding and implementation.

Results

The result of this research is the cognitive diagnostic report system for large scale testing which use data from ONET in Thailand. The system consists of four components, log-in, home page, score report and diagnostic report, which as follow:

1) Log-in

In log-in page, users have to register first before logging in by clicking on “create an account”. For this research, users are created by the administrator as it is still a prototype system in development.



O-NET
Cognitive Diagnostic Report

username

password

login

Not registered? [Create an account](#)

Figure 2. log-in page

2) Home page

After logging in, the system will display the home page that comprises of user profile and the search page. The search page has three filters, student id, academic year and subject respectively. Users can select the information they need and press the “submit” button to search for the cognitive diagnostic report of students.

Figure 3. Home page

3) Score report

Score report page illustrates demographic student data, subject, student id, response item and sum score which is shown in Figure 4. The demographic data only displays the department (OBEC, OPEC etc.), district, province, region and school size. This information is sufficient for making a decision about students.

วิชา	สังคมศึกษา ศาสนา และวัฒนธรรม	ปี	2558	รหัสนักเรียน	12039143
สังกัด	กรมส่งเสริมการปกครองท้องถิ่น				
อำเภอ	เมืองระยอง	จังหวัด	ระยอง	ภาค	ตะวันออก
ขนาดโรงเรียน	L				

ผลการตอบ (จำนวน 50 ข้อ)

ข้อที่	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	43	44	45	46	47	48	49	50													

คะแนนที่ได้ : 20

Figure 4. Score report

4) Diagnostic report

For the final report, we illustrate two report types, graph and summary reports. The graph section will display the level of ability showing whether students have achieved mastery or not in each domain. This research only show whether a student has achieved mastery or not in each domain because the cognitive diagnostic model that we used is the DINA model. Another section is the summary report which explains which domain is a strength for the students and which domain should be improved.

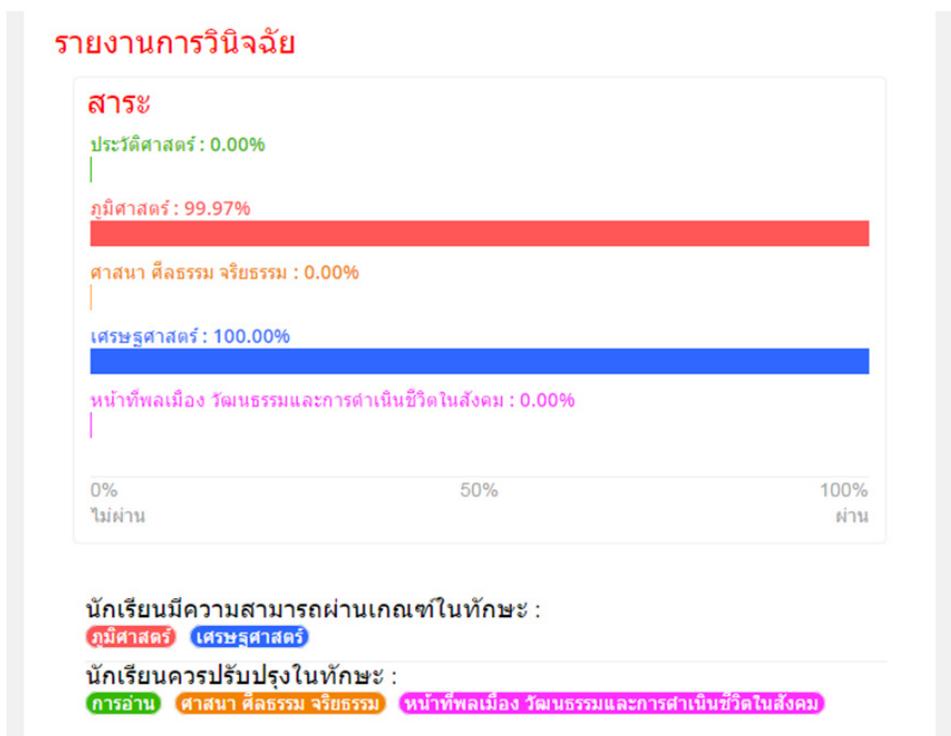


Figure 5. Diagnostic report

Summary and Discussion

This research aims to develop cognitive diagnostic report for large scale testing using data from ONET in Thailand during 2011 to 2015 (Ngudgratoke, et. al, 2017). The cognitive diagnostic model used in this research is the DINA model because it is the simplest model. The report has two sections, the sum score report and the diagnostic report, provided in the on-line system. The advantages of this report is that it is easy for students and stakeholders to access via the internet

in real-time and it also shows the strengths and weaknesses of individual students which are key evidences for stakeholders who are involved in making decisions about student improvement.

Limitation and Future Research

The system developed in this research is a prototype which needs further improvement in the future. Moreover, the cognitive diagnostic result is obtained from the DINA model so in the future there should be an addition of other models such as G-DINA into the system to provide more information about the quality of test items. Also, the addition of student background variables into the developed systems is needed.

Acknowledgement

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USABILITY OF FAIR AND COMPATIBLE ONET ACROSS YEARS: SOCIAL STUDIES, RELIGION AND CULTURE SUBJECT CASE

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National Institute of Educational Testing Service (Public Organization)-NIETS organises Ordinary National Education Test (ONET) for Thai students, with the aims to test the knowledge and thinking ability, to assess the academic proficiency of the 6th, 9th and 12th grade students following the National Basic Education Core Curriculum as well as to provide the quality of education at the national level according to the National Basic Education Core Curriculum. In academic year 2015 onward, 6th, 9th and 12th grade students were given the tests of five subject matters, one of which was social studies, religion and culture. The result from ONET would be considered as a part (10%) of the completion of the student achievement. This led to the high concern of those involved: ministry of education, educational organisations at all levels, parents and other stakeholders. Each needs the information of test result in the different aspect to fulfill their utilisation needs.

This research was conducted to assess the quality of ONET assessment to provide the valid uses of ONET test scores of various groups of stakeholders. The analysis results showed that 1) the test item statistics, including difficulty index, discrimination power, met the acceptable criteria both CTT and IRT analysis, especially the guessing index from IRT was rather small. The finding showed that ONET used acceptable quality tests with the reliability ranging from 0.66-0.88. 2) Since the finding showed that standards and number of items measured each standard were different from year to year, this should be organised in a more standardized way in the future. The alignment analysis of test and standards should also be conducted. Also, the same structure of test must be set and used across years. That is, using the concept of parallel tests and the alignment technique can ensure the high quality of assessment.

Background

The National Institute of Educational Testing Service (Public Organization)-NIETS has organized the Ordinary National Education Test (ONET) for Thai students, with the aim to assess the knowledge and thinking ability of Thai students, to assess the academic proficiency of the 6th, 9th and 12th grade students who follow the National Basic Education Core Curriculum and to provide the quality of education at the national level with respect to the National Basic Education Core Curriculum. In academic year 2015 onward, the 6th, 9th and 12th grade students were given the tests of five subject matters, one of which was social studies, religion and culture. The result from ONET assessment would be considered as a part (10%) of the academic completion of the student. This led to the high concern of stakeholders at all levels. Different stakeholders needed the different information of ONET test result to fulfill their utilisation needs. This research was to analyze the quality of items in social studies, religion and culture test by using ONET results from 2011–2015 in order to know the quality of item and to provide the suggestions for the further item development that meet the stakeholders' expectation. Item analysis included both CTT and IRT to obtain the accurate item information for the subsequent usability.

Objectives

1. To analyse the National Basic item quality of social studies, religion and culture test from B.E. 2554 (A.D. 2011) – B.E. 2558 (A.D. 2015)
2. To identify the suggestions for developing the quality of items of social studies, religion and culture test

Methodology

This study was a secondary data analysis. Examinees' responses to ONET items were provided by NIETS. Research methodology was described in compliance with the research objectives as follows:

Objective 1:

Data was ONET test results from 2011–2015. Data analysis of the item quality consisted of Classical Test Theory (CTT) and Item Response Theory (IRT). CTT reports included the difficulty index, the discrimination power (point-biserial correlation) and the reliability, while IRT reports included the difficulty parameter, the discrimination parameter and the guessing probability.

