Journal of the International Society for Teacher Education

Volume 19 Issue 2

Exploring Teaching and Learning: Pre-Kindergarten through Adults

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DEPARTMENT OF EDUCATION

Journal of the International Society for Teacher Education

Exploring Teaching and Learning:
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ISSN 1029-5968

JISTE is an official, refereed publication of ISfTE. The goal of ISfTE is to publish six to eight articles in each issue. Using the seminar theme, articles in the first issue of each volume are based on papers presented at the previous seminar. Articles in the second issue are non-thematic or have special themes. Points of view and opinions are those of the individual authors and are not necessarily those of ISfTE. Published manuscripts are the property of JISTE. Permission to reproduce must be requested from the editor.

JISTE is issued twice yearly by the International Society for Teacher Education. The subscription price of $80.00US is included in the annual membership fee. Additional copies of the journal may be purchased for $25.00US. Institutional subscription to JISTE is $100.00US per year.

JOURNAL OF THE INTERNATIONAL SOCIETY FOR TEACHER EDUCATION
Volume 19, Number 2

About this JISTE

Karen and I would like to welcome and thank Dr. Leanne Taylor from Brock University who has come onto the editorial staff with this edition. Her help in editing now and in the future is greatly appreciated. Unlike journals from larger organizations, JISTE is an entirely volunteer operation. The bulk of the work is done by the two editors – Karen Berg Petersen and Peggy Saunders. The lead editor, Dr. Petersen, acquires the articles and sends them out for review by two of our volunteer reviewers from around the world. Once the articles are returned to her, she communicates with the authors to let them know if the article was approved, needs revision, or was rejected. The accepted articles then come to Dr. Saunders who does the final editing and layout for the journal. During this stage, the English is standardized, citations are checked, and the entire paper is organized using the APA style guide. We appreciate your patience each time we commence with another edition of JISTE.

About this Edition

This edition is eclectic in its selection of articles. Several of them were originally presented at the seminar in Turkey, but due to the size of that edition, the articles were moved to this edition. We especially thank those authors who have waited patiently for the publication of their articles. The articles for this edition come from Nigeria, Denmark, Brazil, Australia, and the USA.

The articles span all aspects of education. The first two articles focused on pre-school teachers: one evaluated their knowledge and skills in Nigeria, and the other discussed teaching sustainable practices in rural Australia. The next two articles examined primary education through two different lenses: one investigated pupils' environmental knowledge, and the other studied the primary curriculum to determine learning outcomes for junior secondary school students. Both of these articles were from Nigeria.

The next four articles are grounded in teacher education at the college/university level. The first article from Denmark, based on the "Anholt Project," discussed how informal/non-formal learning should be considered by teachers especially for those who leave school early. In an article from Nigeria, the argument was made that who is teaching the class can affect the student outcomes. Using course syllabi, the article from the US examined how coursework in English as a second language courses can promote student advocacy. The last article qualitatively assessed teaching and learning materials as content in teacher education coursework and practicum situations in Denmark.

The last article examined how educational leadership that is stable and sustained can affect the teaching and learning results in schools. This final article comes from Brazil where the author studied four different municipalities and their schools.

PEDAGOGICAL KNOWLEDGE AND SKILL COMPETENCES OF PRE-SCHOOL TEACHERS IN IBADAN METROPOLIS, OYO STATE, NIGERIA

Moses Dele Amosun and Olufunke Aanuoluwapo Kolawole
University of Ibadan, Nigeria

Abstract: *Early childhood educators are faced with many important tasks in their day to day activities which include caring, stimulating, and instructing for young learners. The implementation of these tasks require certain competences which the teachers must possess in order to be effective in discharging their duties and to provide for quality early childhood education. It has been observed that with respect to the pedagogical knowledge and skill competences, teachers of young learners still have a long way to go in learning how to handle young children especially in the way they relate curriculum content to children's needs and experiences, integrate content across learning areas, and use of child-friendly approaches, methods, and techniques in teaching.. The study adopted a descriptive survey design. The sample involved in the study comprised 58 pre-school teachers randomly sampled from pre-primary section of public primary schools in the five local government areas within Ibadan city. Two research questions were set to guide the study, and one self-designed and validated rating scale on pre-school teachers' pedagogical knowledge and skill (r-0.48) was used to gather the data. The data were analyzed by using frequency count, percentage, mean, and standard deviation. The results showed that the level of pedagogical knowledge and skill competences displayed by the pre-school teachers was low. Recommendations were made by suggesting strategies that could develop the pedagogical knowledge and skill competences of pre-school teachers for quality early childhood education*.

Keywords: early childhood education, stimulation, competences, pedagogical knowledge, pedagogical skill, effective teaching and learning

Introduction

The crucial role of teachers in learners' lives is invaluable. The reason is that teachers share a significant responsibility in preparing young children to lead successful and productive lives. In fact the greatest resource in any school is the teachers because they have the greatest impact on children's learning that will make them become successful learners, confident and creative individuals, and active and informed citizens (Australian Institute for Teaching and School Leadership [AITSL], 2011). In this regard, the need to develop and improve teacher quality becomes imperative especially for teachers of pre-school children who are directly involved in the building of a solid foundation upon which other levels of education are built.

