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Volume 24 Issue 1

Teacher Education for the Next Decade:
Looking to the Past to Inform the Future



WEBER STATE UNIVERSITY
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**Journal of the International Society for Teacher
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Teacher Education for the Next Decade:
Looking to the Past to Inform the Future

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Thoughts on a Colleague, Friend, and the Founder of ISfTE – Colin Mably

By Forrest C. Crawford

Former Secretary General of ISfTE (2009-2013)

I met Colin in 1998 when a former colleague and I flew to South Africa for my very first International Society for Teacher Education (ISfTE) meeting. Admittedly inept on how the seminar operated, Colin and others explained the logistics of how we navigate the signature "paper group sessions" to which we were assigned. What I remembered most was that we were made to feel comfortable. While it was clear numerous members carved a well-defined place in the Society, Colin, who co-founded the society, pushed us newer members to get involved, to find a place to contribute, and make the organization grow. While I thought he was talking only to me, it was clear he was speaking to others; encouraging them to do the same. Quite frankly, I was mesmerized with the forward thinking of the Society each time a seminar was held. Several years passed as I slowly began to find my voice and place along with others as we networked with our colleagues from around the world who generously offered their perspectives and personal experiences on teaching best practices, innovative strategies, and provocative theoretical constructs they have used. Each time Dr. Colin Mably would show up to our annual seminars, his vision would perfectly frame our charge and challenges facing international education and our role as colleagues. On occasion, he would sit in on paper group sessions to offer his carefully thought out guide for the membership; he was not alone. His other co-founder, Dr. Cornell DaCosta (RIP), would assert similar like-minded charges facing our work as teacher practitioners, policy analysts, and administrators. Colin and Cornell knew exactly what they wanted: To bring together, on an annual basis, great scholars from various disciplines from all parts of the world to exchange ideas on how to advance teaching innovations in a thought-provoking and collegial manner.

In fact, they made that case back in 1981 when both had returned from attending a conference and expressed their disappointment on how teacher education was viewed and implemented and how conferences were designed. It was from this mutual consideration that the first convening of International Society for Teacher Education (ISfTE) emerged. That first seminar was held at the Danbury Park Conference Center in Chelmsford, Essex, England with Colin and Cornell as co-conveners.

Over the years, prolific scholars from a variety of countries like Janet Powney (Scotland); Sybil Wilson and Susan Tilley (Canada); Johan Borup, Lotte Rahbek Schou, and Karen Bjerg Petersen (Denmark); Warren Halloway and Katherine Sinclair (Australia); Marta Luz Sisson de Castro (Brazil); Anna Hugo (South Africa); Jacky Pow (Hong Kong); Deborah Adeyemi (Nigeria); Jim Greenberg and Craig Kissock (USA) – just to name a few – combined to set tone and context to how we actively move forward as a Society. When the organization asked Weber State University to host in 2009, I was confident in our own educators to join as conveners and construct the passion and leadership necessary for success. In short, Colin was a seed planter; an enabler who would masterfully model how to lead as we found our own best way. Finally, as we stand at the gates of 40 years as a Society, ISfTE has uniquely created itself as a global family of scholars that encourages ways to advance teacher leadership and development. Colin and Cornell created this amazing legacy. But as Colin would easily ask... "What will your legacy be?"

I would like to end with a poem that I have thought about since learning of Colin's untimely death.

Sleep Sweet

by Ellen M. Huntington Gates

Sleep sweet within this quiet room,
O thou, whoe'er thou art,
And let no mournful yesterdays
Disturb thy peaceful heart.

Nor let tomorrow mar thy rest
With dreams of coming ill:
Thy Maker is thy changeless friend,
His love surrounds thee still.

Forget thyself and all the world,
Put out each garish light:
The stars are shining overhead —
Sleep sweet! Good night! Good night!

From the editors – About this issue

By Karen Bjerg Petersen, David Byrd and DeeDee Mower, Editors of JISTE

We are pleased to present the current issue of the Journal of the International Society for Teacher Education, JISTE, Volume 24, number 1. Articles in this volume were presented at the annual ISfTE seminar, convened in May 2019 by Leanne Taylor and Vera Woloshyn from Brock University, Canada. Subsequently, the authors have revised and submitted their articles to JISTE and a double-blind review process with a comprehensive English edit has taken place before publication.

JISTE 24.1 is featuring the theme of the 2019 Canada seminar “Teacher Education for the Next Decade: Looking to the Past to Inform the Future”. Longstanding and new members of ISfTE—the International Society for Teacher Education - have contributed in this issue.

The articles in this issue provide a witness to the broad spectrum of areas in teacher education that are of interest and researched by educators and researchers all over the world. These articles are an investigation in doctoral dissertations, teacher’s moral habitus, teacher education management, subject teaching and various ways of reflecting on subject studies.

Falaye v. Folajogun in the article *Researching Educational Issues: An Analysis of Methods Used in Conducting Doctoral Research* investigates doctoral research in education in Nigeria with respect to research methods used. Based on nearly 500 doctoral theses submitted in the past decade, the author concludes that, in Nigeria, mostly quantitative methods are being used in education research.

Shirley Dawson and Vicki Napper study the aspects of a group of US teachers’ moral habitus and ethical decision-making in the article *Determining Educator Ethical Decision-Making Factors Using the Jones Model*. The authors find that the investigated teachers are able to ‘identify situations of differing moral intensity, are able determine those ethical decisions quickly, and more often than not, make decisions based on various factors arising from their personal experience and backgrounds.

In the article *Information and Communication Technology (ICT) Skills and Efficient Management of Educational Resources in Public Secondary Schools*, the authors Ibiene Eremie and Ugochukwu Kysburn Agi address the need of further developing ICT skills among principals of public secondary schools in Rivers State, Nigeria. The authors find the ICT skills level to be moderate and suggest the introduction of capacity building programmes for principals to enhance management of the schools in the state.

Ugyen Choden and Kezang Sherab in the article *Personal and professional competencies: Impact of Health and Physical Education (HPE) programme on pre-service teachers of Paro*

College of Education, Bhutan investigate how a health and physical education programme introduced for pre-service teachers in Bhutan has positively impacted personal and professional competencies of the target groups during the past decades. The authors point to the importance for the Bhutanese society and the future of the country, that ‘school and college students lead a healthy and active lifestyle’, as they will be ‘more likely to grow into more active, healthy, and productive adults’.

Food, as another aspect of health education, is addressed in the article *The Challenge of Teaching Food and Health in the First Four Years of Primary School in Norway*. The authors Anne Selvik Ask, Ingebjørg Aarek, Merete Hagen Helland, Camilla Sandvik and Eli Kristin Aadland from various parts of Norway advocating for formal education however, find that there is a lack of formal education in the studied area and that ‘the teaching in food and health is carried out’ randomly and differently among the investigated food and health teachers in Norway.

Rose Walton in her article *Executive Function and Working Memory: Influencing Inter-professional Conversations and Collaborative Practices* explores how, within a playgroup in a rural area of Canada, children’s vocabulary development and phonological awareness were affected ‘through on-going modelling, support and dialogue between community organizations and families’.

In sum, the articles in this issue of JISTE reveal new perspectives, reflections and aspects of teaching and teacher educators’ work that may inspire the readers of the journal.

We would like to thank the reviewers, who have contributed with several and repeated reviews on the submitted articles for this issue. We are grateful for the active support from scholars from all over the world, members and non-members of ISfTE, who have spent their time and used their expertise to review the manuscripts.

As the editor, I – Karen Bjerg Petersen - would like to congratulate our two new associate editors, David Byrd and DeeDee Mower from Weber State University, US with this issue. I thank them for their comprehensive work with the English editing the articles. The ISfTE society and I appreciate their work in supporting teacher educators and researchers, to whom English is not the first and native language, to have their articles finalized and English edited.

Researching Educational Issues: An Analysis of Methods Used in Conducting Doctoral Research

Falaye V. Folajogun

University of Ibadan

Abstract

The complexity of educational issues underscores the need for rigorous inquiry, whose findings are to drive appropriate reforms. There have been long-standing debates among scholars on which of the qualitative and quantitative methods is more rigorous in contributing towards shaping education. While some scholars believe that since education deals mostly with human behaviour which is value laden hence, research in education should adopt the qualitative approach. This study analyzed the predominant methods adopted in conducting inquiry into educational issues and compared them with other disciplines using the abstracts of 428 PhD students' dissertations spanning a period of 10 years. Findings show that quantitative method dominated research in education and the sciences, while qualitative method was popular in the arts/law. However, a combination of qualitative and mixed methods was common in the social sciences. Implications of findings for skills' enhancement in research methods and rigor in educational research are discussed.

Key words: Quantitative approach, Qualitative approach, Mixed-methods approach, Research in Education, Research rigor

Introduction

The mandate of higher education is to conduct research whose findings are meant to solve societal problems, to enrich the content of teaching and to contribute to growth and sustainable development through the services rendered to the society. Obanya (2016) referred to these as 'the tripartite mission of universities,' a phrase that attempts to clarify what higher education is meant to achieve: research, teaching and knowledge sharing. While not attempting to rank order these three activities in terms of their importance, it is recognized that a high-quality research enriches the content of what is taught and invariably enhances the quality of services rendered to the society. Therefore, education without research runs the risk of basing its practices on dogma, theory, ideology, convenience and prejudices (Field, 2011).

Taking cognizance of the importance of research in higher education, conceptualizing a research idea, implementing it and reporting its findings is a major condition upon which the award of a doctoral degree is based. In most cases, if not all, the award of Doctor of Philosophy is based on satisfactory

completion of these tasks. Doctor of Philosophy is regarded as the basic qualification for teaching at the university level, at least in Nigeria. Hence, the purpose of undergoing doctoral research is to enhance knowledge of content, impact skills and experiences of would be academics (pre-service lecturers) to be better positioned to solving problems in their specific areas of specialty and, more generally, in society.

Researchers employ a wide range of designs to investigate a problem, whether it be in agriculture, education, health, science, technology or others. Often different fields nurture research culture that is peculiar to their discipline. For example, pure experiments (quantitative approach) are predominant in the biological, natural, physical sciences and medicine. Beardslee, Wright, Salt and Drezner (1997) observe that randomized trials are predominant in medical sciences and certain areas in behavioural and social sciences. Studies on behavioural approaches to smoking cessation (Piesterse, Seydel, DeVries, Mudde & Kok, 2001), and effectiveness of Salk vaccine (Lambert &Markel, 2000) are examples of pure experiments. Such trails are not common in education research for some ethical reasons. The liberal arts such as anthropology, sociology and philosophy mostly employ the qualitative design due to the nature of the disciplines.

The field of education offers wide opportunities for researching due to the wide variety of problems bedeviling the education sector in many developing countries of the world. Prominent problems relate to teacher quality, teaching facilities and resources, poor performance of students, examination malpractice, and funding. Therefore, implementation of research is mainly dictated by the nature of the problem and the purpose of the research. Additionally, the choice of which approach to use is mainly dependent on the skills and experience of the researcher, as well as the purpose of the research (Falaye, 2018; Keeves, 1988; Patton, 2002). Importantly, the design of a research must be appropriate for its implementation; otherwise findings emanating from it will not be credible and usable. This study seeks to explore and describe the methods that are used to conduct doctoral research in the field of education and compare them with methods that are used in other fields.

Review of Literature

Generally, literature advances three major approaches to research namely qualitative, quantitative and mixed methods (Babbie, 2007; Creswell, 2014; Weitman, 2000). These approaches stem from different traditions and therefore differ in purpose as well as methodology (Pyrzczak, 2003).The selection of any of these three is, thus, influenced by the philosophical orientation about the world and the nature

of the research that the researcher is interested in conducting. For instance, a researcher chooses qualitative, quantitative or mixed methods depending on the worldview of the researcher (Creswell, 2014; Guba, 1990; Neuman, 2009). As a result, the positivists and postpositivists, who believe in quantification (Phillips & Burbules, 2000), dominate the quantitative approach. They believe in the linkage between cause and effect, meaning that outcomes are determined by specific causes. That being the case, the positivists/postpositivists develop hypotheses and research questions; develop numeric measures, collect data and analyze them using statistical packages (Creswell, 2014). Their worldview is generally referred to as scientific research or empirical science that lean heavily on the quantitative approach.

Another approach is the constructivist worldview, which is considered deterministic. This philosophy holds that human behaviour is unpredictable, hence researching human beings with predetermined questions, collecting data using instruments with close-ended questions and subjecting the data to statistical analysis. Rather, social constructivists work in the natural setting; depend on the information (data) collected through interactions with their study participants, themselves being the instrument (Bogdan & Taylor, 1975; Lincoln & Guba, 1985; Patton, 2002). The researcher makes sense of the data through interpretation (inductive analysis). The themes that emerge represent their findings instead of numerical results. This position characterizes the naturalists- qualitative research, which has made its marks conceptually in the social sciences and education (Bogdan & Biklan, 1982; Patton, 2002).

Underpinning the mixed methods paradigm is the pragmatic philosophy that pays attention to the research problem and uses workable and appropriate approaches that can answer the research questions. The pragmatists employ multiple approaches - mixed-methods, justified by the fact that research problems that need to be tackled exist in diverse contexts, such as social, economic, historical and political, establishing the purpose of using mixed methods, either for exploratory or explanatory reasons (Babbie, 2007; Creswell, 2014). The belief is that the world is not static, therefore, mixed methods researchers are not restrictive, rather, they use many approaches for collecting data instead of limiting their research to only one approach. With this background, it would appear that a mixed methods approach is more applicable in the behavioural and social sciences than in the core sciences, provided the researcher is able to provide a justification for his/her choice.

There has been a long-drawn debate among researchers from the different worldviews, each laying claims to certain principles. For instance, the quantitative researchers (positivists) claim that their approach

is more scientific and rigorous (Carey, 1993). The question is: what constitutes scientific research? Scientific research in any field is a process of rigorous investigation, which is supported by appropriate theory and framework that guide it, the methods used in conducting the research and findings that emanate from it (Shavelson & Towne, 2002). For an inquiry to be scientific it should be guided by a set of standards for conducting the research and assessing the validity of the findings therefrom. Although the National Research Council argues that the design of a study is not what makes a research scientific, however, the design must allow direct empirical investigation of a research problem, follow the conceptual framework, account for the context in which the investigation was carried out and present the findings such that they are open to discussions among researchers and other stakeholders (Shavelson & Towne, 2002).

Although it is not the purpose of this paper to add to the debate on the superiority between the quantitative and qualitative methods, it is observed however, that more texts have been written on quantitative research methods than the qualitative research and analysis (Bogdan & Taylor, 1975; Denzin & Lincoln 2000; Glaser & Strauss, 1967). Confirming this position, Pycszak (2003) noted that, generally, reviewers are likely to locate many more articles reporting quantitative research than qualitative research due to the dominance of the quantitative research in the social and behaviour sciences since the 1900s. Notwithstanding these observations, some scholars believe that both quantitative and qualitative methods are not fundamentally different modes of inquiry (Howe & Eistenhart, 1990; King, Keohane & Verba, 1994), both can be pursued with vigor to yield credible results (Shavelson & Towne, 2002).

Not much investigation has been carried out to reveal which design is predominant in education, especially in Nigeria. However, close observations reveal that doctoral students prefer the quantitative approach over qualitative, and the mixed methods approaches. On the other hand, through formal and informal interaction with graduate students at the University of Botswana (UB), South Africa, it appears that the qualitative approach is most often predominantly used by education graduate students in South Africa (Nenty, 2009). This observation prompted Nenty and Adedoyin (2010) to further explore the research orientation of 79 graduate education students at the University of Botswana. According to these scholars, the trend becomes worrisome as the proportion of UB graduate education students willing to undertake quantitative research dwindles. Students' mindset and supervisors' indoctrination influenced the choice of research methods students used (Nenty & Adedoyin, 2010). This is contrary to Keeve's (1988) opinion that the methods employed in educational enquiry should be influenced by the nature of

the problems that the student/researcher is considering.

In addition, the decline observed in the use of quantitative methods could be traced to inadequate skills of both supervisors and students in the use of qualitative methods. Likewise, Allen, Eby, O'Brien and Lentz (2008) raised some concerns after reviewing the methodology and content of 200 published mentoring articles that, among others, include lack of experimental research and over reliance on cross-sectional designs. Further still, the investigation conducted by Ige and Omilami (2016) perhaps is one of the few empirical attempts that can be cited in Nigeria. They compared doctoral research theses from science and mathematics education units from two universities, one in Nigeria and the other in the United Kingdom. The variables of interest include choice of topics, research approach adopted, the target population and the duration of field work. Findings reveal that while a few researchers adopted the mixed methods, most research conducted in Nigeria used the quantitative approach. Only two out of 21 (9.52%) doctoral theses in a Nigerian university adopted the qualitative approach. None of the sampled researchers used the mixed methods. On the other hand, most doctoral theses in science education in the UK adopted the qualitative approach (59.09%) and mixed methods (36.36%). A few used the quantitative method (4.55%) and spent more time gathering data than those from Nigeria where quantitative approach was predominantly used. Prolonged immersion in the study setting, which is a unique culture of the qualitative research, served to explain the longer duration of fieldwork for doctoral students who used the qualitative approach.