Evaluation criteria

1. Difficulty index

Value	Interpretation
0.75 – 1.0	Easy
0.25 – 0.74	Fair
< 0.25	Difficult

2. Discrimination power (point-biserial correlation) according to Ebel and Frisbie (1986)

Criteria	point biserial correlation	Interpretation
Excellent	> 0.39	Acceptable
Good	0.30 – 0.39	Adjustable
Fair	0.20 – 0.29	Revisable
Low	0.00 – 0.20	Eliminable or deeply revisable
Poor	< –0.01	Eliminable

3. Difficulty parameter according to Baker & Kim (2004)

Value	Interpretation
+1.00 or above	Difficult or appropriate for proficient examinee
–0.99 – 0.99	Fair or appropriate for fair examinee
–1.00 or below	Easy or appropriate for poor examinee

4. Discrimination parameter according to Baker & Kim (2004)

Value	interpretation
0.01 – 0.34	Very low
0.35 – 0.64	Low
0.65 – 1.34	Fair
1.35 – 1.69	High
>1.70	Very high

5. Guessing probability

Value	Meaning
0.0 – 0.10	Low
0.10 – 0.20	Fair
> 0.20	High

Objective 2:

To provide the answer to the second research objective, qualitative analysis of the results of item analysis of social studies, religion and culture from 2011–2015 was conducted. Also the reviews of the principle of development of item quality, the standard-based assessment, the quality assurance of item development, and standards for educational and the psychological assessments were conducted to provide the suggestion for future development of ONET test.

Result

1. The analysis of National Basic item quality of social studies, religion and culture from 2011–2015.

1.1 Analysis of test items structure

Across the years, items were developed in compliance with the same standards: S1.1, S1.2, S2.1, S2.2, S3.1, S3.2, S4.1, S4.2, S4.3, S5.1 and S5.2. After reviewing items in each standard, it was found that the number of items differed across years as shown in Table 1 – Table 3

Table 1. Structure of National Basic item development of social studies, religion and culture for Grade 6

Standards	Number of items				
	2011	2012	2013	2014	2015
S1.1	5	9	8	7	7
S1.2	5	1	2	3	3
S2.1	4	5	3	5	5
S2.2	4	5	6	5	5
S3.1	6	8	5	5	5
S3.2	4	2	4	5	5
S4.1	3	3	1	1	1
S4.2	3	1	6	3	3
S4.3	6	6	6	6	6
S5.1	6	5	5	6	6
S5.2	4	5	4	4	4
Total	50	50	50	50	50

Table 2. Structure of National Basic item development of social studies, religion and culture for Grade 9

Standards	Number of items				
	2011	2012	2013	2014	2015
S1.1	6	6	8	8	8
S1.2	4	4	2	2	2
S2.1	5	6	6	6	6
S2.2	5	4	3	4	4
S3.1	4	5	4	4	4
S3.2	6	5	5	6	6
S4.1	2	1	2	2	2
S4.2	3	3	8	5	5
S4.3	5	6	2	3	3
S5.1	3	4	4	4	4
S5.2	7	6	6	6	6
Total	50	50	50	50	50

Table 3. Structure of National Basic item development of social studies, religion and culture for Grade 12

Standards	Number of items				
	2011	2012	2013	2014	2015
S1.1	12	11	11	15	14
S1.2	4	5	5	6	4
S2.1	8	10	8	11	9
S2.2	8	6	8	10	9
S3.1	8	10	10	1	8
S3.2	8	6	6	5	10
S4.1	2	4	4	4	1
S4.2	7	4	4	4	13
S4.3	7	8	8	8	4
S5.1	4	6	6	7	9
S5.2	12	10	10	19	9
Total	80	80	80	90	90

1.2 The item analysis result

Both analysis results from CTT and IRT revealed that ONET items had the statistical values above the difficulty criteria, and the discrimination power criteria. However, the guessing index from IRT analysis was rather low; students hardly guessed in the test. Reliability value ranged from 0.66–0.88. This information showed that ONET item quality was rather good.

2. Suggestions for developing the item quality of social studies, religion and culture
The study showed that the number of items in each standard, and across the years varied. Therefore the suggestions for developing the item quality were as follows: developing the items in compliance with the curriculum standards, setting the same item structure and development, applying the parallel concept of items, evaluating the alignment between items and standards in the Basic Education Core Curriculum.

Discussion

1. ONET item quality and roadmaps for developing the item quality.

ONET items had high quality in terms of item difficulty, discrimination power, the reliability and the guessing parameter. From the analysis of more than 50 items, there were low measurement errors as evidenced by high reliability. Yet, the problem of content validity was raised by public. So, it is important to conduct the alignment analysis between test and standards to assess whether ONET items are aligned with standards in the Basic Education Core Curriculum. For example Webb model (1997, 1999) can be used to assess the degree of test-standards alignment by evaluating categorical concurrence, the depth-of-knowledge consistency, the range-of-knowledge correspondence, and the balance of representation between test and standards.

This kind of evaluation requires a lot of time and many experts. So, ONET items should be developed and examined about 1–2 years before the test is administered to examinees. By doing so, the item quality will be assured and would reduce current concerns of public.

2. Item development and testing to support schools' utilisation of evaluation result.

According to the brainstorming of stakeholders, teachers, academic inspectors, and parents mentioned that ONET test result can be used by stakeholders to find out students and school problems across years. To help these stakeholders to come up with the valid decision making about school and students, National Institute of Educational Testing Service (Public Organization) – NIETS should do as follows:

1. Use the same test specification to facilitate the credible students' score comparison across years.
2. Test equating is needed to equate ONET test scores. Comparing scores and test statistics across years directly can be difficult because the comparison is made between different groups of students who take the tests in the different years; therefore, item difficulty of the tests are not equivalent. The test score equating will provide the sensible comparisons and would support the valid score interpretation.
3. Reporting the test result on a standardised scale such as PISA scale to provide meaningful score interpretation that is aligned with international practices.

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ONET: TEST FAIRNESS AND EQUIVALENCE ACROSS YEARS: ENGLISH LANGUAGE TESTS

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Ordinary National Education Test (ONET), national test for Thai students, organised by National Institute of Educational Testing Service (Public Organization)-NIETS with the aims to assess the knowledge and thinking ability as well as the academic proficiency of Grade 6, 9 and 12 students, accordingly to the Basic Education Core Curriculum B.E 2551 (A.D. 2008). The goal of conducting ONET is also to provide the quality of education at the national level according to the Basic Education Core Curriculum B.E 2551 (A.D. 2008). After a number of trials on what subject matter should be assessed in ONET, the solution is that from academic year 2015 onward, all Grade 6, 9, 12 students will be assessed on five subject matters, and one of which is English language.

In 2015 the Ministry of Education together with NIETS, agreed to include the result of ONET as a part (10%) of the completion of the student achievement at Grade 6, 9 and 12. This led to the high concern of those involved, ministry of education, educational organisations at all types and levels, parents and other stake holders. Each needs information of test result in different aspects to fulfill their utilisation needs.

Therefore, the research on overall subject matters to be tested in ONET was conducted to find out the quality of tests and their results in terms of test and item quality. Both Classical Test Theory (CTT) and Item Response Theory (IRT) models were used to provide test/item difficulty and discrimination power for CTT, in accordance with three parameter item quality indices; item difficulty, discrimination power, guessing probability including test and item information for IRT.

Further from general analysis of the five subjects, this extended analysis of English language was conducted in a fined grain manner. The analysis focused on yearly test blueprint, which was not the same but varied from year to year, the test content and quality of the test in terms of the fairness and result equivalence across years, using the research results from former phase as basis. Two forms of student ability from CTT, raw score, and IRT, ability score (theta), were analysed to see what it would be if using each form to picture the student ability or to report to

the public, the achievement of students of Grade 6, 9 and 12. The analysis included also the consideration of test development in terms of ability standards and indicators and their weights, structured in the test blueprint. The suggestion on selecting ability standards and indicators for ONET test item blueprint that make the test fair and compatible across years was also proposed.

Background

Ordinary National Education Test (ONET), national test for Thai students, organised yearly by National Institute of Educational Testing Service (Public Organization)-NIETS with the aims to assess the knowledge, thinking ability and academic proficiency of students at Grade 6, 9 and 12, as well as to provide the quality of education at the national level on Core Curriculum, based on the Basic Education Core Curriculum B.E 2551(A.D. 2008).

After a number of trials on what subject matter to be assessed with ONET, the solution, in academic year 2015, is that 5 subjects, namely, Thai language, Mathematics, Science, Social Studies, Religion and Culture, and Foreign language (English), be assessed with ONET for students at Grade 6, 9, and 12.

In 2015, the Ministry of Education together with NIETS, agreed to include the result of ONET as a part (10%) of the completion of the student achievement at Grade 6, 9 and 12. This led to the high concern of those involved, ministry of education, educational organizations at all levels, parents and other stake holders. Each needs information of test results in different aspects to fulfill their utilisation needs.

In 2016, NIETS granted Sukhothai Thammathirat Open University to assess quality of the ONET assessment to provide valid uses of ONET test scores for various groups of stakeholders. The analysis results showed that 1) the test item statistics, including difficulty index, discrimination power, met the acceptable criteria both CTT and IRT analysis, especially the guessing index from IRT was rather low for most items. The finding yielded the evidence that ONET used acceptable quality tests with the reliability around 0.66–0.88. 2) Since the finding showed that standards and number of items measured each standard differed from year to year, this should be organised in a more standardised process, this involves the use of alignment of standards. Also, the same structure of tests must be set and used across years, using the concept of parallel forms of tests and the alignment technique be used to ensure high quality assessment.