There are many aspects in the early learning environment such as the culture of the school, teachers' interactions, knowledge, beliefs, expectations, and practices. While researchers have focused on some of these variables, few research studies have been carried out about pre-school teachers' pedagogical knowledge and skill in Nigeria.

What is Pedagogical Knowledge and Skill?

Pedagogy is often referred to as the practice of teaching, but in the early years, it includes the provision of learning environments for play, exploration, and instructive learning (Siraj-Blatchford, Sylva, Muttock, Gilden, & Bell, 2002). Pedagogical knowledge is knowledge for teaching. It involves knowledge of how to

teach content as a condition for teacher effectiveness (Hill, Rowan, & Ball, 2005). Pedagogical knowledge and skill deal with instructional techniques and strategies which enable learning to take place. In this study, it refers to the interactive process between pre-school teacher and learners and the learning environment provided by the teacher in order to enhance children's stimulation and learning.

The importance of displaying pedagogical knowledge and skills cannot be over-emphasised. It helps teachers to think about the best possible methods, strategies, materials, and resources to be utilized for the learning situation; helps teachers to know how to utilize various forms of play; different strategies for grouping learners; different types of media and materials. Pedagogical knowledge and skills turn teachers into facilitators, coaches, models, evaluators, managers, and advocates. It helps teachers employ appropriate evaluation schemes. Effective pedagogy helps teachers display skills at creating curricula designed to build on learners' present knowledge and understanding and move those learners to more sophisticated and in-depth abilities, knowledge, concepts, and performances. Thus, effective teaching requires pedagogical skills so that the teaching is carried out smoothly and results in the maximum output in terms of the expected teaching outcomes. However, the situation of education of many developing countries, especially Nigeria, is the problem of half-baked products of many schools caused by the poor foundation that is laid in pre-primary and primary schools.

This situation necessitated investigation of pre-school teachers' pedagogical knowledge and skills in Nigeria as one of the major factors in education of children. In a pre-school classroom, the teacher's role is to plan and execute experiences for learning. They determine what children are interested in and what they know. Children are at the centre of instructional and classroom activities. Teachers set up a physical and social environment for the children to interact with. The interaction with materials, other children, and adults guides children to make sense of the world. When this interaction generates learning outcomes for children, it is deemed the most successful interaction (Bhowmik, Banerjee, & Banerjee, 2013). The implication of the above is that preschool teachers, who do not plan, organize, and present children's learning experiences effectively, may hinder the children's quality of learning.

Moreover, children use their sense of curiosity to learn by asking a lot of questions. Young children like to question, observe, and engage in activities. They experience the world with their senses and explore natural phenomena. This is the reason why Elkind (1989) advised against presenting more formal kinds of experiences at an early age so that young learners would not view learning as only imparting knowledge, thus undermining their curiosity

Therefore, through spontaneous exploration of natural experience and events, with nurturing and guidance from teachers, children can develop. However, a review of a number of empirical studies focusing on play-based pedagogy found that teachers believe that play should be given high priority in a pre-school setting but find it difficult to implement in practice (British Educational Research Association [BERA], 2003). The meta-analysis revealed that educators of young children tend to lack the confidence, knowledge, and training that lead to interactive teaching and learning.

Walsh (2000) compared the quality of the learning experience offered to 4-5 year old children in formal (Northern Ireland) and play-based (Denmark) settings using an instrument known as the Quality Learning

Instrument (QLI). The research focused on nine key indicators of quality: motivation, concentration, confidence, independence, physical well-being, multiple skill acquisition, higher order thinking skills, social interaction, and respect. Walsh concluded that an over-emphasis on the teaching of the reading, writing, and arithmetic is inappropriate for young children in Northern Ireland as compared to the more play-based approach which was capable of providing a higher quality learning experiences for the children in Denmark. Wylie and Hodgen's (2007) findings revealed that the aspects of pedagogy that showed a lasting contribution were high quality staff interactions with children, an environment providing books and written material, and where children could select from a variety of learning activities.

Siraj-Blatchford and Sylva (2004) observed that the most effective preschool settings achieve a balance between the opportunities provided for children to benefit from teacher-initiated group work and the provision of freely chosen yet potentially instructive play activities in terms of intellectual, social, and attitudinal outcomes. They also argued that the best teachers use a mixture of pedagogical approaches such as scaffolding, extending, discussing, monitoring, and direct instruction – to fit both the concept or skill and the developmental zone of the children. Effective teachers who are able to engage children in meaningful experiences inside and outside classroom tend to know their subject matter; use pedagogical knowledge and skills appropriate for the content; use an appropriate language of instruction and have mastery of that language; create and sustain an effective learning environment; find out about and respond to the needs and interest of their learners and communities; reflect on their teaching and children's responses and make changes to the learning environment as necessary; have a strong sense of ethics; are committed to teaching; and care about the children under their care (Craig, Kraft, & Plessis, 1998).