Similarly, Adegoke, (2016) observed that in the behavioural science research, the use of questionnaires [quantitative method] is common. The general opinion why students prefer to use the quantitative approach over the qualitative and mixed methods is that the quantitative approach is less cumbersome, cheaper in terms of time and funds, and faster to execute. In addition, it allows the use of a larger sample size, which makes generalizability of findings possible.

Interactions with postgraduate students' research during post field seminars revealed inadequacies in the report of doctoral research especially of those who reported the use of mixed methods in Nigeria. Inadequacies such as the use of structured instruments for collecting data on the qualitative aspect of the mixed methods and the use of statistical tools to analyze qualitative data were noted. Further still, research designs, instruments for data collection, and method of data analysis were not specified. Sometimes they failed to report findings of the qualitative aspect of their research (Falaye, 2017). It was obvious that the

students' skills in conducting mixed methods research were grossly inadequate. The frustration of an academic in another Nigerian university who obtained his doctorate outside the country with training in the use of qualitative method corroborates the poor knowledge and inadequate skills in the use of qualitative and mixed methods. During an informal interaction, he lamented "... more than 90% of my manuscripts have been rejected by [Nigerian] reviewers, claiming that they are position papers." Simply, one can infer that such reviewers, and by extension students, were not exposed to qualitative and mixed methods during their training in Nigeria. This reveals another plausible reason for the popularity of the quantitative approach among students in Nigeria.

Education research is known to have its roots in the social and behavioural sciences (Shavelson & Towne, 2002), employing pure quantitative design on the one hand and qualitative design on the other extreme. Also, by its nature education research would benefit from mixed methods design. However, empirical findings to support this assumption are very scarce.

Methodology

Purpose of the Study

Based on the foregoing, the objective of this study is to assess the methods that are predominantly used by doctoral students of education to conduct their research. Also, the study compared the methods that are commonly used in some selected disciplines with that of education. It also highlighted the observed trends in the use of the three research methods in educational research within a period of ten years. The study was guided by three research questions and one hypothesis.

Research Questions

1. What proportion of doctoral research in education was conducted using quantitative, qualitative and mixed methods;
2. What proportion of doctoral research in the social sciences, arts/law and science-based disciplines was conducted using quantitative, qualitative and mixed methods;
3. What is the trend in the use of quantitative, qualitative and mixed methods to conduct doctoral research in education within the target 10 years (2009-2018)?

Hypothesis

There is no statistically significant association between the research methods used by doctoral students in education, the social sciences, science and arts/law and their disciplines.

Research Design

This research adopted a descriptive survey. Since the primary purpose is to assess the methods used in conducting doctoral research in education and compare them with those of other disciplines, there was no treatment and the variables were not manipulated. Hence, the adoption of the survey design.

Population and Sample

The population for this study was comprised of all doctoral students that have successfully completed and defended (*viva-voce*) their Ph.D. research between 2009 and 2018. From this population, a total of 428 doctoral graduates whose abstracts of their theses were published, represent the sample for this study. (Table 1)

Data Collection

The data for this study were collected from published books and compendiums of abstracts of Ph.D. theses of students that have successfully completed and defended their Ph.D. research from humanities-based and science-based disciplines such as: agriculture, basic medical science, clinical sciences, pharmacy, public health, science, technology, veterinary medicine, arts, education, law and the social sciences (Postgraduate school, 2013; 2018; Institute of Education, 2014; 2018). The twelve disciplines were categorized into four groups- Education, Science, Social sciences and Arts/Law (Table 1). The research methods used as reported in the books and compendiums of abstracts are denoted by QN representing quantitative method; QL for qualitative method and MM for mixed methods approach.

Data Analysis

The data were analyzed using frequencies, percentages and the chi square test of association.

Findings

What proportion of doctoral research in education was conducted using quantitative, qualitative and mixed methods?

Table 1

Summary of methods used in the conduct of doctoral research in education, arts, social sciences and science-based disciplines

Research method/ Discipline	QN		QL		MM		Total	
	N	%	N	%	N	%	N	%
Science-based	169	86.67	10	5.13	16	8.21	195	100.0
Arts/law	4	5.41	50	67.56	20	27.03	74	100.0
Social sciences	12	42.86	8	28.57	8	28.57	28	100.0
Education	64	48.84	21	16.03	46	35.10	131	100.0
Total	249	58.18	89	20.79	90	21.03	428	100.0

From Table 1, out of the 131 abstracts of education doctoral theses reviewed, almost half (48.84%; n=64) adopted the quantitative method, followed by 35.10% (n=46) of those who used the mixed methods and remaining 16.03% (n=21) used the qualitative method. This finding reveals that the most popular method used in researching educational issues is the quantitative method.

What proportion of doctoral research in the social sciences, arts/law and science-based disciplines was conducted using quantitative, qualitative and mixed methods?

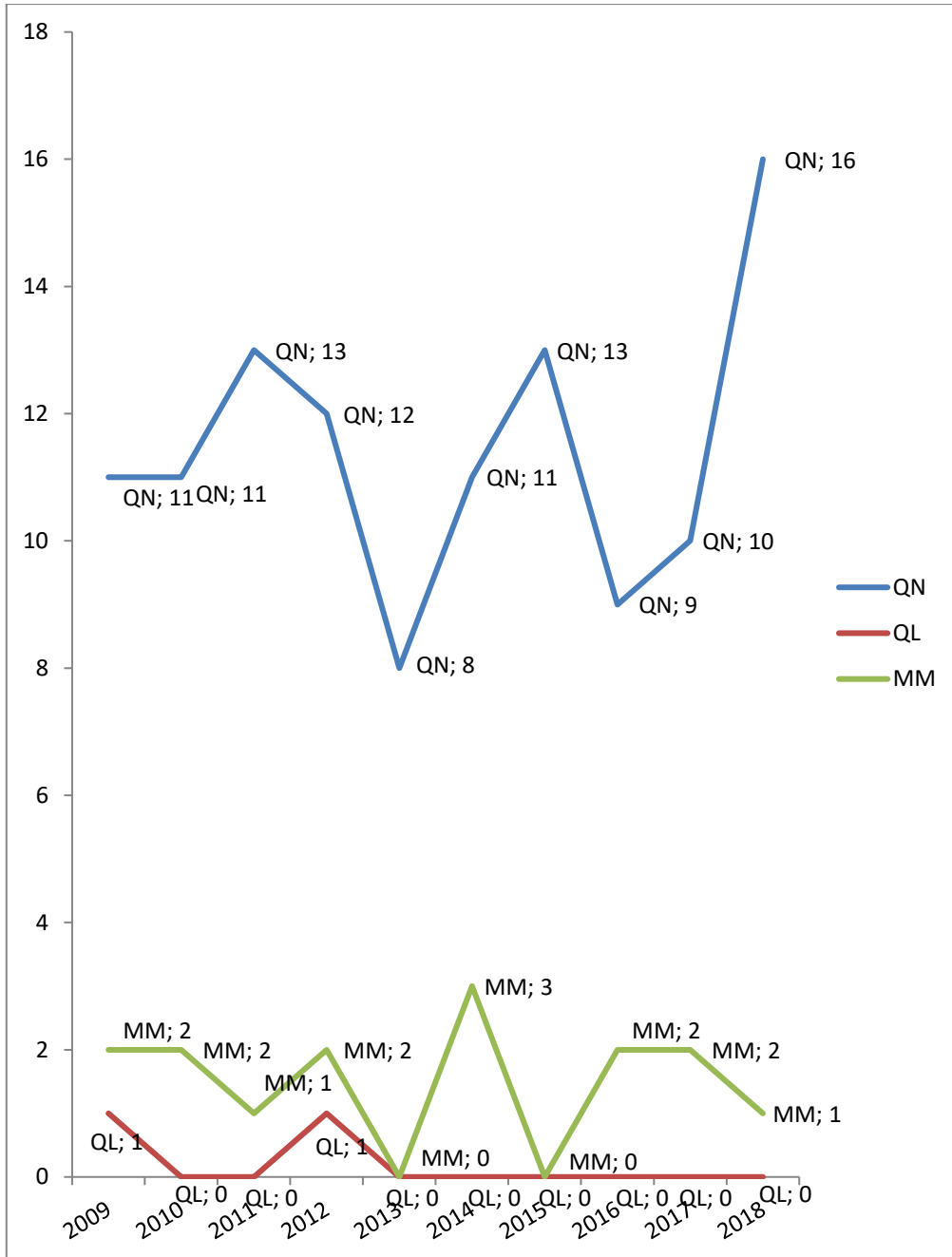
From the science-based disciplines 86.67% (n=169) of the 195 doctoral students adopted the quantitative method, followed by 8.21% (n=16) of candidates who used qualitative approach, while 5.13% (n=10) adopted the mixed methods to implement their doctoral research. The reverse is the case with the liberal arts and law where 67.56% of the Ph.D. abstracts reviewed (n=50) adopted the qualitative method followed by mixed methods (27.03%; n= 20). Only 5.41% (n=04) of the students in this discipline adopted the quantitative method to execute their Ph.D. research (Table 1).

From the social sciences, the doctoral research was conducted with the use of qualitative and mixed methods shared in equal proportion (28.57%; n=08). The quantitative method appears to be more dominant than the other two methods in the social sciences (42.86%; n=12). Apart from the science-based discipline where the majority of the students employed the quantitative method, education came second, followed by the social sciences, while the quantitative method was least adopted by doctoral students of Arts/law.

What is the trend in the use of quantitative, qualitative and mixed methods to conduct doctoral research in education within the 10 years of 2009-2018?

Trends in the use of quantitative, qualitative and mixed methods approaches

Figure 1



The trends in the use of the three methods within the ten-year period are illustrated by Figure 1. Though, the trend fluctuates within each of the methods throughout the period, clearly, quantitative approach took a clear lead, while the use of the qualitative method is insignificantly low.

There is no statistically significant association between the research methods used by doctoral students in education, the social sciences, science and arts/law and their disciplines.

The independent variable is students' discipline, which was classified as education, sciences,

the social sciences and arts/law, while the dependent variable is research methods grouped as quantitative, qualitative and mixed-methods. A 4 x 3 contingency table comprising 12 cells is formed, highlighting the frequencies (Table 2). The criteria for rejection was set at alpha of .05. The test statistic was done manually.

The degree of freedom is 6, the tabulated value of 12.59 is less than the calculated value of 191.35 at 0.05 (Table 2). Therefore, the hypothesis is rejected. This means that there is significant association between the research methods used by researchers and their disciplines.

Table 2
Chi-square contingency table for research methods by discipline

Research Methods	Education	Science	Social Science	Arts/Law	Total
QN	64 (76.21)*	169 (113.45)*	12 (5.89)*	4 (15.56)*	249
QL	21 (27.24)*	10 (40.55)*	8 (5.82)*	50 (15.39)*	89
MM	46 (27.55)*	16 (41.00)*	8 (16.29)*	20 (43.05)*	90
Total	131	195	28	74	428

*Figures in parenthesis are the expected frequencies.

Discussion

This research assessed the types of research methods used by doctoral students to conduct their research in education. It also compared the methods in education with those used to conduct similar studies in other disciplines grouped as science-based discipline, the social sciences, arts and law.

Findings show that in education almost half of the doctoral researches were conducted using the quantitative method, followed by mixed methods. This is in agreement with Ige and Omilami (2016) who discovered that, in Nigeria, most of the science and mathematics education doctoral students adopted quantitative approaches to conduct their research, while a few adopted the mixed methods. On the other hand, it is contrary to the findings of Nenty (2010) who discovered that qualitative methods are mostly adopted by education graduate students from Botswana University in South Africa. The Nigerian students' preference for the quantitative method is possibly due to its ease of use, and lack of skills in handling qualitative and mixed methods.

The trend observed in education is somehow unexpected. Based on the fact that educational issues could occur in social, economic, historical and political contexts, approaches other than quantitative approach would have served to conduct such studies better. Hence, the expectation is that mixed methods will dominate the approaches used to investigate educational issues. This is in line with the pragmatic philosophy, which believes that human behaviour is not static hence methods to be used to study human behaviour should not be restrictive; rather they should allow researchers to explore and explain the issues (Creswell, 2014) that occur in diverse settings.

Discipline orientation (Nenty, 2009), belief that the quantitative method is superior than the qualitative method (Carey, 1993), and the fact that many of the students do not have a formal training in

the use of qualitative and mixed methods approaches to research (Falaye, 2017) are plausible reasons that can serve to explain the pattern observed in this study.

The dominance of qualitative method in the arts/law is not surprising. It is quite in support of the constructivist worldview (Bogdan & Taylor, 1975; Lincoln & Guba, 1985), which holds that human behaviour is unpredictable; hence, researching human beings in their natural setting and interacting with them to gain more insight into their problems using qualitative methods appear most appropriate.

Further still, another finding that emanates from this research is that the quantitative method is most common in the science-based disciplines. This supports the observations of Adegoke (2016) and Beardslee, Wright, Salt and Drezner (1997). In addition, it is not surprising since it is a discipline where researchers believe in the cause and effect relationship, develop hypotheses and research questions and tight control of variables. Quantitative researchers gather numeric data and employ statistical packages to analyze them. Therefore, the dominance of quantitative method over the two other approaches is expected.

With regard to the association between disciplines and the methods adopted by doctoral research students, there is a statistically significant relation between the methods and the students' disciplines. Therefore, their choice of methods is not due to chance.

Conclusion and Recommendations

The findings in this study reveal that the most popular method used in researching educational issues is the quantitative method. It is also a method of choice in the Sciences, while doctoral students from arts and law relish the use of the qualitative method in their research. The apparent popularity of quantitative method over the qualitative method and mixed methods as established in this study could be traced to the domination of quantitative method for long, the notion that 'if it is not quantitative research it is no research' and inadequate skills in the use of qualitative and mixed-methods among other reasons.

Notwithstanding these findings, the tussle between quantitative and qualitative methods is fast weaning, while the compartmentalization among disciplines is becoming hazy. In the world where inter/multi-disciplinary research is being popularized, it is expedient to provide students with opportunities to access the different research methods and to develop their skills such that they are able and confident to adopt appropriate methods based on their research orientations and the nature of the inquiry. Likewise, lecturers/supervisors are encouraged to develop their skills in areas of research methodology where they are deficient. This will reduce indoctrination by supervisors, improve and ultimately strengthen their competence. The rigor will improve credibility of findings emanating from research conducted in the different disciplines. Also, this study calls for a curriculum review at the university level, where the different research methods are taught either as a stand-alone course or in an integrated form. This gives opportunities to university students to have a balanced view of research methods.

Overall, this study revealed that quantitative approach is most popular among doctoral students. This finding likely and inadvertently promotes the outdated notion of superiority of the quantitative approach over the others. Hence, there is a need to create awareness among researchers, university students and research communities on the values inherent in the three approaches, such that students are free to make an informed choice of which approach to use to conduct their research.

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Determining Educator Ethical Decision-Making Factors Using the Jones Model

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Abstract

Despite the presence of codes and laws, ethical decision-making by educators continues to elude understanding. The purpose of this descriptive study was to explore factors in education ethical decision-making that may influence teacher behaviors in order to develop training materials for future teachers. Previously vetted scenarios based on actual educator misconduct were presented online to preservice teachers to identify agreement with constructs and intensity of moral concern as proposed in the Jones Model of Ethical Decision-Making (1991). Codes and laws focused on the results of decision-making do not probe the reasons behind immoral actions. Based on current survey data, educators can identify situations of differing moral intensity, determine moral intensity quickly, and make decisions about moral intensity based on various factors from personal experience and backgrounds.

Introduction

Ethics matter. No one questions why educators should be ethical. There is a universal assumption that educators and teachers must be ethical. All states in the USA have some kind of guidelines for ethical behavior for teachers and Boards of Education to oversee and enforce those laws and codes of ethical behavior (Dawson, Hofland, Lynes, & Squire, 2018). However, in every state, educators exhibit behaviors that are not ethical and indeed sometimes illegal despite laws prohibiting such actions (Government Accountability Office, GAO-14-42).

Although written codes are important (McKinney, Emerson, & Neubert, 2010), research on ethical decision-making does not support that the existence of codes of ethics or laws is sufficient to curb misbehaviors (Cottone & Claus, 2000; Craft, 2013). There appears to be a disconnect between lawful compliance and ethical behaviors as evidenced by reoccurring actions of employed educators (Government Accountability Office 14-42, 2014). Ethical or moral behavior may be more complex than teachers simply not following rules. Codes and laws often focus on the results of decision-making but appear to lack concern with the reasons behind an action.