This extended study was conducted in addition to general analysis of all five subjects, focusing only one subject in a deeper details. This is the particular interest of the researcher team, considering the different nature of subject matters. This study focused on English language test analysis, emphasising on yearly test blueprint, which varied from year to year, the test content and quality of the tests in terms of the fairness and equivalence across time, using the research result from former phase as basis. Simple regression between CTT raw score and IRT ability score (θ) was analysed to yield information for considering using ONET score as

part of Grade 6, 9 and 12 completion. The analysis included the test blueprint structure, including ability levels, standards, indicators and their weights used in the past 5 target years. The criteria in selecting indicators for ONET test blueprint as evidence for the test fair and equivalent across years was also investigated.

Objectives

This study focused on English language tests with purposes as follows:

1. To investigate the fairness and equivalence of test results across years
2. To analyse the ONET item and test quality from 2011–2015
3. To provide recommendations for the better quality of the test through test construction process

Methodology

1. Population and sample: All the responses to ONET of grade 6, 9 and 12 students during 2011–2015, obtained from NIETS, were used in CTT analysis, while samples of all the responses randomly drawn through stratified random sampling technique were used in IRT analysis.
2. Data was analysed based on CTT and IRT to obtain the item and test statistics and parameters. Simple regression was used to provide evidence on covariation pattern between two types of ability scores, raw score and ability score (θ).
3. Classification of item statistics was considered based on the following criteria:

3.1 Difficulty index

Value	Meaning
0.75–1.0	Easy
0.25–0.75	Fair
< 0.25	Difficult

3.2 Discrimination power (point biserial) (Ebel and Frisbie, 1986)

Quality level	point biserial correlation	Meaning
Excellent	> 0.39	Acceptable
Good	0.30–0.39	Adjustable
Fair	0.20–0.29	Revisable
Low	0.00–0.20	Eliminable or deeply revisable
Poor	< –0.01	Eliminable

3.3 Difficulty parameter (Baker & Kim, 2004)

Value	Meaning
+1.00 or above	Difficult or appropriate for proficient examinee
–0.99–0.99	Fair or appropriate for fair examinee
–1.00 or below	Easy or appropriate for poor examinee

3.4 Discrimination parameter (Baker & Kim, 2004)

Value	Meaning
0.01–0.34	Very low
0.35–0.64	Low
0.65–1.34	Fair
1.35–1.69	High
>1.70	Very high

3.5 Guessing probability

Value	Meaning
0.0–0.10	Low
0.10–0.20	Fair
> 0.20	High

Results

Fairness and equivalence of test results across years

Test structure including standard, and the number of items measured each standard were not consistency across years, and thus affecting the validity of the test score of students at different years. The equating of tests and test score across time, should be considered using appropriate technique like alignment technique. In writing test items, the reference of validity of item and also test should be practically at indicator level, for example, in Strand 1: Language for Communication, there are 3 standards, **F1.1-F1.3**. Under each standard, there are more than one indicators, normally ordered from simple to more complicated capacity. **Standard F1.1 for grade 6**, Understanding of and capacity to interpret what has been heard and read from various types of media, and ability to express opinions with proper reasoning, includes 4 indicators, **F1.1.1**: act in compliance with orders, requests and instructions heard and read, **F1.1.2**: Accurately read aloud texts, tales and short poems by observing the principles of reading, **F1.1.3**: choose/ specify the sentences or short texts corresponding to the meanings of symbols or signs read, and **F1.1.4**: tell the main idea and answer questions from listening to and reading dialogues, simple tales and stories. We can observe the more complicated or the higher capacity to be developed in and assessed from students at grade 6. This same Standard would be also used with the other grades, but with higher and more complicated capacity. **Standard F1.1 for grade 9** consists of 4 indicators as well with more complicated or higher capacity, **F1.1.1**: Act in compliance with requests, instructions, clarifications and explanations heard and read. **F1.1.2** accurately read aloud texts, news, advertisements and short poems by observing the principles of reading, **F1.1.3**: Specify and write various forms of non-text information related to sentences and texts heard or read, **F1.1.4**: Choose/specify the topic, main idea and supporting details and express opinions about what has been heard and read from various types of media, as well as provide justifications and examples for illustration.

Practically when writing test item, the reference of item validity is the indicator identified under each standard. The test writers identify which indicator be assessed by any particular items. Setting core test blueprint and used it across years will ensure the compatible validity of test score across time. Student ability can be compared using any equating techniques to reveal and compare the development of education quality. The indicators under the blueprint needs not include all indicators in the curriculum, but NIETS and OBEC may select only important or key indicators representing each standard.

Apart from indicators and their weight, the ability like Bloom's and others' such as 21st century ability should be included together with those identified in the core subject matters. This will lead to healthy and qualified test to be used nationwide, to ensure the test result validity and reliability over years. This will lead to parallel forms of tests and the truth that no matter which year they are used, the student capacity in the same grade would be able to equate. Hence, the essential issue to be considered for the test fairness and equivalence across years, is the development of item specifications. This will be useful in creating of item banking, parallel items and tests and especially releasing of used items for the pre-ONET practice. Part of details in analysis results is in table 1 in the annexure.

ONET items and test quality from 2011–2015

Item difficulty indices, from CTT analysis, ranged from fair to difficult levels, grade 12 tests, in particular, were more difficult with lower values. As for discrimination power, though most items were at acceptable levels but some were in poor with negative values, showing unacceptable inverse discriminating. The reliability indices of most tests for grade 12 were in the satisfactory level at 0.87-0.88 down to between 0.59-0.73 which were in need for modification. The cause of low reliability might be affected partly from rather short tests. Regarding to IRT analysis, some items were found to be very difficult and so affecting the high guessing probability of the items. This also affecting to the very low correlation between theta (θ) or IRT ability scores of students and their raw scores. Most items, however were classified at fair to very high levels in discrimination power, few were at low and very low. Details are in table 2-3 in the annexure.

Result from simple regression analysis, as identified earlier, may be affected from the high guessing probability of some items. The correlation between theta, from which the guessing probability was moved, and raw scores was very low with coefficient values between -.039 to .055. The significance of the regression at .001 level might be because of a huge number of cases used in the analysis. Small significant values, hence showed no practical relationship, and so very poor prediction equation with R^2 s between .000-.004. These two types of score yielded the evidence for carefully discussion on the use of any type of score as part of student completion at grade 6, 9 and 12 and more information might be needed before making decision on this issue. Details were in table 4 in the annexure.

Recommendations for the development of the test construction process.

1. A core standard test blueprint be developed
All concerned groups to basic education should involve in develop a standard test blueprint, to used as the item /test validity reference across years. The item weight for each indicator, level of ability, area matter to be assessed, 21st century characteristics expected to develop in students, guide in selecting stimulation situations used in the tests should be included.
2. Type of ONET score appropriate to include in the student achievement
The score from ONET used to include in the student completion of grades 6, 9 and 12 must be considered very carefully to ensure the fairness for students across context and time. If raw score is to be used to make more clearly understanding for the public than theta, the score be free from unqualified items especially those items with negative discrimination values. Practically, theta or ability score from IRT may be better to ensure approximately true ability.

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Annexure

1. Test structure

The test structure as analysed from the tests used during the 5 years, presented in table1. It can be seen that, the indicator F3.1: “Usage of foreign languages to link knowledge with other learning areas, as foundation for further development and to seek knowledge and widen one’s world view”, was assessed only in 2014 and the standard F4.1: “Ability to use foreign languages in various situations in school, community and society” were not assessed in 2011 and 2012. The number of test items for each year, by the way, for other standards like F 1.1, F 1.2, F 1.3, F 2.1 and F 2.2 were not consistency across years either. As for grade 9 tests, the standards were F 1.1, F 1.2, F 1.3, F 2.1 and F 2.2. More consistency in the number of items

under each standard was found. Tests for grade 12, however are more consistency across year than those of grade 6 but as in grade 9. More items were used and measure more standards than tests of grade 6 and 9. Detail was in table 1.

Table 1. Structure of tests classified by indicator across years and grades

Standard	Grade6					Grade9					Grade12				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
F 1.1	8	4	16	18	15	15	15	15	15	15	38	23	17	11	9
F 1.2	11	18	5	9	12	10	12	12	12	12	12	10	10	10	10
F 1.3	13	11	11	4	6	15	15	15	15	15	2	–	–	–	9
F 2.1	3	2	3	2	1	5	3	3	3	3	13	5	11	17	5
F 2.2	5	5	2	1	2	5	5	5	5	5	25	10	11	11	17
F 3.1	–	–	–	4	–	–	–	–	–	–	–	21	20	20	20
F 4.1	–	–	3	2	4	–	–	–	–	–	–	15	15	15	15
F 4.2	–	–	–	–	–	–	–	–	–	–	–	6	6	6	5
total	40	40	40	40	40	50	50	50	50	50	90	90	90	90	90

2. CTT item and test statistics

Table 2 shows the range of item statistics from CTT analysis. The difficulty index (p) showed that most of the tests for grade 6 were fair to difficult levels for 3 years, 2012–2014, those for the other two years, 2011 and 2015, were easier. Test items for grade 9 and 12 were more difficult starting from .16 which was very difficult and should be eradicated if not modified, and the easiest were .58 for grade 9 and .43 for grade 12. The discrimination power (r), in general was not high for all tests of all grades. The discrimination power of all tests ranged from either very low or inverse discriminate for grade 12 up to moderate power. The poorest discrimination power tests were those of grade 9 and a little better were those for grade 12. The reliability (r_{pb}) values were moderate value up to high level. The test reliability values for grade 12 revealed the most reliable, followed by grade 6 and grade 9.

Table 2. The range of item statistics and test reliability from CTT across years and grades

year	Grade 6			Grade9			Grad12		
	p	r	r_{pb}	p	r	r_{pb}	p	r	r_{pb}
2011	0.24–0.62	0.13–0.41	0.73	0.19–0.56	–0.11–0.32	0.66	0.09–0.52	–0.12–0.50	0.86
2012	0.28–0.59	0.13–0.43	0.62	0.21–0.45	0.04–0.28	0.69	0.04–0.45	–0.05–0.45	0.87
2013	0.20–0.50	0.01–0.40	0.62	0.23–0.45	0.01–0.30	0.64	0.04–0.58	–0.06–0.43	0.88
2014	0.27–0.49	0.21–0.43	0.85	0.16–0.45	–0.01–0.23	0.59	0.04–0.48	–0.13–0.48	0.87
2015	0.22–0.74	0.07–0.45	0.86	0.20–0.44	0.00–0.37	0.71	0.05–0.50	0.00–0.49	0.88

3. IRT item parameters across years and grade

Table 3 show ranges of item parameters from IRT analysis. The difficulty index (a) revealed that test items for grade 12 were easier than those of grade 6 and 9, as the values revealed that they are suitable for low ability students than those of grade 6 and 9. Regarding the discrimination power (b) of the test items, all the tests seem to be able to discriminate the students at very low to high level. Guessing probability (c) was rather fair for grade 12 test items but seemed to be higher for those of another 2 grades.

Table 3. The ranges of item parameters from IRT across years and grades

year	Grade 6			Grade 9			Grade12		
	a	b	c	a	b	c	a	b	c
2011	-1.82–5.00	0.36–2.96	0.01–0.43	0.28–5.00	0.16–4.47	0.10–0.34	-2.03–0.25	0.31–5.00	0.01–0.32
2012	-0.42–2.21	1.15–5.00	0.01–0.41	0.99–5.00	0.34–4.32	0.01–0.40	-1.30–5.00	0.23–5.00	0.01–0.29
2013	0.48–3.12	0.67–5.00	0.01–0.38	0.63–3.01	0.30–4.01	0.01–0.33	-1.48–5.00	0.76–5.00	0.01–0.33
2014	0.55–1.89	0.81–4.73	0.15–0.36	1.40–5.00	0.29–4.04	0.10–0.42	-1.07–2.10	0.36–5.00	0.01–0.32
2015	-0.52–3.07	1.24–4.52	0.08–0.40	0.72–5.00	0.27–5.00	0.01–0.33	-0.44–5.00	0.13–5.00	0.01–0.29

4. Simple regression analysis between raw score and IRT ability score or theta(θ)

The results of correlation and regression analysis between theta and raw scores, as presented in table 4 showed very low correlation between the two types of score. Though they were statistically significance at .01 level, but practically, when considering the values of the correlation coefficient together with the number of the responses used in analysis, it can be concluded that the values were **not practically** significant and hence did not practically covariate or in other word they were not correlated. The regression analysis showed the poor predictor of theta by raw score. The R^2 values were very low from .000–.004.

Table 4. Correlation and predicting equations from simple regression analysis of theta and raw scores

	Grade 6	Grade 9	Grade 12
2011	$r_{\theta X} = -0.005^{**}$ Theta = $-.116+.001$ rawscore	$r_{\theta X} = 0.013^{**}$ Theta = $0.69+.002$ rawscore	$r_{\theta X} = -0.014^{**}$ theta = $-2.064-.001$ rawscore
2012	$r_{\theta X} = 0.025^{**}$ Theta = $-.216+.003$ rawscore	$r_{\theta X} = 0.001$ Theta = $-0.009+.000$ rawscore	$r_{\theta X} = -0.014^{**}$ theta = $-1.443-.001$ rawscore
2013	$r_{\theta X} = 0.007^{**}$ Theta = $-.039+.001$ rawscore	$r_{\theta X} = -0.019^{**}$ Theta = $0.31-.003$ rawscore	$r_{\theta X} = -0.049^{**}$ theta = $-1.245-.002$ rawscore
2014	$r_{\theta X} = 0.060^{**}$ Theta = $-.156+.006$ rawscore	$r_{\theta X} = 0.016^{**}$ Theta = $-0.37+.002$ rawscore	$r_{\theta X} = -0.027^{**}$ theta = $-1.122-.001$ rawscore
2015	$r_{\theta X} = 0.021^{**}$ Theta = $-.113+.002$ rawscore	$r_{\theta X} = 0.055^{**}$ Theta = $-0.112+.007$ rawscore	$r_{\theta X} = -0.010^{**}$ theta = $-.230+.001$ rawscore

EDUCATIONAL SUPPORT SERVICES FOR GRADUATE STUDENTS IN THE DISTANCE EDUCATION SYSTEM: THE CASE OF SUKHO THAI THAMMATHIRAT OPEN UNIVERSITY

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In the distance education system, students do not meet lecturers regularly as those in the conventional universities. Therefore, educational support services are very necessary for them. This study was carried out in order to identify guidelines for improving educational support services for the graduate students. The research sample comprised 560 graduate students from all faculties, 80 lecturers and 80 staff members. Research instruments were questionnaires and the interview forms. The data were analyzed using frequency, mean, standard deviation and content analysis. After that, all the data were synthesized to formulate guidelines for providing educational support services for graduate students. Then the guidelines were approved by 12 distance education experts. The results showed that: graduate students, lecturers and related staff proposed similar ideas for improving the educational services. For example, for the guidance aspect, the university should follow up students who did not contact the university for over 2 semesters. The study proposed the guidelines for developing the educational support services in 12 aspects, starting from the registration aspect to the evaluation aspect.

Introduction

Sukhothai Thammathirat Open University (STOU) is the 11st state university of Thailand. It is the only open distance learning university. It was established in 1987 with the main objective of extending and expanding higher education opportunity for all Thai people throughout the country, regardless of age, sex, occupations and the distance. It provides educational opportunity for people who missed a chance to attend conventional universities and for working people who want to upgrade their education. With STOU's distance education system, people from every part of the country are able to study without having to leave their home and their work.

At the first started, the university offered only bachelor's degree programs in 3 schools/faculties. At present, the university has 12 schools, namely, School of Educational Studies, School of Liberal Arts, School of Management Science, School of Economics, School of Law, School of Political Science, School of Agricultural Extension and Cooperatives, School of Human Ecology, School of Communication Arts, School of Health Science, School of Science and Technology, and School of Nursing. Every school offers bachelor's degree programs and master's degree programs and some schools offer doctoral degree programs. Total number of students in 2016 is about 100,000 (Planning Division, STOU, 2016). They live in every part of the country and over 90 percent of them are working people.

Under the distance education system, the university employs multi-media system which comprise the main and the supplementary media. The main instructional media is printed based such as text books and work books. Supplementary instructional media includes radio programs, television programs, CD/VCD, tutorial activities, practices, training programs and electronic media. The university has developed her distance education system along with the progress of media and technology. At present, electronic based media in various forms such as e-learning, e-tutoring and web-based are introduced as another channel of teaching and learning.

Studying by the distance education system, students, most of the time, study on their own with different kinds of instructional media provided by the university. They do not have to travel to the university to attend classroom every day like those in the conventional universities. Students can study at home or at work at their convenient time. They may be required to come for seminar or tutoring sessions for sometimes at the local learning centres, e.g. two times per course per semester. Apart from studying on their own from learning media provided by the university, students, especially the graduate students, are advised to search for more knowledge and information from other learning sources. This because they have to have extensive and up to date knowledge and information for preparing papers for seminars of every subject and for conducting their projects and thesis. Since most of students are working people and some of them left education system for quite sometimes, they have to adjust themselves quite a lot when coming back to be students again. As working adults, they have a lot of responsibilities both in work and in family and society. They have to manage their time properly in order to have time left for study from learning media. Moreover, most of them had experience in face to face learning in class-rooms, they do not get use to studying on their own by distance learning. Therefore, learning support services are very important for them. They need some help and advises. If they obtain proper learning support services, they can manage their study in the right direction. In reverse, if they do not obtain suitable supports, they may not be able to proceed with their study to the end of the program.