Educator decision-making appears to be influenced by legal presence, education, age, and other internalized factors. These internalized influences may include but are not limited to gender, culture, awareness of self-actions, intent when acting, personal philosophy, and moral judgment; in essence, the Śrāddha of the person. Śrāddha is a philosophical Sanskrit term that, for the purpose of this study, can be understood as the internalized factors from life's experience that predetermine or heavily influence a

choice of action or inaction. In this study, the term Śrāddha has a more complex meaning than terms such as habit or tendency. The term is inclusive of complex life events that consciously or unconsciously effect behaviors. According to Tejomayananda (2017), “It is a belief system, a value system, a way of looking at things, knowing and acting.” In recent work on the connections between ethical and justice actions, Koopman, Scott, Matta, Conlon, and Dennerlein (2019) determined that perceptions of what is right are not solely reliant on adherence to justice. Instead, efficiency of automatic processing can override systematic processing (i.e., legal understanding) in determining what is ethical.

The belief that ethical growth is based on intellectual growth is not new. Rest’s (1994) theory of moral development declared that increased education, not advancing age, was the greater influence in decision-making. Assumptions between ethical training and ethical behaviors, although not universal, is prevalent (Burant, Chubbuck, & Whipp, 2007; Kohlberg, 1984). Downs (2018) concluded that being educated brings about a greater sense of moral responsibility.

Another factor compounding the understanding of ethical decision-making is the influence of age. Coexisting with increasing age is usually an increase in experience. As age and professional experience increased, so did moral understanding of ethical dilemmas for pediatric nurses (Arslan & Calpbini, 2018). Various researchers around the world have demonstrated the effect of age on factors associated with morals, ethics, or decision-making. Older law students in Thailand exhibited greater moral maturity (Mujtaba, Pattaratalwanich, & Chawavisit, 2009). Older adults in China were less likely to be influenced by their emotions when making decisions than younger adults (You, Ju, Way, Zhag, & Lui, 2017). Older adults in Hungary were less likely to engage in risk-taking behaviors and more likely to engage in deliberate decision-making (Kardos et.al., 2016). In Turkey, older adult students were more realistic in ethical evaluations (Birel, 2019). Conversely, age did not significantly influence moral judgements in budget decisions of American government officials (Reck, 2000).

Our current intent is to continue to probe how educators make ethical decisions in order to create training materials for future teachers. Although other researchers have investigated a variety of approaches toward identifying factors influencing ethical values, we specifically chose to research pre-existing moral understanding using the Jones Model of Ethical Decision-Making (1991) because it considers multiple influences, has been widely researched, is validated in various settings over time, and continues as the foundation for current work (Craft, 2013).

Jones Model of Ethical Decision-Making

The Jones Model describes six validated constructs of moral intensity that influence adult behaviors. According to Jones (1991),

Moral intensity is a construct that captures the extent of issue-related moral imperative in a situation. It is multidimensional, and its component parts are characteristics of the moral issue such as magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. Moral intensity does not include traits of moral decision makers, such as moral development (Kohlberg, 1976); ego strength, field dependence, or locus of control (Trevino, 1986); or knowledge or values (Ferrell & Gresham, 1985). It also does not

include organizational factors, such as organizational culture (Trevino, 1986) or corporate policies (Ferrell & Gresham, 1985). In sum, moral intensity focuses on the moral issue, not on the moral agent or the organizational context (pp. 372-373).

The constructs identified by Jones (1991) are:

- **Magnitude of Consequences:** The magnitude of consequences of the moral issue is defined as the sum of the harms (or benefits) done to victims (or beneficiaries) of the moral act in question.
- **Social Consensus:** The social consensus of the moral issue is defined as the degree of social agreement that a proposed act is evil (or good).
- **Probability of Effect:** The probability of effect of the moral act in question is a joint function of the probability that the act in question will actually take place and the action will actually cause the harm (or benefit) predicted.
- **Temporal Immediacy:** The temporal immediacy of the moral issue is the length of time between the present and the onset of consequences of the moral act in question where a shorter length of time implies greater immediacy.
- **Proximity:** The proximity of the moral issue is the feeling of nearness such as existing social, cultural, psychological, or physical factors that the moral agent has for victims (or beneficiaries) of the evil (or beneficial) act in question.
- **Concentration of Effect:** The concentration of effect of the moral act is an inverse function of the number of people affected by an act of given magnitude.

Subsequent work by Rest (1994), McMahon and Harvey (2006), Brock et al., (2008), and Craft (2013) supported application of Jones' constructs in various professional fields. This study extends application into educational settings.

Purpose of our research

The overarching end goal was to develop targeted ethical training for preservice teachers. We previously reviewed existing studies of ethical decision-making to identify underlying factors influencing ethical decision-making in K-12 educational environments (Dawson & Napper, 2018) and found the Jones Moral Intensity Model (Jones, 1991) to be a seminal source for investigating constructs of ethical decision-making in professional fields. Finding no studies using ethical dilemmas from educational settings to probe ethical decision-making, we created and vetted scenarios based on actual educator misconducts referred for ethics board review or state licensing action (Dawson, Napper, & Alexander, 2018). The narrow purpose of the current work was to determine the applicability of the Jones Model to these realistic education scenarios. Specifically, we asked the following research questions.

1. Can teacher candidates identify moral intensity of presented scenarios based on actual events in educational settings?
2. How do time and age relate to the determination of moral intensity?
3. As represented by scenarios developed for educational settings which of the Jones' constructs, if any, have agreement for moral intensity?
4. Which of the Jones' constructs have the greatest variance in agreement for moral intensity?

Methods

The study used descriptive survey design to determine moral decision factors that previously has been unnoticed. Our intent was to describe previously unidentified factors influencing decision-making and not to manipulate the decision. In this study, moral concern is defined as a personal response to a possible action that may affect others as well as the person performing the action. A moral decision is about performing legal and morally acceptable actions or illegal and morally unacceptable actions. Moral intensity is the level of response of the respondent based on their past experience or understanding of the situation.

Participants

Elementary, secondary, special education, or early education teacher candidates enrolled as undergraduate and graduate students in a western North American university teacher preparation program were selected as participants. Initial participants numbered 29. Of these, 26 completed the survey and gave consent to participate in the study. Twenty-five were female, one was male, 10 were aged 20-35 years (young group), 14 were aged 36-50 years (middle group), and two were over age 51 (oldest group). Twenty-one participants were working in public schools as paraeducators, substitute teachers, or teachers while concurrently enrolled at the university.

Instrument

An online survey comprised of 54 scenarios and one participant demographic question was developed. A sense-making framework suggested by Brock et al., (2008) and grounded in work from Craft (2013), McMahon and Harvey (2006), and Rest (1994) facilitated best fit of 18 vetted realistic scenarios to the Jones' constructs (Dawson & Napper, 2018). These scenarios were then ranked by implied moral intensity level (low to very high) based on the disciplinary action meted (no action to license removal) by the state ethical licensing board for the original misbehavior. Each scenario was written to present three levels of increasing moral intensity for a total of 54 scenarios (see Appendix A for specific examples). The online survey platform (Chi Tester) was programmed to randomly choose six scenarios, one from each construct, with a variety of intensity levels to ensure an unbiased presentation of intensity rankings. Participants ranked the moral intensity of each presented scenario as low, medium, high or very high concern.

Procedures

Informed study consent was obtained when participants began the survey. If the participant chose not to participate, they were asked to exit the survey. The software did not have the capability to end the survey with a no-consent reply; however, if the no-consent option was selected and the participant responded to the scenarios, all responses from that participant were deleted. Data were collected over 10 academic months using Chi Tester and downloaded for initial analysis. Data analyses included SPSS, Excel, and visual inspection methods.

Results

All six moral intensity constructs were presented to each participant. Each of the 54 scenarios was

ranked by at least one participant. The total number of responses was 161. The number of responses to a particular scenario ranged from one to six. Results are organized by research question.

Moral Intensity Identification

Preservice teachers can identify variations in moral intensity of scenarios based on actual events in educational settings. All 54 scenarios were rated for a moral intensity ranking concern of low, medium, high, very high, or uncertain. There were no instances of participants replying with a singularity of intensity ratings across all scenarios. However, every construct except Social Consensus had one scenario with an uncertain concern response. Overall, participants ranked moral intensity of the scenarios (low concern for situations of low concern and very high concern for situations of very high concern) consistent with rankings of the original events reviewed by the state ethical board.

Time and Age

Time and age had some influence on determination of moral intensity by preservice teachers. Survey completion time for all participants averaged 8 minutes 18 seconds, with a maximum of 42 minutes 13 seconds and a median time of 5 minutes 18 seconds. There were three completion times (37, 41, and 42 minutes) substantially longer than the average duration. It is not known if these three lengthy completion times were the result of prolonged contemplation of the scenarios or interruption while taking the survey. Removing time outliers provides an average completion time of just under 5 minutes, similar to the median time.

Differences by age in completion time were discovered but were not found in moral intensity rankings or uncertainty ranking. The youngest participants took the longest to complete. The average completion time for the youngest participants was approximately 12 minutes. The middle group's time to complete averaged 7.5 minutes. The oldest participants had the shortest average completion time at approximately five minutes. There were time outliers in both the young and middle age groups. Caution is advised in the oldest group had just two participants. The level of moral intensity concern was similar across age groups. Variability emerged only in the frequency of uncertainty in the level of moral intensity. The oldest group identified only one uncertain response for the level of moral intensity whereas the youngest and middle group each had three uncertain responses.

Moral Intensity Agreement

Five constructs had multiple scenarios with unanimous moral intensity agreement: Social Consensus, Concentration of Effect, Proximity, Temporal Immediacy, and Magnitude of Consequences. The constructs with the highest degree of agreement were Social Consensus and Concentration of Effect. Construct agreement was determined by the number of scenarios in each of the six constructs with unanimous ranking marks. Moral intensity agreement was determined by the number of scenarios with unanimous agreement for moral intensity concern of low, medium, high, very high concern, or uncertain for each scenario. Twenty-three scenarios had unanimous consent for moral intensity concern. Of these scenarios 13 were ranked with very high concern, four with high, one with medium, and three with low concern. Of the 161 responses, 73% had agreement across all scenarios in all constructs.

Moral Intensity Variance

Variance construct was determined by absence of agreement. Probability of Effect was the only Jones' model construct without any scenario with unanimous agreement in moral intensity. Of non-concurring responses, rankings of medium concern had the highest numbers of intensity disagreement.

Discussion

The current research results indicate that preservice educators do indeed have an overall sense of moral intensity for any given situation, are able to discriminate different levels of concern across a spectrum of moral intensities, and the Jones Model of Moral Intensity is an appropriate fit for education professions. Regarding research question one about preservice teachers' ability to identify unethical situations and determine moral intensity, assurance is made because of general agreement (73% of responses) across all scenarios in all constructs implies a common ethical sense or a predisposed opinion about moral intensity that exists among teacher candidates in educational settings. Preservice teachers appear to have a pre-existing sense of wrongness about a situation as evidenced by the time to determine moral intensity, varied rankings of moral intensity, and general agreement regarding unethical actions presented in the scenarios.

Time and age were factors in research question two. The overall time for participants to judge moral intensity of a scenario was relatively short, less than one minute per scenario. This time length finding is supported in previous work and our suppositions; preservice educators do not ponder when making ethical decisions. This may indicate they have no explicit framework for decision making and so resort to automatic decision efficiency (Koopman et al., 2019). It could also be that teachers have no time at the decision moment to refer to an ethical code or consult law books so they must react based on individual experiences or values (*Śrāddha*) for solving morally intense situations. The short timeframe could also indicate that the content of the scenarios is familiar to the educators based on prior experiences and thus they did not struggle to respond (Arslan & Calpbinici, 2018). The expectation was that when presented with unfamiliar situations educators would require more time to deliberate before responding and would reply with more responses of uncertainty. Given that scenarios were taken from actual events occurring in an education setting, relevance to the events is supported by quick response time and lack of uncertain responses. Lastly, the quick decision time and high consensus in ranking for situations of very high concern for preservice teachers could indicate the establishment of an inner sense of what is appropriate and an idea of the degree of wrongness are the results of advanced education (Downs, 2018).

Age did not appear to be a major factor in speed or ability to determine moral intensity. Intensity distribution of responses among all age groups was similar for moral intensity despite age or construct. The data tended to support an understanding among all educators of a continuum of behaviors of wrongness or naughtiness. Lack of age correlations may indicate an inherent understanding of underlying factors in the internalized decision-making process (*Śrāddha*) or it may indicate that the training received by preservice teachers in credentialing programs allowed them to credibly judge appropriate or morally intense situations (Downs, 2018). The additional authentic classroom experiences of the preservice teachers may serve to solidify initial and trained understandings. Preservice participants who were older tended to answer more assuredly with only one "I'm not certain" response.

The results for research questions three and four support the use of Jones' model to assess types of moral intensity of actions presented in educational environment scenarios. Consistency in ranking within constructs and specific scenarios indicate affirmation for the various constructs of moral concern as identified in the Jones Model. The results also support the use of scenarios in educational environments with a range of moral intensity issues. The study provided valuable information regarding the 23 unanimously accepted scenarios as unethical behaviors valid for further use in continuing research and training.

Unanimity in scenario ranking could imply comfort with the construct or consensus in severity. Comfort with a construct implies the applicability of that factor to ethical decision-making of the teacher. The greatest agreement was for scenarios with very high intensity concerns. Such unanimity in construct ranking points to the relevance of the Jones' constructs for educators in making ethical decisions. The unanimity in severity ranking underscores the accepted rightness or wrongness of the action within the culture of education.

Conversely, disagreement within scenario intensity ranking could portend unease, unfamiliarity, or lack of relevance of the construct to events in an educational setting and assuredly points to areas where additional training is warranted. As the vetted scenarios emanated from actual ethical reviews, the scenarios with disagreement allow supervising faculty to hone training discussions to particularly confusing ethical terrain relating to those constructs. Participants had less response uniformity with scenarios related to results of actions across time (Proximity construct). Reduced consensus may be due to a lack of history or experience of preservice teacher to experience consequences over time, or a lack of nearness through continued classroom contact. The Probability of Effect construct did not have any scenario agreement and that may mean the construct, although valid in other settings, is not appropriate for education settings or that the scenarios for the construct were not appropriate.

Limitations and Implications

Study limitations include sample characteristics and narrowed focus. The limitation to this study was the small number of participants at a single institution in a single academic year. This study was qualitative and descriptive in order to determine important underlying pre-existing factors influencing ethical decision-making by people working in an educational environment. The narrow focus enabled answers to direct questions, yet exposed other questions needing to be explored.

The next step is to begin development of ethics training for preservice educators based on obtained data. The Jones Moral Intensity Model and the scenarios developed by the researchers appear to support the idea that preservice teachers can make determinations about ethical severity and that moral ideals influence their decision-making. Lack of consensus for intensity severity in a construct or particular scenario serves to direct attention to those areas where targeted training is warranted and needed.

Future Research

Based on the information gathered to date, potential areas have been identified for further research. The desire to guide preservice teachers from their pre-existing foundation of "gut reactions" to an internalized understanding of morally correct actions beneficial to their students and learning

environment is rooted in evolving ethical understanding. Individual internal ethics do not appear to have a black and white dichotomy but rather are an evolution based on a burgeoning understanding from experience. Individual ethical understanding may be changed from a previous level or built upon from scratch based on experiences in the classroom settings. It is not clear at this point if the growth of ethical understanding is from formal ethics training in education classes, or from experience in educational settings, or through observation of others as they react, or by assisting in decisions or simply from personal life experience and values.

What is clear is the need for ethics training. This study provides a starting direction for ethics training. The scenarios and constructs with a great range in moral intensity ranking or the great variance from board licensing determination of seriousness are those that should be discussed and reviewed by preservice teachers to guide ethical development. Based on survey data, it appears educators are inclined to see situations differently, make decisions quickly, and have an opinion based on various factors. A recommendation from this study is to develop scenarios across all constructs and concentrate on training in areas with the least consensus of opinion because those are areas of much needed experience.

A clear analysis of methods that may help accelerate modification of individual reactions for classroom settings is needed. How should we move preservice teachers toward internalizing ethical behavior rather than decision making based on external codes of ethics that may not be remembered? Also, there needs to be research on the factors that may predispose teachers to ethical behaviors in all areas of complex educational environments.

Summary

Relying on externalized codes of behavior or externalized laws has not heretofore been effective based on the continued evidence of reported misbehaviors among licensed educators. Codification of external behaviors through ethics testing, observable categories, or regulations create a behavioral basis for rating but not an internalized base for immediacy of action. Based on the experience of developing the scenarios and survey, the researchers find the Jones' Model approach to rank moral intensity to be valid in educational settings and that development of ethics scenarios from actual events provides realism and relevance for educators. Exposure to realistic scenarios, such as those provided in the study, may be useful in training to sensitize future teachers to possible outcomes. This study adds understanding of the influence of age, experience, and use of Jones Model of Moral Intensity constructs to educator ethical decision-making.

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Appendix A

Survey Example of Assigned Rank, Construct, Question, and Response Option

Reminder on all question: A moral decision is about performing legal and morally acceptable actions or illegal and morally unacceptable actions. In this study, moral concern is defined as a personal response to a possible action that may affect others as well as the person performing the action.			
Researcher Assigned Rank for Construct	Scenario	Question for participant to ponder before response choice	Response Options
Low level of concern for proximity	Mr. Hubbard, a high school substitute, assists a 17-year-old student at a high school event.	<p>Ask yourself: Did the proximity of the teacher to the student(s) in this situation cause any harm to anyone involved?</p> <p>Definition of proximity: closeness that the actor feels for victims or beneficiaries of the act.</p>	<p>A. Your moral concern for this scenario is: LOW B. Your moral concern for this scenario is: MEDIUM C. Your moral concern for this scenario is: HIGH D. Your moral concern for this scenario is: VERY HIGH E. I'm uncertain if this is a concern.</p>
Medium level of concern for proximity	Mr. Hubbard, a high school substitute, encourages a 17-year-old student to draw attention to himself.		
Very High level of concern for proximity	Mr. Hubbard, a high school substitute, entices a 17-year-old student he assists to streak naked across the football field during half time.		
Low level of concern for social consensus	Ms. Cole teaches in a private school. After work she sometimes has an alcoholic drink at home with her evening meal.	<p>Ask yourself: Would most people agree on the type of appropriateness of action in this scenario?</p> <p>Definition of social consensus: The degree of social agreement that a proposed act is ethical or unethical.</p>	Same as above
Medium level of concern for social consensus	Ms. Cole teaches in a private school. After work she sometimes has an alcoholic drink at home during dinner. One evening as she was driving around town after dinner, she was pulled over by traffic enforcement and ticketed for driving under the influence of alcohol.		
High level of concern for social consensus	Ms. Cole teaches private school. After work she sometimes has an alcoholic drink at home during dinner. She has begun drinking alcohol on the campus where she works before and during the school day.		
Low level of probability of effect	A first-year teacher, Ms. Swindle, uses marijuana and amphetamines	Ask yourself: Will this action/decision cause harm to those involved?	Same as above

	while on spring vacation in the mountains of Colorado.	Definition: Probability that both the act will take place and the act will cause harm or benefit.	
Medium level of probability of effect	A first-year teacher, Ms. Swindle tests positive for marijuana after returning to Utah following a vacation in Colorado.		
Very High level of probability of effect	A first-year teacher, Ms. Swindle often smokes pot during the school day and tests positive for amphetamine use.		
Low level of concern about temporal immediacy	An educator fails to hold a special education meeting within the required time frame because he forgot to contact the parents.	Ask yourself: Is this decision likely to cause physical or psychological harm in the future to those involved? Definition of temporal immediacy: The length of time between the act and onset of consequences due to the act.	Same as above
Medium level of concern about temporal immediacy	An educator fails to hold timely special education meetings for several students and leaves some items blank on the form because he didn't want to take time to contact the parents.		
Very High level of concern about temporal immediacy	An educator fails to hold timely special education meeting for several students and so backdates the meeting dates on the IEP form to make it appear as if the IEPs were held in a timely manner. He doesn't think any parents really care anyway.		
Low level of concern about magnitude of consequences	Mr. Barberis tells a parent there is a girl in her daughter's class who is failing.	Ask yourself: Is there overall harm (if any) as a result of this decision? Definition of magnitude of consequences: Sum of the harms (or benefits) resulting from the act.	Same as above
Medium level of concern about magnitude of consequences	Mr. Barberis compares the progress of his favorite student, Jim, with Mary so her mother will understand how poorly her daughter is doing.		
High level of concern about magnitude of consequences	Every quarter, Mr. Barberis tells multiple parents about Jeremy, who is failing in math and reading, so they will feel good about their students' progress.		
Low level of concern about concentration of effect	Mr. Hardly, a CTE teacher, demonstrates use of crimpers in an effort to teach a lesson about cutting school property	Ask yourself: Will there be harmful consequences (if any) of this action on people? Definition of concentration of effect: Impact of a given magnitude of harm (or	Same as above
Medium level of concern about concentration of effect	Mr. Hardly, a CTE teacher, puts a crimper tool on a student's fingers in an effort to teach him a		

	lesson about cutting school property	benefit) in relation to the number of people affected.	
High level of concern about concentration of effect	Mr. Hardly, a CTE teacher, puts a crimper on a student's fingers in an effort to teach him a lesson about cutting school property. The student's fingers were punctured and required bandages.		

Authors

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INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SKILLS AND EFFICIENT MANAGEMENT OF EDUCATIONAL RESOURCES IN PUBLIC SECONDARY SCHOOLS

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Abstract

This study investigated information and communication technology (ICT) skills and efficient management of educational resources in public secondary schools in Rivers State, Nigeria. The study which adopted descriptive survey design was guided by two research questions. The 268 secondary school principals in Rivers State constituted the population. A sample of 255 principals which was 95% of the population was drawn through the stratified random sampling technique. A self-structured questionnaire titled: "ICT Skills and Efficient Management of Educational Resources Questionnaire (ICTSEMERQ)" was used for data collection. The instrument which contained 14 items was properly validated and the test retest method using Pearson's Product Moment Correlation Coefficient Statistics for reliability testing yielded an 'r' value of 0.82. Percentages, mean and standard deviation were used to analyse the research questions. The study revealed that the ICT skills needed by principals include among others: knowledge of operating ICT devices, good knowledge of using ICT devices in teaching, ability to use ICT devices to store and retrieve information. The study also revealed that ICT skills enhance efficient management of educational resources through enhancing proper keeping of records, effective communication and proper accountability of educational resources among others. Based on the findings, conclusions were drawn and the following recommendations were made: Rivers State Ministry of Education in collaboration with secondary school's management board should provide capacity building programmes to principals on ICT skills and principals should enroll themselves in institutions where they can obtain ICT literacy and utilization skills.

Keywords: Information, and Communication Technology (ICT), Efficient, Management, Educational Resources and Public Secondary Schools.

Introduction

Information and communication technology (ICT) skills are of great demand and significance in effective and efficient management of educational resources in the school system. The importance of ICT in the educational management is quite evident worldwide and especially in Europe and United States of America (Empirica, 2006). Governments are increasingly including the integration of ICT in education, enhancing infrastructure, and training human resources into national policies in order to develop their educational systems (UNESCO Institute for Statistics, 2010). It has impacted positively in teaching, learning, and research and school administration in a number of ways and based on the educational policy of governments, the aim is the complete utilization of ICT in teaching and management, which constitutes

the object and tool for better learning and execution of all school functions. The ICT has become one of the basic building blocks of a modern society and this has made it necessary for different nations to lay emphasis on understanding ICT and mastering the basic skills and concepts. The ICT devices are electronic devices used for information processing, education, administration, management, commerce, engineering, etc. With the possession of appropriate skills, ICT devices could be very useful in different human activities.

Acquiring ICT skills is a worthy asset that every school administrator must have if they desire to be effective and efficient in discharging his/her responsibilities. The aim of ICT integration is to improve and increase the quality, accessibility and cost-efficiency of the delivery of instruction to students, and it also refers to benefits from networking the learning communities to face the challenges of current globalization (Albirini, 2006). The findings of the 2009 meta-analysis paper indicate that teachers have a strong desire to integrate and integrate ICT in education, but they face numerous barriers and obstacles.

Efficiency refers to the relationship between the inputs in the educational system and the outputs from the system (Leigha & Benwari, 2011). It may also be explained as the quality or property of producing satisfactory results with an economy of effort and minimum waste of time and other valuables (Begg, Fischer, & Dornbusch, 2003; Fabunmi, 2004). In the school system, lead teachers and principals have the responsibilities of mobilizing the various resources (physical, human and material) needed for the attainment of school objectives. They equally ensure that these useful items are properly distributed and utilized. The ICT skills are very useful in this regard. It helps the school principals to properly analyse the situation of the school with regards to resource needs, mobilization and utilization in a very efficient manner.

Public secondary schools are post primary schools established and funded by state governments. In Rivers State, there are about 268 public secondary schools with 268 principals. This level of education consolidates and improves on the foundations already laid at the primary-school level. Secondary schools have the mandate of preparing their students for useful living within the society and for higher education. The state government invests heavily on this level of education through the supply of physical and human resources required for the attainment of these goals. Efficient management of these resources in public secondary schools' aid reduction of wastage of resources and it also helps in cost management especially in a recessed economy like ours.

One of the relevant skills required in the efficient management of education resources in public secondary schools is ICT skills. Many principals are to acquire ICT skills or become computer literate. This affects their level of productivity through the negative impact that lack of ICT skills and literacy have on efficient management of educational resources. The researchers therefore considered it necessary to investigate the ICT skills required by public secondary school principals for efficient management of educational resources.

The Problem

The ICT devices are very useful in administration and management of educational resources in the school system. These ICT skills help school administrators to manipulate ICT devices in order to

achieve desired results. Most of the school principals are not computer literate and do not possess the skills for utilizing ICT gadgets for efficient management of educational resources. They need to change and embrace ICT and its innovations in the management of school resources.

In doing this, they need to take advantage of capacity building programmes organized for improvement of their managerial skills through ICT skills development. They also need to enhance the development of these skills by practicing on their own with the relevant ICT devices. The researchers are concerned by the low ICT skills of principals of public secondary schools in Rivers State. Hence, the problem of this study is to investigate the ICT skills needed by public secondary school principals in Rivers State for efficient management of educational resources. The purpose of this study is to investigate ICT skills and effective management of educational resources in public secondary schools in Rivers State, specifically to: 1) identify the ICT skills needed by principals for efficient management of educational resources in public secondary schools in Rivers State and 2) examine the ways that ICT skills enhance efficient management of educational resources in public secondary schools in Rivers State.

Theoretical Framework

This research work was based on the human capital theory (HCT) propounded by Adam Smith in 1776 and expanded by Harbinson in 1973. The theory states that the quality of skilled people in a country has significant impact on its economic growth and development (Oluwuo & Nwabueze, 2016). It is the attributes gained by a worker through education and training experiences. The HCT rests on the assumption that training of people will help to make them more productive. It draws people's attention to how training can increase the performance of employees through equipping them with more information, ideas and skills. It believes that if the number of well-trained people increases, more will be produced and the society will become better.

Babalola (2003) was of the opinion that the contribution of manpower training to society building and advancement occur through training and schooling which help to enhance performance of the labour force. Training school principals on ICT skills will help to enhance their management abilities, efficiency and effectiveness required for higher output, and proper coordination of the activities of the human and material resources available in the school for optimum utilization.

Literature Review

Information and communication technology applications in education can be considered as an effective enabler to create access, store, transmit and manipulate different information in audio and visual form, due to the capability of ICT in providing proactive environment. Information and communication technology is the electronic means of facilitating the capture, storage, processing, transmission and display of information (Curtain, 2001). With the rapid rate at which ICT has evolved since mid-20th century, the integration of ICT reflects a strong role in education globally (Nwabueze, 2016). Schelin (2007) opines that ICT contribute effectively to the administration, coding, storage and processing of a huge amount of digital information created. Information and communication technology encompass many different things, and can address multitude challenges; in fact, to teach and to learn with ICT remains partially understood, and all its benefits are still not fully exploited (Cuban, 2003; Kirkwood, 2009). One of the roles of the

UNESCO Institute for Statistics (2010), which is the United Nation's repository for statistics on areas mandated to UNESCO, is to contribute to benchmarking and monitoring the integration of and access to ICT in education through the establishment of internationally comparable and policy-relevant indicators. Ghavifekr, Afshari, and Salleh (2012) reported that many countries, including Malaysia, have formulated ICT strategies and policies for their education systems administration and management. Yusuf (2005) explains education as a discipline that has been influenced by ICT devices, which undoubtedly makes teaching, learning, school management and research more serious. Slenning (2000) acknowledges that the introduction of information technology updates many aspects of activities in the educational community. These ICT devices are necessary in educational development. Training on ICT applications and utilizations are part of human capacity building needs of secondary school principals for excellent management of educational resources. These ICT devices and ICT skills help school managers in communicating effectively with their teachers and parents; keep and present important information; as well as aide them in academic research and development.

Information and communication technology helps school managers in proper coordination of available school resources and effective service delivery. Information and communication technology devices useful to principals include: automated computers, internet cell phones, interactive multi-media, digital tools for schools' development, projectors, compact discs, flash drives, telescopes, magnetic boards, and interactive boards. Although ICT has been introduced into the education system, the result of many studies has shown that integration has encountered with resistance and barriers. These studies include: Shahbaz's (2006) research in ICT use in secondary schools in Isfahan; Toprakci (2006) research on ICT integration in schools, according to the viewpoints of teachers and managers in the elementary and secondary schools of Turkey; Drent and Meelissen (2007) research on the use of information and communication technology in the school curriculum, etc.

Opara and Ituen (2009) stated that ICT targets in Nigeria include: eliminating boundaries of information and communication sharing across the globe; fostering and ensuring fast, reliable and unrestricted information and communication across the globe; providing a common platform for interaction of cultures and traditions of the various people of the world; presenting the same opportunities for everybody to share ICT's resources; bringing about a centralized information bank, a data base for everyone which will always be geared towards promoting research and national development; making ICT available and accessible to Nigerians; aiding Nigerians to participate in global information society; improving service delivery; encouraging indigenous content and vibrant involvement in World Wide Web; and fostering interactive communication in Nigeria via the recent numerous social network facilities for a more viable social engineering of the country. One example is the Facebook application.

In schools, ICT is the technological medium through which educational activities and control of resources are enhanced. According to Madumere-Obike, Ukala, and Nwabueze (2015), certain skills are required for one to take advantage of ICT. The principal requires the following skills which are the modern procedures in educational development. They are needed for managerial effectiveness. The ICT skills needed include: understanding of ICT application, social networking, internet browsing to source for

information, virtual presentations at conferences, oral presentation of papers on power point, and how to keep and bring information from the computer. ICT piques principals' interest in their job through new media and innovations in their field which can enhance their preparation for work.

The concept of efficiency refers to the relationship between the inputs in the educational system and the outputs from the system (Leigha & Benwari, 2011). It may also be explained as the quality or property of producing satisfactory results with an economy of effort and minimum waste of time and other valuables (Fabunmi, 2004). Efficiency is demonstrated by the observed ratio of the useful output to the total input in any identified system (political, economic, manufacturing, educational, etc.). According to Roa, (2007), an educational system is said to be efficient when maximum output is obtained with minimum possible inputs. Efficient management of educational resources is concerned with proper coordination of the spread and usage of school items for greater output and less wastage.

Afshari, Ghavifevr, Siraj and Ab Samad (2012) opine that as an administration head, school principals should have basic skills of using ICT in school daily administrative and management tasks. In the school system, principals have the responsibilities of mobilizing the necessary resources (physical, financial, and human) needed for the attainment of school objectives. They equally ensure that, these useful items are properly distributed and utilized. They require some skills that will aid them, especially ICT and professional skills that are acquired through training. These skills help principals to properly analyze the situation of the school with regards to resources needs, mobilization and utilization in a very efficient manner. The physical resources provided and utilized are: school buildings, desks, chairs, tables, lockers, school vehicles, laboratory facilities, library facilities, instructional materials, etc. These resources are not adequately available, and those resources that are available must be properly managed. Adequate management of these resources involves maintenance and control of their utilization.

The Organisation for Economic Co-operation and Development's (OECD) (2017) view on funding of school education, financial resource is very important in the management of secondary schools. Money is needed in the accomplishment of numerous projects and programmes in public secondary schools. Financial resources are highly limited in supply. Therefore, available funds are required to be prudently and carefully managed for better output. Adequate control of money belonging to the school demands that proper account of what funds are used for should be provided. Efficient decisions should be reached on how to utilize funds and adequate follow-up is carried out once decision on how to utilize money is made, especially when such money has been released. Haddad (2002) focuses on the operational and financial benefits brought about by the introduction of ICT in the educational organization and management. Pfaff and Simon (2002) also emphasize the cost reduction due to limited disposal of printed material.

Methodology

The study which used descriptive survey research design was guided by two research questions:

1. What are the ICT skills needed by principals for efficient management of educational resources in public secondary schools in Rivers State?

2. What are the ways ICT skills enhance efficient management of educational resources in public secondary schools in Rivers State?

The population of the study constituted of 268 public secondary school principals in Rivers State. A sample of 255 principals was drawn through the stratified random sampling technique. This represented 95% of the population. A questionnaire instrument designed by the researcher entitled, “ICT Skills and Efficient Management of Educational Resources Questionnaire (ICTSEMERQ)” was used for data collection. The instrument which contained 14 items was properly validated and the reliability test using test-retest process and Pearson’s Product Moment Correlation Coefficient Statistics was 0.82. The instrument was structured in line with the modified four (4) point Likert Rating Scale of Strongly Agreed (4 points), Agreed (3 points), Disagreed (2 points) and Strongly Disagreed (1 point).

Table 1

Statistical analysis of ICT skills needed by principals for efficient management of educational resources in public secondary schools in Rivers State.