Sungsri and others (2006) found that the first 2 factors that caused drop out among undergraduate students of Sukhothai Thammathirat Open university were: examination factor (failing examination for several times) and the factor on correspondence with the university (had no advisor and when facing problems, students had no one to

help). Brommapan and others (2008) found that one of the main problems that caused drop out among graduate students of Sukhothai Thammathirat Open University was about the services of the university. They included: students obtained self learning materials from the university quite late, services of university's library did not meet students' needs, communication between lecturers and students was very rarely, students did not get response from the university on time when having problems. The results of these studies indicated that learning support services from the university were essential. Educators from other countries also confirmed the necessity of learning support services. For example, Pascarella & Tetrazini (1983) proposed that communication and positive interaction between lecturers and students were very important. Allen (1993) found that the following factors were very necessary. They were: orientation to let students understand distance learning system, academic guidance, upgrading basic knowledge of some students, funding assistance, designing contents and learning activities to suit the nature of students, and creating activities which let students help each other. McPhail (2003) who studied guidelines for promoting adult students retention found that regularly communication from lecturers to students together with meeting for sometimes could increase retention rate and learning success among students.

According to the results of the studies mentioned, they confirmed the importance and the necessity of learning support services for the distance learning students. Therefore, it is reasonable to find out what kinds of learning support services that the graduate students of STOU require and how to provide such services to serve students properly. Thus, this study was carried out with the following objectives.

Objectives of the study

- 1) To identify opinions and suggestions of graduate students, lecturers, and supporting staff for developing the educational support services to help the graduate students learn successfully; and
- 2) To develop guidelines for providing educational support services to help the graduate students learn successfully.

Method of the study

The study was carried out in 2 steps:

Step 1: Studying ideas and suggestions of graduate students, lecturers, and supporting staff for developing the educational support services to help the graduate students learn successfully.

First of all the researcher studied literature related to distance education, problems faced by distance learning students and learning support services which are necessary for distance learning students. Then the field study was carried out. The research sample comprised 3 groups of people: (1) 560 graduate students who were randomly selected from graduate students of the 12 schools/faculties of the university who lived in every part of the country and came to attend seminars organized at the main

campus and at the 10 regional centres; (2) 80 lecturers who were randomly selected from lecturers of the graduate programs in 12 schools ; and (3) 80 supporting staff who were randomly selected from staff of the 5 offices which work related to graduate students. Research instruments were 3 sets of questionnaires for the 3 groups of the sample and an interview form for a group of representative of the graduate students. The questionnaires were in the form of: multiple-choice; 5 point rating scale; and open-ended questions. They were approved by 3 experts in the field and were tried out with 30 graduate students, 10 lecturers and 10 supporting staff before being use for data collection. For data collection, questionnaires were distributed to 500 graduate students while they were attending seminars at the main campus and at the regional centres. For lecturers and related support staff, the researchers contacted and gave them questionnaires directly. Moreover, another 60 graduate students were interviewed using the interview form for in-depth information. Data obtained were analysed using frequency, percentage, mean, and content analysis.

Step 2: Formulating guidelines for developing educational support services to help the graduate students learn successfully.

The researcher synthesized all data obtained from the 3 sample groups in Step 1 together with related literature to formulate the guidelines for providing educational support services for the graduate students. Then the guidelines were presented at a focus group seminar with the 12 experts in distance education. After that, feedback and suggestions from the experts were used for adjusting the guidelines before proposing in the research report.

The main findings

The main findings of the study were:

1) Opinions and suggestions of graduate students, lecturers, and supporting staff for improving the educational support services to help the graduate students learn successfully.

Results of the study showed that graduate students, lecturers and supporting staff agreed that the following educational support services were necessary for graduate students and contributed for enabling graduate students learn successfully. They were 12 aspects: registration aspect, curriculum/subject contents and media aspect, the aspect of contacting with the university, the aspect of contacting with lecturers, the aspect of seminar or tutoring sessions, the aspect of English requirement for Ph.D. candidate, the aspect of thesis supervision, the aspect of guidance and counseling services, the aspect of scholarship and student club, the aspect of library services and computer services, the aspect of services of the regional centres and the aspect of evaluation.

Every group of the respondents indicated that every aspect should be improved at high level. For the graduate students, the first 3 aspects of educational services which should be improved were the registration aspect, thesis supervision aspect and evaluation aspect respectively. For the lecturers, the first 3 aspects were: contact with

the university, services of the regional centres, and guidance and counseling services. For the supporting staff, the first 3 aspects were contact with the university, contact with lecturers and thesis supervision.

Moreover, their suggestions for developing each aspect of the educational support services were as follows:

(1) For registration aspect, graduate students indicated that the university should send registration information to students earlier, students should be reminded before the registration time of each semester and the university should establish a registration call centre to provide information and answer questions about registration immediately. Lecturers and supporting staff provided the same suggestions. The first suggestion was establishing a registration call centre and next was sending registration information to students earlier.

(2) For curriculum/subject contents and media aspect, the first suggestion of graduate students was content conclusion should be made available at the end of each chapter of the text-books. Next was contents of each chapter of the text-books should be easy for understanding. The lecturers proposed “contents of each chapter of the text-books should be easy for understanding” as the first item and “content conclusion should be made available at the end of each chapter of the text-books” as the second item. Supporting staff gave those two items as equal level.

(3) For the aspect of contacting the university, the first item that graduate students proposed was students should obtained important information on time. Next were: students should obtained important information through various channels and problems of students should be solved quickly. Lecturers and supporting staff had the same suggestions. The first one was problems of students should be solved quickly. Next was students should obtain important information through various channels.

(4) For the aspect of contacting with lecturers, graduate students proposed first that lecturers should set a schedule for letting students contact them. Next were lecturers should communicate with students regularly and lecturers should follow up the progress of students regularly. Lecturers and supporting staff proposed the same suggestions. They were: lecturers should follow up the progress of students regularly and lecturers should communicate with students regularly, respectively.

(5) For the aspect of seminar sessions or tutorial sessions for each subject, every group of the respondents had the same ideas that was two times of seminar should be made available for each subject.

(6) For the aspect of English requirement for Ph.D. candidate, the first item that graduate students suggested was the examination score of the English course provided for Ph.D. candidate should be able to use for English requirement. Next was the university should organize English course for Ph.D. candidate who did not meet the English requirement yet. Lecturers and support staff suggested the same items. Two items of their suggestions were alternated with those of the students.

(7) For the aspect of thesis supervision, graduate students and lecturers proposed the same suggestions. They were: thesis advisor should give time for explaining every step of thesis conduction clearly, the university should organize a conference in order

to give opportunity for graduate students to present their research papers, and every faculty should organize training on writing research papers for publication, respectively. Supporting staff suggested the first item the same as the first item of students. The next item were thesis advisors should follow up students who lacked contact and each faculty should advise students about sources where students can publish their research papers.

(8) For the aspect of guidance and counseling services, graduate students and support staff proposed the same suggestions. They were the graduate office should provide counsellors to serve graduate students, the graduate office should follow up students who lost contact with the university for more than 2 semesters and the graduate office should provide information of students who lost contact with the university for more than 2 semesters to each faculty, respectively.

Lecturers proposed first that the graduate office should follow up students who lost contact with the university for more than 2 semesters. Next was the graduate office should provide counsellors to serve graduate students.

(9) For the aspect of educational scholarship and students association, graduate students proposed 2 items in equal level. They were the university should provide educational scholarship for poor students and the availability of thesis scholarship should be continue. The next 2 items were also at equal level. They were graduate students should be encouraged to join each provincial student association committee and each provincial student association should organize activities for both under graduate and graduate students. Lecturers proposed first that the university should provide educational scholarship for poor students. Next was each provincial student association should organize activities for both under graduate and graduate students. Supporting staff proposed 2 items which alternated with the 2 suggestions of the lecturers.

(10) For the aspect of library services and computer services, graduate students suggested first that the university should adjust STOU corner at every provincial public library to serve both under graduate and graduate students more. Next was the library at the main campus should provide speedy inter library loans for graduate students. Lecturers suggested first that computers at the main campus should be sufficient to serve graduate students. Next was library at the regional centres should provide speedy inter library loans for local graduate students. Supporting staff suggested first that library at the regional centres should provide speedy inter library loans for local graduate students. Next was computers at the main campus should be sufficient to serve graduate students.

(11) For the aspect of services of the regional centres, graduate students, lecturers and supporting staff proposed the same suggestions. They were the centres should provide counsellors for graduate students, connecting services of the library at the main campus with libraries of regional centres and the university should make full use of buildings of the regional centres for organizing seminars or tutorial sessions for students, respectively.