S/N	Items	SA	A	D	SD	Mean	S.D	Remarks
1.	Knowledge of operating ICT devices is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	150 (62.5%)	71 (29.6%)	9 (3.8%)	10 (4.2%)	3.18	1.38	Agreed
2.	Good knowledge of using ICT devices in teaching is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	172 (71.7%)	49 (20.4%)	9 (3.8%)	10 (4.2%)	3.30	1.29	Agreed
3.	Clear skills of manipulating ICT devices for research development is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	168 (70.0%)	63 (26.3%)	9 (3.8%)	-	3.43	1.16	Agreed
4.	Ability of using ICT devices to store data is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	166 (69.2%)	55 (22.9%)	9 (3.8%)	10 (4.2%)	3.37	1.21	Agreed
5.	Ability of using ICT devices to retrieve data is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	155 (64.6%)	56 (23.3%)	9 (3.8%)	20 (8.3%)	3.38	1.32	Agreed

6.	Ability of using ICT devices to present information is part of ICT skills needed by principals for efficient management of educational resources in public secondary schools.	161 (67.1%)	70 (29.2%)	9 (3.8%)	-	3.40	1.17	Agreed
7.	Clear ability of connecting relevant individuals or agencies with ICT devices is part of the ICT skills needed by principals for efficient management of educational resources in public secondary schools.	189 (78.8%)	42 (17.5%)	9 (3.8%)	-	3.15	1.16	Agreed
	Aggregate Mean of Standard Deviation					3.32		

Results

Research Question One: What are the ICT skills needed by principals for efficient management of educational resources in public secondary schools in Rivers State?

The results in Table 1 show that the mean scores of all the items were well above the criterion mean score of 2.50. This indicates that all the ICT skills considered were needed by 93.3% of the principals for efficient management of educational resources in public secondary schools in Rivers State. Clear skills of manipulating ICT devices for research development (item 3) ranking first. The aggregate mean score of 3.32 for principals showed that majority of the principals agreed on the ICT skills needed for efficient management of educational resources in public secondary schools in Rivers State to include: knowledge of operating ICT devices, good knowledge of using ICT devices in teaching, clear skills of manipulating ICT devices for research devices to retrieve data, using ICT devices to present information and clear ability of connecting relevant individuals or agencies with ICT devices.

Research Question Two: What are the ways ICT skills enhance efficient management of educational resources in public secondary schools in Rivers State?

Table 2 showed the various ways ICT skills enhance efficient management of educational resources. All the items had mean scores that far exceeded the criterion mean score with ICT skills enhance effective communication in the school system for efficient management of educational resources through the use of ICT devices (items 3) ranking first and it is thus considered the most important way ICT skills enhance the efficient management of educational resources in public secondary schools in Rivers State. The aggregate mean score of 3.18 shows that majority of principals (95.4%) agreed on the ways ICT skills enhance the efficient management of educational resources in public secondary schools in Rivers State. Therefore, the ways ICT skills enhance efficient management of educational resources in public secondary schools in Rivers State include: ICT skills enhance the coordination of educational resources, ICT skills enhance proper keeping of records, ICT skills enhance effective communication, ICT skills enhance proper accountability, ICT skills enhance better utilization of ICT devices, ICT skills enhance efficient management of educational resources through the installation and maintenance of relevant ICT security devices and through proper utilization of ICT devices in sourcing for information useful for the

maintenance of educational resources.

Table 2

Statistical analysis of the ways ICT skills enhance efficient management of educational resources in public secondary schools in Rivers State.

S/N	Items	SA	A	D	SD	Mean	S.D	Remarks
1.	ICT skills enhance the coordination of education resources in public secondary schools through the use of ICT devices.	168 (70.0%)	58 (24.2%)	14 (5.8%)	-	3.02	1.47	Agreed
2.	ICT skills enhance proper keeping of records for efficient management of educational resources through the use of ICT devices.	145 (60.4%)	86 (35.8%)	9 (3.8%)	-	3.34	1.29	Agreed
3.	ICT skills enhance effective communication in the school system for efficient management of educational resources through the use of ICT devices.	153 (63.8%)	78 (32.5%)	9 (3.8%)	-	3.40	1.21	Agreed
4.	ICT skills enhance proper accountability of educational resources in the school system through the use of ICT devices.	150 (62.5%)	65 (27.1%)	15 (6.3%)	10 (4.2%)	3.12	1.37	Agreed
5.	ICT skills enhance better utilization of ICT devices and efficient management of such resources.	160 (66.7%)	71 (29.6%)	9 (3.8%)	-	3.25	1.36	Agreed
6.	ICT skills enhance efficient management of educational resources through the installation and maintenance of relevant ICT security devices.	151 (62.1%)	80 (33.3%)	9 (3.8%)	-	3.24	1.30	Agreed
7.	ICT skills enhance efficient management of educational resources through proper utilization of ICT devices in sourcing for information useful for the maintenance of educational resources.	174 (72.5%)	66 (27.5%)	-	-	2.90	1.48	Agreed
Aggregate Mean of Standard Deviation						3.18		

Discussion

This research work considered seven ICT skills that are required of principals for effective management of educational resources in public secondary schools in Rivers State. The results of the analysis showed that majority of the principals considered all the seven ICT skills necessary, with a few differing. These ICT skills include: knowledge of operating ICT devices, good knowledge of using ICT devices in teaching, clear skills of manipulating ICT devices for research developments, ability of using

ICT devices to store data, ability of using ICT devices to retrieve data, ability of using ICT devices to present information and clear ability of connecting relevant individuals or agencies with ICT devices.

Principals of public secondary schools in Rivers State will benefit from trainings on these ICT skills in order to improve their service delivery. These ICT skills are highly needed in today's world. It brings the whole world together and opens up many windows to access information with little expense. Knowledge of manipulation of ICT devices is useful in the efficient management of educational resources. As revealed by the study, ICT skills enhanced the coordination of educational resources, it enhanced proper keeping of records, effective communication, proper accountability, ICT skills enhanced better utilization of ICT devices installation and maintenance of relevant ICT security devices and utilization of ICT devices in sourcing for information useful in the management of educational resources.

These findings agreed with Nwokedi, Amaewhule and Nwafor (2018), Nwabueze and Ukaigwe (2015) and Ezekiel (2016). These authors in their various research works identified ICT skills scholars need and the relevance of these skills in the administration of schools. Possession of ICT skills will enhance principals' abilities to exchange information among themselves, their teachers and parents of their students. ICT skills enhance better management of educational resources available to school managers. They save time and cost. For instance, if the principal wants to pass some information to parents, bulk SMS could be used, because it is cheaper and faster than printing newsletters.

Relevant information about the school can be stored in the system or made available in the school website. This makes accessibility to such information faster. ICT skills will make it easier for principals to collaborate schools' board, ministry of education and other relevant agencies and stakeholders in education. According to Oboegbulem (2008), ICT skills enhance proper accountability in the school system. It helps the principals to maintain good records of educational resources provided to them by the government. Therefore, these ICT skills are very relevant in school administration and should be provided to principals to enhance their efficiency and effectiveness in the discharge of their duties.

Conclusion

The usefulness of information and communication technology (ICT) has cut across every discipline. Everybody, including school principals, are advised to take advantage of ICT by acquiring ICT manipulative skills. Without the possession of ICT skills, it will be difficult for anybody to utilize ICT devices and enjoy the advantages that come with them.

ICT skills enhance the management of educational resources (physical, human and financial resources) provided for effective administration of schools. It is useful in storage and retrieval of information necessary for planning and decision making, effective communication and inventory keeping. The importance of ICT skills in the management of educational resources cannot be over emphasized. It is therefore very important for every principal in the public secondary schools in Rivers State to acquire these skills.

Recommendations

The following recommendations are suggested, based on the findings of the study:

1. Rivers State Ministry of Education in collaboration with Secondary Schools' Management Board provide capacity building programmes to public secondary school principals on information and communication technology (ICT) skills.
2. Public secondary school principals in Rivers State enroll themselves in institutions or organization where they can obtain ICT literacy and utilization skills without waiting for government.

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Personal and Professional Competencies: Impact of Health and Physical Education Programme on Pre-service Teachers of Paro College of Education, Bhutan

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Abstract

Low physical activity and sedentary lifestyle have been contributing to overweight/obesity in children worldwide. In response to this, school health and physical education (HPE) programmes have been introduced to assist children to adopt and maintain healthy lifestyles. Teacher education colleges have been introducing training programmes to prepare teachers. Paro College of Education (PCE), Bhutan, is one such college where the HPE training programme was introduced in 2003. This paper reports on the impact of the HPE programme on the pre-service teachers of PCE in relation to their personal and professional competencies. The participants were the final and second-year Bachelor of Education (primary) pre-service student teachers and Diploma in Physical Education and Sports Coaching students. Results revealed that the HPE programme had a significant impact on pre-service teachers' personal and professional competencies. Male participants were highly motivated to teach HPE as well as participating regularly in physical activities compared to their female counterparts. Further, the study revealed differences in personal and professional competencies, pedagogical knowledge, and self-efficacy beliefs amongst the pre-service teachers. Implications for the teacher training programme and recommendations for future research are presented.

Keywords: Health and Physical Education, Self- Efficacy, Competency, Pedagogy, Assessment

Introduction

Low physical activity and sedentary lifestyle have been contributing to overweight/obesity in children worldwide (Varja 2018; Yi, 2005). Although not an issue in Bhutan in the past, Bhutanese youth have started leading toward a more inactive lifestyle at the beginning of the 21st Century (CAPSD, 1999; Sherab, 2001). As a result, the Bhutanese education system increased emphasis on the Health and Physical Education (HPE) programme which began in 1999. Since 2003, the two teacher training colleges of Bhutan started offering two HPE modules (HPE 201 for lower primary and HPE 402 for upper primary) as components of the Bachelor of Education (B.Ed) Primary programme. Health and Physical Education plays a vital role in assisting children to adopt and maintain healthy lifestyles. These modules aim to prepare the student teachers to develop and enhance their personal competencies that lead to a healthy lifestyle and professional competencies to effectively and efficiently teach HPE in primary schools. Although there is lack of research, more recent sources suggest that Bhutanese school children continue to lead an inactive lifestyle (Gyeltshen, 2013; World Health Organisation & Ministry of Health [WHO],

2016).

Internationally, the need for quality HPE curricula in schools is increasingly recognized, mainly for the promotion of active and healthy lifestyles (Lerner, Burns, & Roiste, 2011; Royal Education Council, 2016; WHO, 2016). A sound HPE programme in school can also encourage youth to remain psychologically and physically healthy, which coincide with two of the nine domains of Gross National Happiness (GNH) – the development philosophy that Bhutan expounds (Choden, Namdel, & Sherab, 2019; Gyeltshen, 2013; Sherab, 2001, Wright, 2004). Therefore, the HPE programme has huge potential to contribute towards the national vision of promoting happiness among its citizens.

The fundamental issue of education is to identify the most effective way to teach (Bali & Souissi, 2015). Since the introduction of HPE in 2003, Paro College of Education (PCE) has trained thousands of pre-service teachers, but no research has been conducted to evaluate and understand the quality of the programme. Therefore, this study examined the impact of the HPE programme on student teachers' personal and professional competencies, pedagogical knowledge, assessment practices, and self-efficacy beliefs (SEB) to teach HPE for the first time.

Objective of the Study

The study aimed to:

- evaluate the impact of the HPE programme in developing and enhancing student teachers' personal (personal fitness & wellness) and professional (content & pedagogy) competencies; and
- examine if students' levels of personal and professional competencies and SEB significantly differ in terms of their course, years in course, gender, experiences in sports participation, and parent's background.

Literature Review

Teachers play an important role in successful implementation of any educational innovations (Fullan 1999; Fullan & Hargreaves, 1992; Kunter, et al., 2013; Sherab, 2017; Yero, 2010). Teachers possess the power to determine the quality and focus of a school to create exemplary worlds within the classroom, and reform programmes that failed to fit their ways of thinking are more likely to fail (Yero, 2010). There is evidence to show that even in the Bhutanese education system, reform efforts fail if teachers who are the real champions of change are not prepared well in terms of their attitude, skills and knowledge, and self-efficacy beliefs (Sherab, 2017; Sherab et al., 2017). So, for successful implementation of HPE in Bhutanese primary schools, it is important that the HPE teachers are knowledgeable, skilled, exhibit high self-efficacy beliefs, and are able to motivate their students to actively participate in HPE classes.

Existing research indicates that teacher training colleges are expected to develop and enhance high levels of educational competencies in the trainees to help them plan, implement and develop their personal and social competencies to deliver instruction successfully, manage classroom, and contribute to students' development in schools (Al-Tawel & AlJa'afren, 2017; Chakraborty, Nandy & Adhikari, 2012; Kovac, Sloan, & Starc, 2008; Tsangaridou, 2008; Wanyama, 2011; Yi, 2005). Paro College of Education offers the HPE programme with the vision to equip pre-service teachers with all the required knowledge and

skills to teach HPE in the schools (PCE, 2010). So, this study aimed to examine if these expectations are met.

Lai, Wu, Lee, and Jhang (2018) found that Health Education and Physical Education teachers in Taiwan had favourable health literacy, positive health literacy, positive teaching beliefs and attitudes, and acceptable efficacy. Further, these teacher participants' teaching beliefs, attitudes, and efficacy were positively correlated with the variance of teaching intentions. Another study in the UK (Breslin, Murphy, McKee, Delaney, & Dempster, 2012) revealed that trainee teachers believed the major purpose of physical education is to provide school students opportunities to develop psychomotor, cognitive and affective skills. They not only articulated these views but also practiced them in teaching and believed that physical education has the same status as the other subject areas in the school curriculum. However, in the Bhutanese context, the effectiveness of the teacher education HPE programme is uncertain due to lack of research.

Research in Ghana (Ansah, Menyano, & Agyei, 2014) has shown that curriculum intentions are not translated into classroom practices as desired. It was found that university students in Ghana engage in many unhealthy habits that needed attention. Existing literature also indicates that teachers need to increase students' interest in physical education as only half of the students indicated that physical education is interesting (Hussain, Hasan, Wahab, & Jantan, 2014). While there is no research conducted to evaluate the impact of the HPE teacher education programme in the Bhutanese context, research on other school curriculum areas indicate a similar gap between curriculum intentions and actual classroom practices (Sherab, 2001; Sherab, et al., 2008; Sherab, et al., 2017). So, this study seeks to find out the impact of the HPE programme on the pre-service teachers.

The HPE programme offered at PCE aims to enhance pre-service teachers' teaching competencies. So, it remains important to find their level of perception, and if this perception is determined by any variables. For instance, Al-Tawel and AUa'afreh's (2017) study in Jordan found significant differences in the physical education teachers' perceptions of the levels of their educational competencies based on their gender and academic qualifications. The findings showed that the male teachers had higher levels of competencies than female teachers while "the teachers, who had graduate degrees, had higher levels of their perceived educational competencies compared to the teachers who had undergraduate degrees or academic degrees below the bachelor level" (Al-Tawel & AUa'afreh (2017, p. 231). Therefore, the study intends to explore any differences among the Bhutanese pre-service teachers.

This study intended to examine if the pre-service teachers' level of personal and professional competencies significantly differ in terms of their course, similar to the examination done by Chakraborty, Nandy, and Adhikari (2012) on Bachelor of Physical Education students in India. Their study results showed that attitudes toward HPE had positive increases over time when participants moved through higher level courses. However, whether this is similar to Bhutanese context or not is something that this study will reveal.

The differences in the level of participation in sports, in terms of gender, have been widely studied (Ansari, Khalil, Crone, & Stock, 2014; Magoc, Tomaka, Shamaley, & Bridges, 2016; Murcia, 2008).

These studies revealed that the attitude of men is higher compared to women in terms of participation in physical activities and sports. This study was also designed to explore if the situation is similar for Bhutanese students. Hence, this study addressed the following research questions.

Research Questions

- What are the levels of personal and professional competencies of the pre-service teachers to teach HPE programme?
- What is the level of self-efficacy beliefs of pre-service teachers to infuse Gross National Happiness values into teaching of HPE?
- Is there a difference in the level of pre-service student teachers' personal and professional competencies and SEB in terms of their course, level of year, gender, experiences in sports participation, and parents' background?

Methods and Materials

The purpose of this study was to explore the impact of the HPE programme on the pre-service teachers' personal and professional competencies and self-efficacy beliefs to infuse GNH values into HPE teaching. The study employed a quantitative approach with a self-administered survey (Cooksey & McDonald, 2011; Creswell, 2012). Census sampling in terms of pre-service teachers studying HPE programme (B.Ed Primary & Diploma in Physical Education and Sports Coaching) was employed. Permission to conduct the survey was obtained from the participants and concerned tutors and administered by the lead researcher. Prior to the survey, the purpose of the study and the process for responding to each of the items in the survey to avoid any confusion were explained to all the participants. A total of 202 (79.2% response rate) pre-service teachers responded to the survey out of 255 questionnaires distributed (demographic details are provided in Table 1).

The survey questionnaire was comprised of 49 items: the first 8 were related to demographics while the others used a 5-point Likert type items ranging from Very Ineffective (1), Ineffective (2), Neither Effective nor Ineffective (3), Effective (4), and Very Effective (5), measuring five different themes (personal competency, professional competency, pedagogical knowledge, assessment, and SEB). These items were researcher-designed with the help of literature except for the SEB items which were borrowed from Sherab (2017) and used for measuring teacher SEB for educating for the Gross National Happiness programme. The respondents also had the opportunity to share any other opinions and comments on the HPE programme under an 'any other comments' section.