(12) For the aspect of evaluation, graduate students, lecturers and supporting staff proposed the same suggestions. The first suggestion was students who failed the

examination should be followed up and given some assistance. Next was students should obtain advices about how to read text-books for examination and how to prepare themselves for examination prior to every examination period.

Guidelines for providing educational support services to help the graduate students learn successfully.

The educational support services which the university should provide to the graduate students in order to help them learn successfully comprised 12 aspects of the services. These services serve every step in the process of distance learning. They start from registration service to the end of the learning process, which is the evaluation service. The details of each aspect are as follows:

1) Registration aspect:

The university should provide the following services: sending all documents and information related to registration to students earlier; documents about registration should be short, clear and understandable; The university should establish a registration call centre to provide information and to response to students' problems immediately; and providing registration warning service before registration time.

2) Curriculum, subject contents and media aspect:

For the text-books, which is the main media, contents should be easy to understand and should have conclusion at the end of each chapter. For the supplementary media, such as DVD,VCD, Web, and e-learning, they should be easily accessible. Students should be oriented for using advanced media.

3) The aspect of contacting the university:

This aspect is very important for distance learning students. The university should provide the following services: having an information service centre for graduate students, using online and social media as tools for reaching and sending important information to reach students on time. Problems of students should be solved immediately.

4) The aspect of contacting with lecturers:

Students should be able to contact their lecturers when they need. Therefore, lecturers should provide schedule of their available time for students. Advisors should contact students regularly and should follow up the at-risk group of students.

5) The aspect of seminar or tutorial sessions:

Apart from students studying on their own, 2 times of face-to-face tutoring or seminar should be made available for each course. This is because tutoring or seminar session provide an opportunity for students to meet with their lecturers and friends to discuss and to ask questions about subject contents for more understanding.

6) The aspect of English requirement for Ph.D. candidate:

It is the requirement of the university that Ph.D candidates have to have English score meet the set criteria before starting conducting thesis. In order to help Ph.D candidates, the university should provide English courses for them. Once they passed the English courses, they met the English requirement of the university.

7) The aspect of thesis supervision:

Students should be advised to clearly understand every step of thesis process. They should be also trained in writing research papers. The university should organize national or international seminar in order to let students have opportunity to present their research papers. List of journals for publication of research papers should be prepared and made available for students.

8) The aspect of guidance and counseling services:

The university should provide special guidance unit for the graduate students. The university should create students follow up system to follow up the at-risk group or the students who lost contact with the university for 2 or more semesters. The responsible office such as the graduation office should send information about the at-risk students to each faculty for further follow-up action.

9) The aspect of educational scholarship and students association:

The university should provide educational scholarship for the poor students. Moreover, research fund for conducting thesis should be also available. For student association or student club in each province, apart from participation of undergraduate students, graduate students should be encouraged to join the club and take part in the club committee. Network of graduate students should be created through social media.

10) The aspect of library services and computer services:

For library service, library at the main campus should be opened not only on the work day but also in the evening of the weekend when seminar or tutoring sessions were available. At every provincial public library through out the country, the university corner or STOU corner should have more reading materials and texts to sufficiency serve both undergraduate and graduate students in local areas. Graduate students should be trained how to access several data bases.

For computer service, computers at the main campus and at the regional centres should be sufficient to serve students.

11) The aspect of services of the regional centres:

The regional centres should provide the personnel to provide guidance and counseling to local graduate students. Library of each regional centre should be source of information and learning materials for local graduate students. The university should make full use of buildings and facilities of the regional centres, e.g. using more for seminar or tutorial for undergraduate and graduate students.

12) The aspect of evaluation:

Before having examination, the university should provide advices about how to read text-books to get main concepts, how to do the reports for formative evaluation and how to prepare for final examination. This also include how to prepare for thesis examination.

After examination, the university should follow up and provide assistance to students who did not pass examination. For thesis examination, advices about improvement of research reports should be provided.

Discussion

The study proposed guidelines for providing educational support services to help graduate students learn successfully which comprised 12 aspects. They were: the registration aspect; the curriculum, subject contents and media aspect; the aspect of contacting the university; the aspect of contacting with lecturers; the aspect of seminar or tutoring sessions; the aspect of English requirement for Ph.D. candidate; the aspect of thesis supervision; the aspect of guidance and counseling services; the aspect of educational scholarship and students association; the aspect of library services and computer services; the aspect of services of the regional centres; and the aspect of evaluation. All of these factors contributed to enabling graduate students learn successfully. This results related to the study of Simpson (2002) who strongly confirmed the necessity of student support services. They also were in agreement with Allen (1993) who proposed a model of learning support services to prevent students dropping out which comprised 8 strategies: admission strategy; financial support; orientation and learning skills development; academic advice and counseling service, especially for the at-risk group; supports for students who lack main basic knowledge; career planning; media and teaching and learning process; and student activities.

Moreover, the study proposed guidelines for providing each aspect of the educational services, for example: The aspect of contacting the university, the main guidelines proposed was that the university should provide the following services: having an information service centre for graduate students, using online and social media as tools for reaching students and sending important information to reach students on time, and problems of students should be solved immediately. This result related to the study of Sungsri and others (2006) which found that students needed regular contacts from the university. Moreover, Sharma (2005) suggested that the university should create students interaction through the use of technology.

For the aspect of guidance and counseling services, the main guidelines proposed that the university should set up students follow up system to follow up the at-risk group or students who lost contact with the university for 2 or more semesters. This result related to Simpson (2002) who suggested that one of the academic support services which was very important was following up students' study progress. Sharma (2005) also suggested that the university should have following up strategy for at-risk students.

For the aspect of evaluation, the university should follow up and provide assistance to students who did not pass examination. This result was similar to the study of Cantazaro(1996) who found that having experience in failing examination a few times was also the cause of drop-out. Sungsri and others (2006) found that students needed some helps when they failed the examination.

Conclusion

Students in a distance education system have to study on their own most of the time through different kinds of instructional media. They do not come to class-room and meet with lecturers and friends everyday like those in the conventional university. Therefore, educational support services is an essential factor for their learning success. This study has identified guidelines for providing proper educational support services for the graduate students in the distance education system of Sukhothai Thammathirat Open university (STOU). The findings showed that the proposed educational support services comprised 12 aspects of the services. Each aspect took part in helping graduate students learn successfully. Even though this study was conducted for STOU's students, the author believe that the results of the study can be able to apply to other universities, especially the distance education institutions.

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DISTANCE TRAINING: AN ALTERNATIVE OF TEACHER'S DEVELOPMENT IN THAILAND

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By researches results on development of the distance training packages for teachers in Thailand during 2009–2015 which were R & D design. The process of development comprised of; 1. Survey teacher's needs on knowledge. 2. Creation the distance training packages 3. Verifying quality and 4. Evaluation and improvement of training. Because of the high efficiency of the process on development, it's showed that teachers got more knowledge through studied distance training package by themselves. The posttest average scores of teachers' achievement were higher than pretest. Teachers' opinion on the package was at the highest level. So it's reasonable to say that distance training package is an alternative instrument for teacher development in Thailand. **Keywords;** distance training package, teacher's development

Introduction

To Develop teachers to be knowledgeable people is important. Because teacher who has knowledge, especially the knowledge in teaching and learning, will help students to understand in subjects and practical to using knowledge and good attitude to study.

According to different of living for each teacher with different responsibilities and working location, as well as environment, different cultural traditions. Make teacher development by allowing self-development teachers to have the potential they need. By using a distance training package, it is another way to help teachers become more knowledgeable about the subject.

Based on a research study on the development of long distance training for teachers of the faculty of Sukhothai Thammathirat Open University. Researched during from 2009 to 2015 with 15 researching items, it was found that after the development of long- distance training package, it was effective to meet the criteria. Then applied to teachers who are the sample found. Teachers have the knowledge and ability to develop. The mean score of post-test scores was significantly higher than pre-test

scores at .01–.05 level. The quality training kit is an alternative for teachers to use in their own development to be as competent as their teachers are. The development of effective training packages is an interesting process. It should be disseminated to those involved in the development of teachers and used as information for the management of activities to develop teachers in the future.