Data Analysis and Findings

After entering the data from the questionnaire into SPSS (v23) database, a thorough screening process was undertaken to confirm that the data were entered correctly and to understand the distributive analysis of the items. A few wrong entries were sorted out after crosschecking with the original responses in the questionnaire. Items showed no substantive non-normality in terms of values. Cases of missing values were observed to be minimal and without any patterns.

Principal Component Analysis (PCA) was conducted to identify if there were any subsets of items measuring a common sub-construct for each of the five measurement scales. Kaiser-Meyer-Olkin

measures of sampling adequacy and Bartlett’s Test of Sphericity indicated suitability of items for component analysis (Manning & Munro, 2007). Principal Component Analysis produced only one component for all the themes except for the pedagogical knowledge which produced two components. However, there were four items which loaded on both the components which were ultimately deleted from further analysis. Cronbach’s alpha reliability values for all the five scales were good and excellent ($p > .86$).

The presentation and analysis of data are grouped into three categories: 1) demographic information; 2) pre-service teacher’s level of personal; and 3) professional competencies, and self-efficacy beliefs to infuse GNH values in teaching HPE. MANOVA analyses to compare pre-service teachers’ personal and professional competencies, and self-efficacy beliefs to infuse GNH values in teaching HPE in terms of their course/year of study, gender, and parents’ qualification.

Demographic Information

A total of 202 pre-service teachers (B.Ed Primary & Diploma in Physical Education and Sports Coaching) responded to the survey (see Table 1).

As a part of the demographic information, respondents were also asked to rate their participation in games and sports, interest in teaching HPE, and motivation level to teach HPE. Findings showed that male (42.1%) pre-service teachers participated in games and sports more often in comparison to their female (27.6%) counterparts. In terms of their interest, 85.2% of the male respondents were willing to teach HPE as compared to 70.4% of the female respondents. Likewise, 50% of the male respondents were highly motivated to teach HPE compared to only 31.4% of the female respondents.

Table 1
Demographic characteristics

Item	Category	n	Percent
Course / Year & Section	B.Ed (HPE 402)	111	55
	B.Ed (HPE 201)	48	23.8
	Diploma 1	22	10.9
	Diploma 2	21	10.4
Gender	Male	95	47
	Female	107	53
Father’s qualification	Primary Education	32	15.8
	Secondary Education	24	11.9
	College/University	11	5.4
	No education	132	65.3
Mother’s qualification	Primary Education	23	11.4
	Secondary Education	6	3.0
	College/University	4	2.0
	No education	169	83.7

Level of personal and professional competencies, and SEB of the pre-service teachers developed through HPE programme

To understand the overall level of impact of HPE programme on pre-service teacher's personal and professional competencies and SEB in infusing GNH values in teaching HPE, the scores for each item under each of the five themes (theme 1= 8 items; theme 2= 10 items; theme 3= 7 items; theme 4= 5 items; and theme 5= 6 items) were aggregated to compute a mean score for each theme (see Table 2).

Table 2
Overall mean and standard deviations of the five components

Component	N	M	SD
Personal Competency	202	4.23	.52
Professional Competency	202	4.32	.48
Pedagogical Knowledge	202	4.39	.53
Assessment	202	4.10	.58
Self-Efficacy Beliefs	202	4.28	.58

As shown in Table 2 above, all the themes scored a mean between 4.10 and 4.39; all on the higher side.

The two themes that showed the highest means were pre-service teachers' level of impact on their pedagogical knowledge (M= 4.39; SD= .53) and professional competency (M= 4.32; SD= .48). Such findings suggest that these pre-service teachers are able to develop their pedagogical knowledge by: 1) providing opportunity for maximum practice and limit teacher talk; 2) encouraging children to accept peers with special needs; 3) effectively organising space, equipment, and students for the HPE class; 4) providing adequate equipment that allows all children to be active at the same time (e.g., one ball per child); 5) improvising equipment to allow all children to be active; 6) planning practice opportunities that are structured for maximum participation; 7) structuring the class so that learning occurs while students are being physically active; 8) using physical activity as means of learning not as punishment 9) using skills learnt to participate in physical activity outside of the HPE class; 10) emphasising on teaching about the importance of cleanliness; and 11) help children acquire healthy eating habits.

Pre-service teachers have been able to enhance their professional competency by: 1) acquiring skills that allow active participation of all children through developmentally appropriate activities; 2) valuing HPE as a holistic approach to help children create a positive outcome for life; 3) acquiring motor skills to enhance the overall development of every child; 4) develop physical activities as per the national standards for HPE programme; 5) acquire instructional strategies to design activities related to motor skills; 6) designing fitness education that helps children maintain their physical well-being; 7) modifying physical activities to include children with special needs; 8) encouraging children develop healthy lifestyle; 9) acquiring knowledge on food and nutrition; 10) designing a variety of assessment tools to monitor and reinforce student learning; 11) acquiring skills and instructional strategies to maximise student participation for HPE lessons to adopt and value healthy and active lifestyle.

However, relatively speaking, the pre-service teachers' level of impact towards assessment showed the lowest mean with highest standard deviation (M= 4.10; SD= .58). This is an indication that pre-service teachers who participated in this research comparatively showed lesser impact towards assessment through HPE programme offered because they seemed to have some reservation that the programme did not help them to validate assessment as an on-going, vital part of HPE programme, adopt relevant record and report

the most appropriate evidence-based practices that measure student achievement, align student assessment with national HPE standards and written HPE curriculum, evaluate the effectiveness of the HPE programme periodically with concerned stakeholders to support quality HPE, and grade directly to the student learning objectives identified in written HPE curriculum.

Student perceptions of the level of personal and professional competencies and their SEB compared on four demographic characteristics

A total of five one-way MANOVAs were conducted between five competency components: 1) personal competency; 2) professional competency; 3) pedagogical knowledge; 4) assessment; and 5) self-efficacy beliefs as dependent variables and four demographic characteristics (course, gender, father’s qualification and mother’s qualification) as independent variables to explore if there were any statistically significant differences in the five dependent variables.

Inspection of multivariate Box’s M Test did not show any significant differences in terms of gender, course, father’s and mother’s qualification indicating that homogeneity of covariance matrices of all dependent variables was equal across groups. Levene’s tests for each of the depended variables did not show any significance indicating that homogeneity of variances was equal across groups.

Results of Multivariate F-tests

The overall multivariate F-tests showed significant difference for only course/year of study (Wilk’s Lambda = .791, MV F [15, 535] = 3.175, p<.001, partial η² = .075). Multivariate differences on the other independent variables (gender, father’s qualification and mother’s qualification) were not significant.

Results of Univariate F-tests

Following the significant multivariate F-tests for course/year of study, univariate F-tests were examined to identify which of the five competency components contributed to the significance. For independent variables with more than two categories, post hoc Tukey multiple comparisons tests were performed to identify which categories were significantly different.

According to the univariate F-tests, Course showed statistically significant differences (p<.001) on three competency components (personal, professional and pedagogical) and marginal significance on self-efficacy belief component (see Table 3).

Table 3
Tests of Between-Subjects Effects for components with significant results

MANOVA						Partial Eta Squared
Effect	Dependent Variable	df	Error	F	Sig.	
Course/Year	Personal competency	3	49.1	6.426	<.001	.089
	Professional competency	3	41.1	8.778	<.001	.117
	Pedagogical competency	3	48.5	9.876	<.001	.130
	Self-efficacy beliefs	3	63.9	4.693	=.003	.066

The examination of effect size as measured by Partial Eta Squared generally explained small portion of variability of scores for course/year (see Table 3). Consultation of post hoc Tukey multiple comparisons

tests (see Table 4) showed the following:

- The mean personal competency of HPE 402 (M=4.27; SD=.48) and the Diploma first year (M=4.52; SD= .34) pre-service teachers were marginally and significantly higher than the mean for HPE 201 (M=3.99; SD= .61) pre-service teachers respectively.
- The mean professional competency of HPE 402 (M=4.42; SD= .42) and Diploma first year (M=4.45; SD= .51) pre-service teachers were significantly higher and marginally higher than the mean for HPE 201 (M=4.03; SD=.57) pre-service teachers respectively.
- The mean pedagogical competency of HPE 402 (M=4.50; SD=.44) and Diploma first year (M=4.52; SD= .37) were significantly higher than the mean for HPE 201 (M=4.06; SD=.63) pre-service teachers.
- The mean SEB of HPE 402 (M=4.36; SD=.50) was marginally higher than the mean for HPE 201 (M=4.02; SD=.72).

Table 4
Tukey HSD multiple comparisons tests

Dependent Variable	(I) Course	(J) course	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Personal competency	HPE 402	HPE 201	=.008	.05	.50
	HPE 201	Diploma 1	<.001	-.86	-.19
Professional competency	HPE 402	HPE 201	<.001	.18	.59
	HPE 201	Diploma 1	<.001	-.72	-.12
Pedagogical competency	HPE 402	HPE 201	<.001	.23	.67
	HPE 201	Diploma 1	=.002	.79	-.13
Self-efficacy beliefs	HPE 402	HPE 201	=.004	.08	.59

Discussion and Conclusion

Teachers should possess high levels of teaching competencies (Al-Tawel & AlJa’afreh, 2017; Awad & Eid, 2013; Fitzpatrick & Russel, 2013; Kovac, Sloan, & Starc, 2008). Competencies can be defined as “the positive combination of knowledge, ability and willingness in the availability of the individual to cope successfully and responsibly with changing situations” (Weinert, 2001, p. 20). Teachers are responsible for providing students with knowledge, skills and experiences within and outside the classroom. Therefore, preparing teachers to meet the demands and requirements of the teaching profession and personal competency are significant in all education systems.

Three major conclusions are drawn from this study. The first that the pre-service teachers’ participation in games and sports and their motivation level to teach HPE were not robust. Such findings suggest amongst others that these pre-service teachers are likely to lead an inactive lifestyle and also not teach HPE after they graduate. This finding substantiates the findings of the recent tracer study on the four-year B.Ed primary programme that most of the B.Ed primary graduates have not been teaching HPE in the schools (Sherab, Bidha, Khorlo, Wangchuk, & Rinzin, 2018).

The second is that the HPE programme in the college has a positive impact in developing and enhancing pre-service teachers’ personal (personal fitness & wellness) and professional (content &

pedagogy) competencies and self-efficacy beliefs in infusing GNH values into teaching HPE. Their level of personal and professional competencies and SEB were significantly higher as they progressed to senior years. The findings from this study corroborates the earlier findings of Chakraborty, Nandy, and Adhikari (2012) that the attitude scores of the Indian B.Ed students increased with the increase in their course level. However, no significant differences have been found in terms of gender and parental education. These student teachers hold a strong belief in their role in designing and implementing meaningful teaching tasks that may affect student learning. This study suggests that the HPE programme can provide pre-service teachers with powerful personal understanding of becoming an HPE teacher. It is also clear that learning to teach HPE is a process, which develops over time and is affected by the pre-service teachers' experiences and beliefs which teacher education programmes should nurture.

A third conclusion from the study is that teacher education programmes need to be strengthened to train pre-service teachers to implement quality HPE lessons. Findings from this study showed that pre-service teachers' competencies could be enhanced to improve assessment and evaluation in HPE. While more research into these domains is required, existing programmes require review to provide pre-service teachers with firm beliefs about good teaching practices; developing reflective inquiry courses to provide them with a strong theoretical knowledge base about effective HPE teaching; and using reflective strategies that attempt to identify, challenge, and transform trainees' beliefs with their personal and professional competencies.

The findings from this study are subject to certain limitations. More research needs to be carried out to have an in-depth understanding of why teacher graduates are not motivated as much as they might be to teach HPE, and the kind of lifestyle they are leading as full-fledged teachers in relation to physical activity and health and wellbeing. Without in-depth qualitative information to fully understand the situation of the existing HPE programme, this study remains incomplete. However, it does provide some initial insights into the programme. Overall, the findings from this study draw attention of the relevant stakeholders. Today's school and college students are the future adult citizens. If school and college students lead healthy and active lifestyle, they are more likely to grow into more active, healthy, and productive adults. Therefore, a strong HPE programme is an investment for the future of the nation. It is crucial that Bhutanese children have the opportunity to experience quality HPE programme.

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The Challenge of Teaching Food and Health in the First Four Years of Primary School in Norway

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Abstract

The subject food and health will potentially help students gain insight into critically choosing and reflecting on food and meals and also help students acquire skills in food preparation. Good food choices and food behavior are established in childhood and adolescence and may have significant impact on food choices in adulthood. Less than half of teachers teaching food and health have formal education in the subject. The Knowledge Promotion Reform lists competence aims in all subjects. Unfortunately, food and health is often given low priority in grades 1-4. This study was conducted in 2018 to gain insight into how the subject was taught in grades 1-4. The aim was to reveal whether food and health is taught and by whom as well as what challenges the teachers have in teaching the subject. A proposal for the development of an in-service training course is also considered. A total of 24 interviews were conducted at 12 randomly selected schools in Norway. The study showed the random nature of who teaches the subject and how the teaching in food and health is carried out.

Keywords: Food and health, home economics, teaching challenges, primary school

Introduction

Knowledge about food and meals can promote healthy eating habits and may help to reduce health inequalities in the population. Education and education levels are generally the most important single factor for the health of a population (Baker, Leon Greenaway, Collins & Movit, 2011). Recent health challenges such as overweight and mental disorders show the importance of children and young people learning to care for their own health and gaining knowledge and skills related to food and diet. Both globally and nationally, malnutrition and unbalanced diets are major contributors to health loss and premature death (Norwegian Institute of Public Health, 2018; Afshin et al., 2019). The research by Mikkilä, Räsänen, Raitakari, Pietinen and Viikari (2005) suggested that food behavior and concrete food choices are established already in childhood or adolescence and may significantly track into adulthood

which implies that nutrition education should be started early.

The practical and aesthetic subjects of music, art, physical education, and food and health are resources to develop knowledge, skills, and attitudes, both cognitive and physical. These subjects contribute in a unique way in the school. The ambition of the Norwegian government is to increase the competence in, and status of, the practical and aesthetic subjects in kindergarten and school as well as in teacher training (Kunnskapsdepartementet, 2019).

The subject of food and health was previously called *heimkunnskap* (home knowledge) in Norway, in other countries it is known as home economics or domestic science. The change of the subject's name to food and health provides a stronger emphasis of what is important: the connection between the food we eat and our health. It is no longer the economics of the home or homemaking that is important. The subject helps the students gain insight into how to critically choose and reflect on food and meals as well as develop skills in food preparation. This should provide them with knowledge to deal with practical, social, and personal aspects of life.

In Norway, a ten-year basic education is compulsory. Children start school when they are six years old. Subjects, syllabus, and number of hours in each area are adopted for the whole country by the government. In food and health, the total number of teaching hours is 197, where 114 hours are in primary school, level 1-7, and 83 are in lower secondary school, level 8-10. Within the framework, each school can decide how many hours will be taught at what levels in primary and lower secondary school (The Norwegian Directorate for Education and Training, 2006).

The curriculum for the compulsory school in Norway - *The Knowledge Promotion Reform* - lists competence aims in all subjects and the students are expected to reach these. In food and health there are aims after grade 4, 7 and 10, but the subject has often been given low priority in grades 1-4 (Holthe & Wergedahl, 2013). Food and health is divided into three main subject areas: food and lifestyle, food and consumption and food and culture. Each area has several competency objectives. The area of food and lifestyle teaches the students to develop skills and motivation for a healthy lifestyle and to reflect upon the connection between food and health. In food and consumption, the students learn about food production and labelling and how to be critical and responsible consumers. Food and culture deals with food and meals and different customs in connection to food and meals, both in Norway and abroad. After Grade 4 there are a total of 12 competency objectives. They comprise areas such as preparing safe food, practicing good hygiene, taste experiences and meal customs in different countries (The Norwegian Directorate for Education and Training, 2006). All students are supposed to have reached the 12 competency objectives by the end of Grade 4.

According to a report from the Organisation for Economic Cooperation and Development (OECD, 2005), teachers and teaching are the most important influences on student learning. In particular, the broad consensus in their research is that "teacher quality" is the single most important school variable influencing student achievement. The research also indicates that there is a positive relationship between teacher qualifications and teacher experience and student performance.

The Norwegian Government's White paper 19 (2014-2019) states that the subject is important for

all children, regardless of social background and competence. Knowledge and skills children and young people acquire through food and health in primary school can form the basis for a healthy diet and healthy cooking habits for the rest of their lives (Helse- og omsorgsdepartementet, 2015). In view of this, it is of great concern that less than half (41%) of the teachers who are teaching food and health in Norway have formal education in the subject. In grades 1-4 only 22% have any formal education in food and health (Perlic, 2019).

Food and health is not a compulsory subject in Norwegian teacher education, and not all teacher education institutions offer food and health as an elective course. To be qualified as a teacher in Norway, candidates must have teacher education qualifications. To be able to teach Norwegian, mathematics and English in primary school, special qualifications are needed. For all other subjects there are no specific qualifications (The Norwegian Directorate for Education and Training, 2015). This implies that anyone who has finished teacher education requirements is allowed to teach food and health.

Unfortunately, both teacher education institutions and teacher students regard the practical aesthetic subjects as less important. Food and health is a practical subject where organization of the teaching is very important. The students are not sitting at their desks but are working with sharp knives and hot equipment. Teachers need to possess theoretical, practical, and didactical knowledge and be able to teach cooking techniques, sensory science, consumer science, taste development, nutrition recommendations and food-based dietary guidelines as well as sustainable development in food choice and cooking. In addition, teachers must also have knowledge about allergies, intolerances, and other dietary restrictions.

In his research, Drummond (2010) found that using nutrition education and cooking classes in primary schools encouraged healthy eating. Knowledge about healthy eating, is one of the competency objectives of food and health after Grade 4 in Norway.

The Norwegian Association for Teachers in Food and Health applied to the Gjensidige Foundation for support to carry out a study to gain insight into how food and health was organized and taught in grades 1-4. The aim of the study was to reveal who teaches the content, how the teaching is organized and what challenges the teachers have when teaching. The findings from this study were used to develop an in-service training course for teachers primarily for teachers without formal education in food and health teaching in grades 1-4. The Gjensidige Foundation is a financial foundation that has a non-profit objective to promote health and safety through charitable donations. Such donations are made in accordance with the Foundation's fundamental values: Preventive – Developing – Activity creating – Society building (Gjensidigestiftelsen, nd.).

This paper will present the challenges the teachers faced in teaching food and health for grades 1-4, and what kind of teaching materials and competence enhancement the teachers want and need in order to teach the subject adequately.

Method

A qualitative approach was chosen for this research. According to Lune and Berg (2017) qualitative research “refers to the meanings, concepts definitions, characteristics, metaphors, symbols, and

description of things. In contrast, quantitative research refers to counts and measures of things” (p.12). By using a qualitative method with structured interviews, it is possible to get a better understanding of the challenges of teaching food and health in grades 1-4 than by using a questionnaire.

To obtain a representative selection, five universities covering all of Norway were contacted and asked to supply a list of primary schools used for teacher students’ practice. The lists were numbered and two schools from each list were chosen using Research Randomizer (Urbaniak & Plous, 2018). The principals at the chosen schools were contacted and asked if it would be possible to interview the teachers in food and health on level 1-4 and one from the management. If the schools declined, a new school was chosen. This was done until a total of 12 schools evenly distributed over the whole country had agreed to participate.

The project was provided to the Norwegian Centre for Research Data (NSD). The Norwegian Data Inspectorate has chosen NSD as its partner for implementation of the statutory data privacy requirements in the research community (Ministry of Education and Research, nd). No sensitive personal data were collected, and the answers were given anonymously.

The schools were visited by one or two members of the research team in the spring and autumn 2018. A total of 24 interviews, 15 with teachers and nine with the management, were conducted. Five of the interviews with the teachers were done in focus groups. Each interview lasted 30 to 60 minutes. The interviews were recorded and transcribed.

A structured interview guide consisting of four parts was developed prior to conducting the interviews. The first part consisted of background information about the teachers’ education, competence, and experience. The next part dealt with the framework in food and health at the school, e.g., number of lessons, number of students, organization of the teaching in a classroom or in a home economics room. The third part of the interview asked about the teaching in food and health, e.g., contents, materials, cooperation with other subjects and with the local community.

The questions in the fourth part were dealing with challenges in teaching food and health in grades 1-4 and the teachers’ need for skills development. This paper will focus on the four main questions we asked the teachers:

1. What do you consider as challenging in implementing teaching in food and health in grades 1-4? (practical challenges, organizational challenges, challenges in relation to own competence/knowledge, related to the competence goals in the subject and other things)
2. Is there anything you need in order to provide good education in food and health for grades 1-4 at your school in the future? (equipment, budget, teaching hours, collaboration with other subjects)
3. According to your assessment, is the quality of the teaching materials in food and health for grades 1-4 good enough? Do you have specific wishes for teaching materials?
4. If you were given the opportunity to attend a training course in food and health, what would you prefer that such a course should contain?

The qualitative data collected were interpreted by the authors by categorizing the answers according to the topics listed.

Results and discussion

The answers from the four questions in the fourth part of the interview guide were divided into three topics: challenges in teaching food and health in grades 1-4; what is needed to provide good teaching in food and health and what content the teachers wanted in a competence course. The answers to questions two and three were merged since there is little teaching material on level 1-4, and most of the teachers therefore had no comments as they did not use any readymade teaching materials.

Challenges in teaching food and health

Answering the question of what the teachers experienced as practical challenges in the teaching of food and health in grades 1-4, all teachers focused on five areas: teaching kitchens, students, teaching, framework factors and competence.

There is often only one kitchen in each school, and the oldest students are given priority over the youngest. In grades 1-4, therefore, few teachers have access to the school's kitchen. There is usually not room for a whole class in the kitchen, and without the possibility to divide the class into two groups, it is difficult to use the kitchen even though it might be available. The benches are often too high for younger students, and they also cannot reach the overhead cupboards. The access of appropriately equipped facilities and kitchen units have previously been interlinked to influencing students' learning opportunities (Lindblom, Arreman, & Hörnell, 2013) The kitchen may be used by many different groups and this creates challenges such as an untidy kitchen and broken or lost equipment. Many mentioned that it was necessary for someone to have the responsibility for the kitchen and to purchase and replace equipment. This is in line with findings from Höijer, Fjellström and Hjalmeskog (2013) who found that replacing broken equipment was simply not a priority.

Many teachers found it difficult to teach young children to prepare food. The teachers were not prepared for the fact that students lacked both background knowledge and experience. As one teacher said, "Some have never peeled a carrot, and some have not even eaten one." Several students did not know how to set a table, so the teachers really needed to start from scratch. In addition, the teachers found it difficult being the only adult present to guide and help a large group of children. They expressed that it was difficult to organize the teaching so that all students benefited from the work in the kitchen.

Teachers of minority language students faced linguistic challenges when students did not always understand what to do or how to cooperate with others. They needed help and support to read recipes, and they often had other dietary rules.

The teachers reported increasing number of students with allergies and other diagnoses to deal with. This presented challenges when cooking, as substitution food items did not necessarily work well. Another challenge mentioned was students who refused to taste certain kinds of food. For example, many had not eaten vegetables at home. Some teachers would have liked to use more of what is locally available and use the school garden if they have one. Drummond (2010) found that using nutrition education and cooking classes in primary schools encouraged healthy eating and that eating together may encourage children to try new foods.

Many teachers called for better framework factors in food and health. The teachers found that the curriculum is verbose and not explicit enough. They claimed that it was a disadvantage that the subject did not have its own scheduled lectures on the timetable, and that grades 1-4 did not have fixed days in the school kitchen. Any lectures in the kitchen were hectic, and there was not enough time to learn and practice good routines. The earmarked lectures for food and health often disappeared in theme teaching or in interdisciplinary teaching programs. Several teachers found that the practical aesthetic subjects were not given priority in their school. It was hard to get everything “squeezed” into a busy school day. In addition, teachers told about poor finances for purchasing food and equipment. When given a probing question, some teachers said they did not have a fixed budget limit. In the new strategy plan for practical and aesthetic subjects, the government wants to strengthen these subjects in school and improve the recruitment of teachers with expertise in these subjects as well (Kunnskapsdepartementet, 2019).

Of the 20 teachers interviewed, 15 teachers lacked formal qualifications in food and health. Some of them even expressed that they did not want to teach the subject. This is disturbing in view of the quality of teaching in the subject that is intended to promote the students' food competence and healthy eating habits. Perlic (2019) found that 78% of teachers in food and health in grades 1-4 did not have formal qualifications. In our sample, we found that 75% did not have any education in food and health. The reason for the small positive difference found in our research may be because these schools were used for teacher students' practice.

Having enough expertise in a subject is experienced very differently by the teachers interviewed. A few saw all the challenges in the subject and expressed that they lacked the competence to meet these. One teacher said that she should at least have been given an introduction to the subject when she was told that she should teach food and health. Other teachers thought that they had enough expertise. One teacher said: "My skills for grades 1-4 are sufficient. It is enough with the everyday competence we have. In the 6th grade you probably must have more knowledge about nutritional content and various food cultures and such, but that is something we can figure out. It is not that challenging at this level." With this comment, she stressed that her daily life skills are enough. Or as Lindblom, Arreman and Hörnell (2013) pointed out, food and health is sometimes seen as a subject anyone with their own household is qualified to teach as it only teaches everyday knowledge. This shows a lack of understanding for the subject's syllabus and the complex goals of learning expected to be achieved.

Requirements for good teaching in food and health

The second question asked the teachers what is needed in order to be able to provide a good education in food and health for grades 1-4 at their school in the future. In their replies, the teachers focused on five areas: teacher competence, kitchen responsibility, time, finances, and teaching materials.

Formal education, number of working years, subject knowledge, teaching tradition and how they interpret the syllabus are all important factors when teachers make choices for the educational content (Lange, Goranzon, & Marklinder, 2014; Molin, 2006). The choices made will have an impact on the students' learning process (Molin, 2006). Many teachers wanted more competence in food and health, and they said that it is difficult to get permission to take competence enhancement courses in this subject. Few

courses are offered, and the schools did not prioritise to send teachers to these courses. The reason for this is two-fold, the cost of substitute teachers and other subjects such as Norwegian, mathematics and English are given priority. At the same time, some of the teachers who did not have education in the subject, did not see the need for further education. One of them replied that she had no education in the subject, and that a course in food and health was not the first thing she had hoped for, as there were other things, she felt she needed more. She continued: "But clearly, if one is to teach food and health, it might have been okay to have a little more competence in it. And there is a need to read up a bit, both on competence goals, and maybe make some plans." A recent study in California found 56% of teachers, who did not engage in nutrition instruction, reported that lack of nutrition knowledge was a barrier to teaching nutrition (Jones & Zidenberg-Cherr, 2015).

Lack of time was mentioned by most teachers interviewed, both the total number of lessons, but also more time for theory and interdisciplinary work. The number of hours is decided by the Ministry of Education (The Norwegian Directorate for Education and Training, 2006). This issue is difficult to change since most school subjects want more teaching hours. With the limited time available, collaboration with other school subject could be a way to increase the possibilities for students to reach learning goals (Lindblom et al., 2013). There was also a desire for more resources to be able to divide the class. With smaller groups it would be easier to use the kitchen.

The teachers also reported wanting a better budget for buying teaching materials. This would enable them to make a proper dinner with fish or meat. They, likewise, lacked equipment such as rolling pins and worktables with necessary equipment. Sometimes they received extra funding, but as nobody had been given the responsibility for purchasing and time was a limiting factor, no purchases were made. They stated that sharing of lecture plans is common in other subjects, but not in food and health, where they were left to their own devices. This coincides with Holthe and Wergedahl (2013) who found that food and health teachers in primary schools have challenges related to the availability of equipment and raw materials. Several lacked plans and ways they could tie together food and health with other subjects. Similarly, Holthe, Hallås, Styve and Vindenes (2013) found that the two primary schools in their study did not have local curricula in the practical aesthetic subjects.

All of the teachers, except one, wanted a textbook or a booklet for grades 1-4 and a resource book for the teachers. Some teachers told that they had used textbooks designed for 6th grade students in the absence of other books. The schools have Matopedia (an online textbook for 5th -10th grade) (Opplysningskontoret for egg og kjøtt, 2020), but must supplement with other teaching materials such as SmartPÅmat (an online textbook for 5th -7th grade) (Nasjonalforeningen for folkehelse, nd.).

Some also used video clips they found online. Interestingly, a recent study among Californian teachers who reported nutrition concepts, 29% of teachers reported using internet websites frequently and 41% reported using websites sometimes (Jones & Zidenberg-Cherr, 2015). Several teachers said that the quality of what is presented on-line is very poor. They wanted educational programs and help in finding good websites they could use in their teaching. There are plenty of recipes online, and the teachers and students googled to find what they needed, but this is usually not made for young children. The teachers

wanted suitable teaching materials in food and health for grades 1-4, and websites that could be used on tablets. Some teachers had so little experience with the subject that they said they did not have the basis to have an opinion about teaching materials. One teacher remarked: “It is a forgotten subject.”

Preferred content in a competence enhancement course

The teachers wanted a competence enhancement course in food and health for grades 1-4. This course should focus on how to teach the subject, relevant theory they can use in teaching and time for sharing of experience. There was a wish for shorter education courses rather than longer, further education courses.

Many teachers would like to learn more about how to set up and organize food and health education for the younger students. The teachers had many questions: How could they make things easier? What should they start with? How to teach children to choose healthy? How to use nearby nature? How to teach both theory and practical cooking? What can one do on a tight budget? How to motivate children? The teachers wanted practical tips and inspiration for what they could do, and how to incorporate this in their own teaching. They felt the need to learn more about healthy dishes that are suitable for children, such as fish and tempting packed lunches, and how to use foods from the surroundings.

The teachers asked for suggestions on how to present theory for the younger students. The following is a list of suggestions on theory topics the teachers wanted the competence enhancement course to contain:

- interdisciplinary teaching combining food and health with other subjects
- how to guide and evaluate students
- alternative recipes for students with allergies and intolerances
- basic and simple nutrition to understand dietary guidelines
- general knowledge about food
- how should we relate to genetically modified food?
- who should we listen to when there are many players in the media?
- annual plans in food and health.

The course should have ample time for sharing of experience.

Conclusion and further research

Our study showed that it was quite random who taught and how the teaching in food and health was organized and carried out at each school. It also revealed that some teachers, without education in food and health, lacked the ability to see their own lack of competence. There is a great need for a resource book for the teachers and possibly a textbook for the students. It is obvious from the study that the subject is not given priority and funding by most managements and teachers.

The teachers want to receive competence enhancement in general nutrition and knowledge about food, and they need inspiration for practical and theoretical teaching in grades 1-4. Furthermore, they want to know more about interdisciplinary teaching combining food and health with other subjects, alternative recipes for students with allergies and intolerances.

This study supports previous findings that a majority of teachers teaching food and health on level 1-4, have no education in the subject. In Norway, the class teachers teach almost all the subjects in the

lower grades, and in view of this, it is recommended that the subject must be integrated in the training of all teachers for primary school.

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Executive Function and Working Memory: Influencing Interprofessional Conversations and Collaborative Practices

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Abstract

Partnerships are dynamic, negotiated spaces encompassing community organizations and interprofessionals. Partnerships support young children and families as they transition from home to school. Interprofessionals create a culture for learning and accessible resources. Early childhood centers, public health and libraries develop collaborative partnerships with educators and families. Addressing oral language issues of toddlers and preschoolers, interprofessionals including an early childhood educator, teacher, speech and language pathologist, public librarian, and county manager identified the needs and strengths of young children in a rural community using informal data. Conceptualizing Bourdieu's habitus as the embodiment of cultural capital of daily lived experiences, interactive storybook reading in a playgroup are skills shared by interprofessionals and families while co-constructing knowledge. Exploring the executive function and working memory within a playgroup where language is socially constructed; familial literacy practices of storybook reading affected children's vocabulary development and phonological awareness through on-going modelling, support and dialogue between community organizations and families.

Introduction

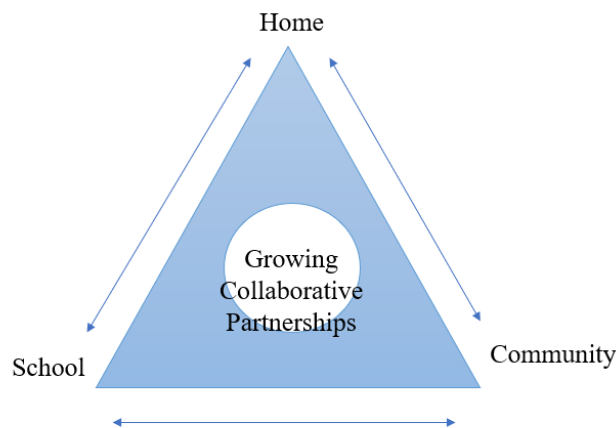
Confronting 21st-century issues of educating women, systemic poverty, and parent engagement requires an active global community of collaborative problem-solvers (OECD, 2009; Silva, 2009; Ontario Ministry of Education, 2014) and critical thinkers to guide and lead literacy development. Historically, mothers' role of early childhood education and care (Taisey Petrie & Holloway, 2006; MacLeod, 2008; Hegarty, 2016) is a complex, systemic issue of educating women and economically disadvantaged women working (Dahlberg, Moss & Pence, 2007) within early childhood education and care as a female intensive profession. Through inter-generational transference of modeling literate behaviours, teaching and learning are a partnership with family members and community organizations, including interprofessionals. Liaskos, et al. (2009) define interprofessionals as "learners who improve collaborative practices and quality of care through partnerships of negotiated spaces with dynamic flow challenging perceptions of strengths and needs awareness" (p. S43). This position paper posits interprofessionals in education, including early childhood educators (ECEs), teachers, public health and libraries, and speech and language pathologists (SLP) as partners supporting family literacy practices. Embodying skills, dispositions and knowledgeable professionals in the Early Childhood Education and Care (ECEC) field, commitment to access community resources highlights inter-professionals conceptualizing learning processes to guide

their practice. This position paper focuses on the skills, knowledge and attitudes of interprofessionals' support of oral language development through resources, materials and texts with the following question: How might interprofessionals enhance oral language (vocabulary) and early literacy development through storybook reading for preschool-aged children?