Definition of Distance Training Package

There are some of educators described about definition of training package. In this part will be present some of definition that present by Thai educators, there are as follows;

Distance training package is a package of tools and method for conducting systematic training. Both the trainers provide training. It defines the process of training, defining media, defining activities, defining content and experiences. Including the tool set and the evaluation of the training completely. In addition, the training package also means organically created multimedia by bringing the media materials and the various techniques that need to apply to enhance the quality of training to be more effective. The training package will contain a statement for the trainer or instructor and the trainees or learners. Behavioral goals, content structure and multimedia activities, including pre-posttests. (Chaiyong Brahmawong. 1994)

Training package is a type of education media which developed specifically for training to use as a supplementary training activity or as a means for self-study of the trainees. It can be used to train a large number of people. It may be prepared in the form of printed materials, short training packages. Training Package Module training modules. (Siripan Saihong and Somprasong withayakheid. 1991: 637)

Distance training package is a set of programmatic, systematically created lessons. For the large number of target groups to self-study according to the content set up step by step. With no time and place constraints. (Somkid Promjouy and others. 2012: 4)

Distance training package is a set of systematically created lessons. For the target audience to self-study according to the content step by step with no time and place constraints. (Jareeluk Ratanaphan. 2015: 6)

From the meaning of the distance training package shown above, it can be concluded that *“The distance training package is a set of systematically created lessons. It consists of several types of media. The purpose is to train the trainees to develop their knowledge and skills, with the emphasis on self-study, step by step, as outlined in the training manual, with no time and place constraints.”*

Importance of distance training package

The distance training package has four important implications: (Chaiyong Brahmawong 2006: 147).

1. The distance training package has a system that allows the trainees to self-study with knowledge. Performance and rely on the help of the smallest guest speaker.

2. Content in The distance training packages were good analyzed. So the trainees get the full knowledge as defined in the course.
3. There are variety of teaching materials. Each media is used to convey knowledge.
4. The distance training package uses a rating system to assure the quality of the trainees in each content. This affects the overall quality of the trainee.

Elements of Distance Training Package

The distance training package is a compilation of the components of each training. Both the concrete and abstract parts come in the same package. Training purposes is desired by trainer or distance training package developer. The components of the distance training package include:

1. Training Plan
2. Content or content material
3. Activities and Methods
4. Media such as transparencies, tapes, tapes, print media, etc.
5. Instructor's Guide and Trainee Manual

In addition, Chaoyong Brahmawong (1993: 230–232) also described that distance training as having five key elements are the trainer and trainee, distance training courses, distance training system, distance training media and the quality of distance training as summarized below:

1. Trainers and trainees. There are two types of trainers on distance training, 1) trainers who are responsible for producing training package, and 2) the trainer who conducted the training.
2. Distance Training Crouse. There are content and learning experience which aimed at providing trainees knowledge and learning. There are short courses and long-term courses
3. Distance training system consists of 4 stages.
 - 3.1 Study and analysis of need on knowledge
 - 3.2 Development of distance training courses
 - 3.3 Media Production and Distance Training Package
 - 3.5 Evaluation of distance training
4. Distance training media. The media for training may be the media that concentrate on publication media, radio, television or computer.
5. The quality of distance training. It depends on the efficiency of the distance training system, quality of content in the course, quality of media or training package, and the ability of the trainer and the attention of the trainees.

Distance Training Package Model

There are 3 types of distance training currently available: 1) distance training which uses self-study training throughout the course; 2) distance training that combines self-study with structured training; Confrontation 3) distance training as a part of

the general training course (Chaiyong Brahmawong (1993: 233–236).

1. Distance training which using self-study training methods. Trainees are provided with self-study training packages throughout the course. Without the need for face-to-face training. This type of training is used in three cases: 1) Cognitive content training does not require training at the training facility. 2) Cognitive training and practice is provided with self-study from the manual or Study Guide and 3) Home Experimental Package or Practical Work Package. The content on each lesson is not complicated.
2. Distance training that combines self-study with face-to-face training. It is a distance training that plans to train some self-study trainees and train them at designated places for practice or cultivating. The part where trainees can self-study is often cognitive knowledge or simple training. In order to be trained, skill training will be given to face-to-face training at the place where the appointment is held.
3. Distance training is a part of the general education curriculum. It is an organization or unit that wishes the personnel to develop by enrolling subjects or subjects taught as part of a regular study program. It is intended to receive a diploma or degree as a precondition. Postponed to the supervisor or administrative position.

Types of distance training packages

Classification of distance training packages are as follows: (Chaiyong Brahmawong and Wasana Taweekulasap.1997: 149–152)

1. Distance training packages that based on printing media.
2. Distance training packages based on broadcasting and audio are mainstream media.
3. Long distance training packages that based on the computer.

Principles of distance training

As mentioned in above, distance training is a way for trainees to have the required knowledge in a given subject, similar to the purpose of distance education. It can be said that the principles of distance training are relevant to distance education. To propose the mainstream of distance education, Sumari Sungstri (2003) explains as follows:

1. Instruction that the learner and the instructor are not in the same place. The learner will spend most of his time studying. Sometime, face to face meeting is set for meeting between teacher and learner.
2. It is a self-directed learning course. The learner determines the time to study for himself. And do extra activities by the time convenient or ready. Do not have to study with others. The learner do not study by the time set by the institution and study slowly and slowly according to learner's ability and readiness.
3. Use different media as a tool for educational management. Mostly, there is the use of multimedia, whereby one type of media is the main media and the other media as supplement media. The media includes by print media, radio, television, tapes, audio, computer, satellite, etc., and occasional personal media.

4. The systematic preparation of the media is setting before teaching. Responsible person or institution the organizer must be prepared in every step of educational management system. Especially learning media is the heart of the distance education system. All kinds of media must be produced before start the course.
5. It is the instructional process by instructors or experts as a team to produce the content of a particular subject through various media.
6. It is a teaching arrangement for many learners. Distance education is available to students at any one time, for an unlimited number of sessions. It can be provided to students from all regions, near or far across the country at one time.

In addition, Chaiyong Brahmawong (2013) discusses on the principles of distance training. The summary is as follows.

1. Focus on the difference of people. To enable the trainees to study by them self according to their interests, abilities, and convenience but rely less on the speaker.
2. There are four learning environments that is self-study learning supply: (1) the participants are actively engaged; (2) the trainees receive immediate feedback in the form of feedback and guidance. Guidelines to check the answers manually.
3. The production system of the distance training package has already been proven through research.
4. Content that has been flavored and classified to suit the content, age and level of the trainee.
5. There is a resource center to support self-study either directly or through a wired system.
6. An appropriate environment for self-study is provided at home or at work.
7. It's compose of the concrete and abstract elements.
8. There are self-assessment system; before, during and after class that the trainees can check manually.

In conclusion, the principle of distance training is to focus on the difference between individuals. There is an environment conducive to self-learning. There is a training kit production system. The content has been flavored. Resources and the environment are organized for supply the learning. There are concrete and abstract elements. There are self- assessment systems before and after using training packages.

Production of distance training packages

The production of distance training packages compose of training media system, the production of mains media for distance training and the production of supplement media for distance training. (Nikom Tadang. 1994: 135–145)

1. **Training Media System.** It is based on the distance learning media system. There are three main types of structures:
 - 1.1 Distance learning media system composed of main media and supply media.

Main media composed of content, training skills and experience. According to the training curriculum, the trainee will achieve the objectives. This type of media will include print media, audiovisual media, and computer programs. Optional media will be selected as appropriate to fill in the missing section or to expand the details to include the audiovisual media. Electronic media Interpersonal and interpersonal communications media

- 1.2 Distance training media in type of single structured training media system is the integrated media system. All of integrated media is equally important. Trainees need to study via every media. The role of each media is not overlapping.
- 1.3 The distance training media system will be using for learning and cooperates with practice in the establishment.

2. The production of mains media for distance training. There are 6 steps in the main media production. The steps are as follows:

- 2.1 Setting concept mapping for analyzes the training curriculum to determine outline and split content into units and sub-unit then sort unit and heading based on priorities for use as a training framework.
- 2.2 Writing unit or sub-unit training plans to define the main layout of a unit or sub-unit. It will be beneficial for the production of the media. The plan will be written at the unit or sub-unit level as appropriate of content, experience, and activities. The training plan consists of the content outline, the concept, the objectives, the activities, media and evaluation
- 2.3 Content, Experience and Activities are presentation on the details of each sequence of activity as it is presented in the main media.
- 2.4 In case the main media can not broadcast well, supplementary media Need to design a complementary media to help learning better.
- 2.5 Main media performance test must follow the steps of media development. Distance training package must test with people close to the target.
- 2.6 Improvement and main media main media production for use after efficiency testing must be completely revised and the effective is on the criteria. After that, there is the beginning of training

3. Production of supplementary media.

Supplementary media is a media that complements the details of the main media which does not have or is incomplete. Supplementary media production are as follows:

- 3.1 Production of accompanying media for using with mains media. It is a guide and tools for activities. It may be print media, audio-visual materials, such as training manuals, media training manual etc.
- 3.2 Production of the extends details media. For more learning from the main media because of the weakest part of the main media or personal needs which is provided in the notes.

- 3.3 Production of additional training media. For enhance interaction between the trainer and the trainee, training or working as a group. The training manual is supplemented by additional training materials.
- 3.4 Production of intensive training media for practice or engage in interpersonal activities. It like extra training but more complete. These media are places, materials, equipment, tools, or practices in real life situations.
- 3.5 Production of working manual., it is a training exercise in real life situations for conclusion all of working concept. The manual consists of operation plan guide to preparation, practice and contact with the establishment to go to work.