Interprofessionals draw on professional reading and learning to refer to executive function and working memory research related to storybook (*Diamond, 2012; Garcia-Madruga et al. 2013; Garcia-Madruga, Gomez-Veiga, & Veia, 2016*) reading during discussions related to observations of children's interactions in a playgroup. Interprofessionals observed weekly interactions between mothers, materials and text in a playgroup located in a rural community. Recognizing connections between home, community and school as a triangle of literacy support (Figure 1), growing collaborative partnerships developed relationships with knowledgeable professionals to support family literacy practices modelled and shared within a rural playgroup.

Triangle of literacy support

Figure 1.



Literature Review

Partnerships in Rural Communities

The energy from the interprofessional group benefits those within the group as they extend their thinking and creativity to consider more than one perspective. However, partnerships may be described as “fragmented, bureaucratic, and inefficient” (Lanspery & Hughes, 2015, p. 38), responding narrowly to defined problems and fostering inaccessible, expensive, institutional partnerships rather than preventative results-oriented measures. The focus of government-funded community organizations was to address the transformation of accessibility and integration of programs and specialized services in municipalities; however, literacy resource centers were located in core areas with limited accessibility to rural family caregivers. Transportation in rural areas to community programs leaves caregivers with few options to connect in person, engage in co-learning, socialization, and possibly leading to isolation and fragmented services.

Government-funded programs mandated community outreach as a “comprehensive community initiatives (CCIs) as a means to understand the needs and strengths of individuals and their communities, to strengthen the capacity of the community to address those needs and strengths, and subsequently, to attend to the complex needs and strengths of children and youth” (Zaff, Donlan, Jones & Lin, 2015, p.1) with existing community organizations supporting the transitioning of children to Kindergarten. Interprofessionals support preschool to Kindergarten transitions. Government-funded community-based ECEs and SLPs, local public libraries, and county representation/management noticed preschoolers struggling with oral language and literacy development. Employing informal observation notes, attendance records at a community-based site and speech and language caseload numbers from community organizations, the interprofessional group developed a plan to support early literacy and oral language development of young children through an open playgroup. An accessible outreach program for caregivers focused on supporting oral language and early literacy development through playful interactions and a structured storytime one day per week at a local school for young children birth – preschool age.

Language Influenced by Social Constructs

Language is socially constructed by one’s culture and daily interactions (Liu & Matthews 2005) with others. Branscombe, Burchman, Castle and Surbeck (2014) contend social constructivism is a theory of the construction and co-construction of knowledge rather than repetitive actions. “Each individual uses the knowledge she has already constructed and relates new information to that knowledge. In the process, she creates knowledge for herself” (Branscombe et al., 2014, p. 9) through experiences. Conceptualizing knowledge building as created verses found, Bredo (2000) implies choice and decision-making processes influence knowledge building. In Western cultures, storybook reading is conceptualized and romanticized as a time for positive social interactions between children and adults. Storybook reading connections to developmental phases in a variety of contexts, including home, library and preschool, postulates positive relationships through co-learning. According to Vygotsky (1981), knowledge is transformed into action through external influences as an assimilated social construct of meaningful experiences between adults and children. According to Power (1999), daily activities such as bedtime stories are influenced by power, dominant relationships and social structures. Western culture situates parents in a dominant decision-making role, including family literacy practices, e.g., reading to their children at bedtime. Children gain competence through scaffolding or intentional supports, leading to successful task completion (Powell & Kalina, 2009), influenced by supportive and meaningful social structures and methods. The zone of proximal development described by Vygotsky (1962) as approximations of language can be modelled through storybook reading.

Inter-professionals contribute to awareness, modelling oral language as social interactions in a play environment and through reading storybooks. Trehearne, Hemming Healy, Catalini-Williams, and Moore (2000) in their resource book for educators, *Kindergarten Teacher’s Resource Book* defines read-aloud in a comprehensive literacy program as

“[r]eading aloud brings the Kindergarten class together to listen, think about, and share books, poems, and charts. Students watch and hear a fluent reader. Reading aloud to students builds on

the secure setting of home reading” (p. 256).

Children in preschool settings, including playgroups, benefit from supportive and meaningful social structures to acquire language and literacy skills.

Young children develop oral language and early literacy skills supported by professional lenses afforded “multiple facets of the phenomenon to be revealed and understood” (Baxter & Jack, 2008, p. 544) as interprofessionals review the narratives of parents and children participating in a playgroup. Early Childhood Educators selected text reflective of their community and experiences while engaging in reading stories to children. Reading storybooks with children presents opportunities to scaffold learning through questioning, listening and exploring the strengths of children and families. The ECE in this project provided materials for the children to explore and extend their learning with the support of interprofessionals and parents attending the weekly playgroup sessions. Interprofessionals engage parents in conversations about their experiences at home and their connections to the playgroup setting. The ECE and teacher routinely dialogued informally about learning and reading strategies used in the playgroup setting based on professional learning and experiences with children and families.

Pragmatic Knowledge

Children use language for a variety of purposes, including storytelling, communicating needs, role play and attention-seeking in social settings. Pragmatic knowledge is the social context or social rules of oral language to make meaning and build relationships, according to Owens (2008), whereby children are influenced by settings or social structures and frequency of interactions. Adults and children in social situations are engaged in reciprocal exchanges. Social conditions include “acknowledging a child’s feelings, asking for a child’s opinion, attending to a child’s extracurricular activities, displaying vocal variety, and attentively listening when a child is speaking” (Munz & Wilson, 2017, p. 669) encompasses social rules.

Morris (1938) defined semantics as “the relation of signs to the objects to which the signs are applicable” (p. 6) in recognition of ‘the word’ as a word freely used in everyday exchanges between people. Semantics or meaning of phrases and terms linked to context supports understanding of how young children develop language. In *Historical Cognitive Linguistics* edited by Winters, Tissari and Allan (2010), Geeraerts (2010), described this relationship as a ‘connection to background knowledge’ and contends,

“[t]he mental status of lexical meanings links up directly with the overall function of thinking, i.e. with the function of cognition as a reflection and reconstruction of experience. Language, one could say, has to do with categorization: it stores cognitive categories with which human beings make sense of the world” (p. 335).

Related experiences make meaning of social rules and relationships.

Language requires words in a particular order for meaning to be derived. McKoon and Ratcliff (2003) contend syntactical processes of nouns, verbs etc. are put together through language structures. Still, the researchers (McKoon & Ratcliff, 2003) “propose a new view of language comprehension that we label *meaning through syntax* (MTS). The goal of MTS is semantic: to understand how syntactic

structures determined by meaning and how they express meaning” (p. 490) through structures. According to Willingham (2009), within the context of meaning-making, students question, reflect, review, connect to background knowledge and synthesize information on a deeper, competent level. Deriving meaning from syntax and semantics through background knowledge, questioning and recognizing story structures developed with children’s funds of knowledge (Gonzalez, Moll & Armati, 2005) are contributors to learning.

Sterling Honig (2008) contends morphemes may be culturally bound and reflective of one’s community. “Black English”, according to Sterling Honig (2008, p. 20), is described as the words and their meanings children need to comprehend text through a developmental continuum. Similar to dialects influenced by the socio-cultural and geographic isolation of members communicating within a group. According to Otto (2014), a specific language develops and is reflective of one’s culture.

Scaffolded instruction provides supports for using morphemes more proficiently. Perkins and Freeman (1975) investigated the instructional response of morphemes and found the developmental acquisition of morphemes did not change, but the overall performance may be enhanced. Speciale, Ellis and Bywater (2004) propose an interplay between short term memory and phonological regularities as children acquire lexical knowledge supported by approximations and phoneme chunking.

From Bedtime Ritual to Preschool/Playgroup Environment: Exploring a Continuum

The role of interprofessionals functioning as a support system provides rich oral language experiences through playful interactions, interprofessionals recognize the role of scholarship and professional learning as they explore the role of working memory as a component of executive function within the context of a playgroup. More specifically, the planning of storybook reading opportunities for children and their families. Drawing on positive, past practices between home, local library and school, educator practices support language development through storybook reading as a time where adults and children come together to listen to a story. The continuum of this practice from one context to another supported an outreach proposal while bringing forward research literature supporting the growing needs and strengths of a community in transition. Birth to six years of age is cited as a critical phase (Piaget, 1970; McCain & Fraser Mustard, 1999) of human development. Cprek, Williams, Asaolu, Alexander and Vanderpool (2015), contend storybook reading is related to vocabulary size, phonemic awareness, book knowledge, and literacy attitudes. The interprofessionals outlined a storytime procedure to include a text representative of a diverse community, including culture, socioeconomic status, gender, sexuality and race. Children needed to see themselves in the text.

Storybook Reading: A Method of Reading with Young Children

A storybook was introduced using the following format: a picture walk describing the pictures in the book followed by the educators frontloading and promoting relevant vocabulary and sound-symbol/associations of words (phonology) to support children’s focused, growing interest and engagement. A comprehension strategy of prediction was employed to ask questions to assess comprehension (semantics) and connect background knowledge while labelling objects to associate relevant vocabulary, fluency and intonation in support of comprehension. The storybook was introduced

to children as it related to their world (pragmatics) and supported their questions and reiterations modelling correct English/school language syntax. Overall phonological awareness screening results were reviewed as a metric of phonological awareness. Assessment Companion Tool (ACT), Teacher School Readiness Inventory (TSRI), Nipissing Developmental Screen, Yopp-Singer Speech and Language Phonological Screening Tool, Binder of Assessment Tools (BAT) including alphabetic principles developed by Marie Clay were chosen by regions to address assessment and intervention strategies. Phonological awareness skills were modeled for the children. More specifically, the ECE and librarian modeled connections between the first letter/sound of nouns in the storybook.

Children's strengths and learning and educator's teaching to support connections to executive function and working memory are part of the preplanned selection process. Focused language and emergent literacy teaching lead to gains in alphabet knowledge, letter-word recognition, and vocabulary (Connor et al., 2006 as cited in deHaan, Elbers, & Leseman, 2014). Direct teacher instruction of academic language skills was positively associated with emergent literacy skills. Direct instruction influenced the planning storybook reading process. The educators of this project selected and planned storybook reading based on reflections of their interactions related to language between and with children and adults, the use of vocabulary and phonology such as categories of words, rime, segmentation and letter/sound associations to support direct instructional strategies during storybook reading through engaging and playful interactions.

Young children segment words from one another and still hold their meaning. For example, a young child may hear the words 'mother' and their name. They assign meaning to the two words as separate entities. The child's name and mother are part of a larger category the child recognizes as a family and retrieve these words from memory as they are closely related (Curtin & Zamuner, 2014; Yurovsky, Fricker, Yu & Smith, 2014) known as referents or schemas. The educators had opportunities to associate known words with newly introduced words as children can retrieve pre-existing vocabulary. Relating working memory to other concepts such as syllables, rhyme, sound/symbol associations bound within word awareness, educators deconstruct down more significant concepts into phonemes or morphemes. Children take parts of wholes and make them into memorable bits examined within the context of a story. For example, the educator strategically chooses a rhyme from a nursery rhyme book and examines the rhyming words with the children in a wordplay related to previous experiences while introducing newer rhyming words. The child uses their working memory to hold onto bits of new information as they connect to other pieces of knowledge previously explored and utilized in different contexts. Many exposures to rhyme at home, the library and playgroup provide children with opportunities to revisit phonological skills. Baddeley's (2003) working memory model hypothesizes the construction of new knowledge acquired through a domain-specific cognitive system, namely, the phonological loop. The phonological loop consists of two sub-components: the short term phonological forms storage, and the rehearsal mechanism. According to Kaushanskaya (2012), the phonological loop stores new phonological forms in short-term memory, and transfers the information to long term memory through repetition. Teachers model and prompt children to rime while reading predictable text. A variety of genres, including nursery rhymes,

poetry and fiction, further supports children as they acquire new vocabulary.

Building on the seminal work of Slobin (1985), Devescovi et al. (2005) proposed young children do not inherently make many errors in language structures such as grammar (syntax). The researchers conceptualize “in a single language, vocabulary size is a more powerful predictor of grammatical development than age or gender, contributing significant variance to measures of grammar” (Devescovi et al. 2005, p. 761) refuting educators’ beliefs young children are bathed in language. Storybook reading provides children and adults with opportunities to ‘talk about books’ using book-like language with specific English and school-like language structures. The use of text throughout the storybook reading time positions educators to engage in ‘think aloud’ (Ritchhart, Church, & Morrison, 2011) or metacognitive talk about the text while explicitly modelling language structures. Think aloud is an explicit demonstration of the process of what the reader is thinking to make meaning. These structures or explicit grammar lessons may carry over in the work of the educators as they engage in playful interactions with children. Providing children with multiple contexts of home, school and the library or storybook reading in playgroups, children may generalize new learning. “[S]tudies of memory retrieval, recollection is consistently affected by the interaction between the properties of the encoding context and the properties of the retrieval context” (Vlach & Sandhofer, 2011, p. 395) through shared encoded and retrieval contexts leading to retrieval of memories. The use of rich storybooks reflective of a child’s world contextualizes language leading to more profound meaning-making.

Conclusion

The current position paper examines how interprofessionals engage in early language experiences through social interactions with young children in a playgroup. The influence of planning specific, explicit interactions such as phonological skills during storybook reading, children may acquire the skills necessary to develop early literacy and language. Peng, Mo, Huang and Zhuo (2017, p. 225) contend academic interventions have an impact on academic achievement; however, the researchers question cognitive interventions improving intelligence. A recent meta-analysis (Weicker, Villringer, & Thone-Otto, 2016) of 103 studies of working memory training found training lead to long-lasting improvements on reasoning/intelligence and cognitive control functions. The researchers (Weicker et al., 2016, p. 225) suggested, “working memory training had a long-lasting beneficial effect on cognitive function of brain-injured patients,” and working memory training for young children may provide individuals with possibilities not yet realized in pre-schools.

Storybook reading may provide young children with opportunities to retell stories using vocabulary acquired through explicit instructional opportunities in guided play and storybook reading. Repetition of words and key phrases shared in storybooks in context and a variety of environments using multiple props such as finger puppets and loose parts allow for repetition, chunking and high motivation. The use of visual cues such as colours were “found to be effective in teaching grammatical skills to both preschool (Ebbels, 2014; Zwitman & Sonderman, 1979) and school-age children. The use of “rehearsal plus visualization strategies led to greater improvements on a test of following directions over traditional speech therapy alone and traditional therapy combined with rehearsal but without visualization ” (Wener

& Archibald, 2011, p. 314) were beneficial. Future action research by interprofessionals may inquire from the children how they remembered the story and what strategies were linked to retell.

According to Rainey, Davidson and Li-Grining (2015), more research is required to understand the links between executive function and syntax. The organization of language “[n]eeded to encode information and linguistic cues from the environment” (e.g., St. Clair-Thompson & Gathercole, 2006). Multiple research teams including, Bierman, Nix, Greenberg, Blair, & Domitrovich (2008); De’ak, 2003; Foy & Mann (2013); and St. Clair-Thompson & Gathercole (2006) have linked executive function with skills such as vocabulary development, literacy development and phonological awareness. Rainey et al. (2015) question the role of executive function, syntactic awareness and language processing. The work of researchers continues as young children and scholars engage in the work of learning together with interprofessionals to support the development of early literacy skills through storybook reading and how these skills and strategies modelled in a playgroup. Further dialogue between government-funded organizations and inter-professionals in the field of early childhood and care may provide a road map of accessibility to resources, partnerships and fundamental understandings and communication of resources within communities supporting early literacy strategies through playgroups.

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Rose Walton is a doctoral student at Brock University in St. Catharines, Ontario, Canada. As an educator and administrator in Canada studying cognition and learning with the support of Dr. D. Harwood and Dr. D. Collier is engaging families in early literacy dialogue to inform practices. More specifically, questions focus on hegemonic masculinities and family systems theories. The impact of fathers on the development of early literacy is an area of exploration through a lens of meaning making supporting learning as growth of preschool children and their family's contributions.

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Future Issues and Submission Deadlines

2020 (Volume 24, Number 2)

Open issue. We invite members of ISfTE to submit articles for this issue. Members are encouraged to co-author articles with their students or colleagues who may not be members of ISfTE. Authors who are not members of ISfTE may submit articles for this open issue. In case their articles are accepted for publication, the authors must pay membership fee to ISfTE. Book reviews and reflection papers are also invited.

Deadline for submission: August 1, 2020 – Publication by December 2020

2021 (Volume 25, Number 1)

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