Distance training package production

Based on the synthesis of distance training production of 15 research which produced by lecturers of School of Educational Studies, Sukhothai Thammathirat Open University in 2009 to 2015, the aim is to develop the distance training package for teachers to have a better knowledge. It is found that there are 4 steps of production: 1. Survey teacher's needs on knowledge. 2. Creation the distance training packages 3. Verifying quality and 4. Evaluation and improvement of training. The details are as follows:

1. Survey teacher's need on knowledge

A survey of teachers need for the production of training packages. It's the first step which researcher inquires demand of teacher's interesting or teachers want to know by survey. Survey form will be send to teachers and send back to researcher by mail. In other way, sending and receiving surveys by researcher or research assistant. This stage consists of the following stages.

- 1.1 Prepare and submit surveys to the participant teachers.
- 1.2 Exclude complete survey
- 1.3 Analyze and prioritize teachers' knowledge needs from completed surveys.

2. Creation the distance training packages

- 2.1 Determine the content and timing of the activity

After the analysis of the need for knowledge. The next step is to divide the content into training units. The content of the course will allow the lecturer to transfer knowledge, solve the training recipients completely the theoretical and practical

- 2.2 Define the subject

Instructors should ask themselves: What training should be provided to the trainees and what should be assigned as sub-units? And the sequence of units is appropriate.

- 2.3 Define conceptual

Defining conceptual to be consistent with unit and subject. Summarize key concepts and principles to be consistent in organizing training content.

- 2.4 Define objectives in line with the heading.

Usually defined as behavioral objectives. The behavioral conditions and behavior change criterion are always required.

2.5 Define training activities.

By conforming to the behavioral objectives. To ensure that trainees and trainers know that after training and activities as scheduled. Will the trainee learn the purpose of the training set up?

2.6 Training Evaluation Schedule

There are training evaluation schedule by defining a method that can measure and evaluate whether the trainee is learning the prescribed behavioral objectives.

2.7 Select and produce training media.

Selection and production of training media, both materials media and method that the trainer is used as a training medium of each subject. After that, organize the media into categories.

3. Verifying distance training package quality

Verifying distance training package quality compose of assurance and effective testing which is an important process. This process can do through 1) expert assurance or 2) try out and trial run for compare E1/E2

3.1 Expert assurance

Researcher will send training package to experts for comment on the quality of training package. The quality of training package will be confirm by 3-5 experts. After that, training package will be tryout with groups of participle.

3.2 Try out and trial run for compare E1/E2

Another process is the development of long distance training packages. As can be summarized as follows: (Chaoyong Brahmawong 2013)

Effectiveness of Distance Training Package is a quality inspection of distance training packages. By deploying a distance learning package, tryout, and implement (Trial Runs or Pilot Testing) to ensure that each unit is performing according to the criteria set. Two performance tests are available. And real trial

3.1.1 Primary trial. It is a pre-trial effective test. Testers can apply primary trial results to improve distance training packages before trial. The primary trial has three steps.

Step 1 Single Experiment. This is a trial of a training package with a good, a moderate and a weak trainee, with the manufacturer closely observing the behavior. Then bring the results to the threshold.

Stage 2 Group experiment is an improved long distance training package with recipient training of at least 6–10 people with close observation of behavior. Then improve to the threshold.

Stage 3 Field trials. This is a test of an improved training kit from a group. Then test with about 30–100 trainees to bring about final improvement before mass production. To be tested in “Trial Runs” or “Pilot Testing”

3.1.2 Trial Run. This is the second performance test by bringing the training packages created. Trial in situation then crawl for improvement before mass production of long distance training.

There are three types of performance benchmarks:

1. The learning progress criterion is the difference between the post-test scores and the pre-test with significant difference. Criteria set is The development of the trainees increased by an average of 25% or increased significantly at the level of .01 or .05, depending on the difficulty of the content.
2. Criteria between process and result. It evaluates the learning of learners in aspects of continuous behavior or learning process (E1). By applying the results of the responses to the evaluation of products (E2), based on the results of the post-test define criteria $E1 / E2 = 80/80$ for knowledge testing or $75/75$ for attitude testing / skill testing. Acceptance of distance training package performance should not be lower or higher than $\pm 2.5\%$. Acceptance of distance training package performance is defined as three levels: When the performance of the distance training package exceeds the set criteria exceeds 2.5% or more, activities and tests must be revised and re-tested. If the value is still higher than 2.5%, the criterion should be higher. Level equal when the efficiency of the distance training package is equal to or higher than or lower than the criterion of $\pm 2.5\%$ and below the criterion when the performance of the distance training package was below the criterion, it was below 2.5%
3. Quality Criteria is find out from the satisfaction of the lecturer and trainee who learned from training packages.

Long distance training packages include good development of the trainee, such as self-directed learning, self-control, control of academic standards, trainees' comment with long distance training in accuracy and content are appropriate for the trainees. Confidence of trainees towards distance training package and technical quality. The criteria should be in very good (4.50–5.00) good (3.50–4.49) or other qualitative criteria.

4. Evaluation and improvement of training

Evaluation of training package finding in the training package as a guideline for developing a more effective training package includes; objective assessment, content assessment, trainees' assessment, training strategic assessment, time, place and training material assessment.

Quality Assurance and effective testing from 15 research synthesis

Results of research, development, and trial use of distance training packages in 15 research. In accordance with the process presented above, it was found that the distance training package was constructed with two efficiency measures: 1) to the experts checked and 2) finding E1/E2 against the specified criteria. The results of the comparison of the mean scores obtained from the pre-test and post-test of the training package. It show that all researches finding were significantly different at the .05 and .01 level. The training was very satisfactory or in the most level. These detail are shown in Tables 1 and 2.

Table 1. Result of research which Quality assurance and effective testing by expert assurance

Researcher	Content in DLP	Participant	Approve by specialist	satisfaction on DLP
Chutima Sacchanand (2013)	Information Literacy for Teacher -Librarians	177	High level	High level
Kemmanat Mingsiritham and Supanita Sudsaward (2012)	Electronic Book for Teacher	30	High level	High level
Nitipat Mekkhachorn Lad-dawan Na Ranong (2009)	Counseling Service System for Counseling Teachers	40	1.00	High level
Parichat Changsing	communication technology	30	High level	High level
Somtawin Wjittwanna & others (2015)	Data Analysis and Research Presentation on method of Classroom Research	25	The highest level	High level
Somkid Promjouy & others (2012)	Research Proposal Writing	25	High level	High level
Usavadee Chantarasonthi (2009)	Developing the Teacher's Competency on Management of Mathematics Instruction	25	High level	High level
Vandee Sangprateeptong & others (2012)	Research Instruments Construction	45	The highest level	High level

Table 2. Results of research which Quality assurance and effective testing by compare E1/E2

Rresearcher	Content in DTP	Participant	E1/E2	satisfaction on DTP
Duongdearn Pinsuwan (2014)	Science Process Skills Development	30	79.73/81.35	The highest level
Jareeluk Ratanaphan (2015)	Special education management	86	79.50/81.35	The highest level
Jareeluk Ratanaphan (2013)	Physical Education Activities for Enhancing Attention Span and Communication Abilities of Children with Short Attention Span	20	80.00/82.13	The highest level
Jurarat Thammaprteep (2011)	Using Conceptual Change Theory	30	85.50/87.48	The highest level
Sita Yiemkuntitavorn (2015)	Online English Newspapers Reading	40	80.50/81.50	very satisfied
Satit Wimolkunarak (2015)	Instructional Video Production for Elementary School	40	82.50/80.00	High level
Taweewat Watthanakuljaroen (2014)	Educational Communications via Electronic Media	45	81.70/80.93	The highest level

Conclusion

Distance training package is a set of systematically created lessons. It consists of several types of media. The purpose is to train the trainees to develop their knowledge and skills, with the emphasis on self-study, step by step, as outlined in the training manual, with no time and place constraints.” The components of the distance training package include: 1. Training Plan 2. Content or content material 3. Activities and Methods 4. Media such as transparencies, tapes, tapes, print media, etc. and 5. Instructor’s Guide and Trainee Manual. The production of distance training packages compose of training media system, the production of mains media for distance training and the production of supplement media for distance training. The step of development distance training package included by 4 steps of production: 1) Survey the needs of knowledgeable teachers of the target group. 2) Develop the training package. 3) Examine the quality and efficiency of the training package. This process can do through expert assurance or try out and trial run for compare E1/E2 4) Evaluate and improve the training package. By result of research synthesis, it show that all researches finding were significantly different at the .05 and .001 level. The training was very satisfactory or in the most level. This is reasonably to present that “distance training package is an alternative of teacher’s development in Thailand.

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