However in Nigeria, Omotuyole (2013) observed that the behaviour of many early childhood education teachers is reflective of developmentally inappropriate practice. Many Nigerian teachers especially in pre-schools and primary schools are fond of using non-interactive, theoretical, instead of practical methods to teach subject matter. They do not focus on child development and learning theories in ways that are relevant to learners' context. Many teachers in pre-schools do not teach as effectively as they could because they do not understand children, how they learn, and classroom dynamics. Supporting Omotuyole's observations, Osokoya (2001) suggested that the training of pre-school teachers should aim at developing the totality of the child, including accommodating a long period of practical teaching and observing children in their natural environments. He proposed that the desirable personality characteristics for individuals who wish to work in the pre-school are pleasure and interest in working with young children, flexible personality, and concern for the welfare of others regardless of religious or ethnic differences. Desirable qualities of pre-school teachers are important in the learning process of preschoolers and their development.

It is common in pre-schools' environment in Nigeria to find disorganized, noisy, quarrelsome, moody, and tearful children (Osokoya, 2001). The reason for this situation may be simply because of the inability of the pre-school teachers to understand children, how they learn, and how they interact among their peers. There is the need, therefore, to investigate the pedagogical knowledge and skills of pre-school teachers in Nigeria.

Statement of the Problem

It has been observed that Nigerian pupils are not adequately prepared to develop the skills and knowledge they need to live and work successfully in today's complex world. These children are deficient in solving problems that require more than simple recall of facts or performance of rudimentary skills. This issue has been traced to teachers' inability to provide opportunities for children to engage in activities that promote in-depth understanding, ethical thinking, creative problem solving, and the ability to use knowledge in real-life settings. Therefore, this study sought to identify level of pedagogical knowledge and skill competences of Nigeria's pre-school teachers. The following research questions were generated to guide the study:

What is the level of pedagogical knowledge displayed by pre-school teachers in Ibadan metropolis?

What is the level of the pre-school teachers' display of pedagogical skill competence?

Methodology

The study adopted a descriptive survey research design. The design employed the use of observation by using a four-point rating scale on pedagogical knowledge and skills of pre-school teachers during interaction with children.

Participants

The target population of the study was pre-school teachers in Ibadan, Oyo state, Nigeria public primary schools. The sample involved in the study comprised fifty-eight (58) pre-school teachers randomly selected from public primary schools in the five local government areas within Ibadan metropolis.

Of these participants, 54 were female and four were male. The participants had different qualifications: 39 held a Nigerian Certificate of Education (NCE), 17 held a bachelor's degree in education, and two held a post-graduate diploma in education. More than half (34) of the teachers had 16 or more years of experience. The others' teaching experience is as follows: 1-5 years, three teachers; 6-10 years, 11 teachers; and 11-15 years, ten teachers.

Instrument and Procedure

The instrument used for this study was rating scale on pre-school teachers' pedagogical knowledge and skills (PSTPKS). The instrument was developed by the researchers to identify the level of display of pedagogical knowledge and skill of pre-school teachers. It is a 20-item instrument with three sections. Section one deals with general information about the demographics about the teachers. That information was reported above under 'Participants.' Section two is a four-point scale designed to identify level of display of knowledge of pre-school teachers ranging from 'no knowledge to high knowledge.' Section three is also a four-point scale ranging from 'no skill to high skill' in order to identify the level of display of skills of the pre-school teachers. Five research assistants observed and graded the participants while they displayed their pedagogical knowledge and skills. Their grades were correlated and the inter-rater values yielded 0.48 which connotes a fair display sense of pedagogical knowledge and skill competences.

The consent of the head teachers of the participating schools was sought and the observation of the pre-school teachers was carried out for two weeks with the assistance of five higher degree students in early childhood education at the University of Ibadan who served as research assistants in the study.

Results

The collected data were analysed by using frequency count, percentage, mean, and standard deviation. Table 1 answers research question 1; table 2 answers research question 2.

Table 1
Level of Pedagogical Knowledge of Pre-school Teachers' in Ibadan Metropolis

Item	No Knowledge	Low K	Average K	High Knowledge	Mean	*SD*
The teacher understands the procedures for:						
Using child-approaches, methods, and techniques of teaching	16 27.6%	27 46.6%	14 24.1%	1 1.7%	2.00	.77
Phasing teaching from known to unknown	13 22.4%	38 65.5%	5 8.6%	2 3.4%	1.93	.67
Inducing children's own learning	13 22.4%	32 55.2%	9 15.5%	4 6.9%	2.07	.81
Using a variety of teaching/learning aids during lesson delivery	14 24.1%	12 20.7%	18 31.0%	14 24.1%	2.55	1.11
Using the local environment as teaching resources	8 13.8%	23 39.7%	12 20.7%	15 25.9%	2.59	1.03
Assessing children's learning	15 25.9%	32 55.2%	8 13.8%	3 5.2%	1.99	.78

Combined mean - 2.19 on the 4 pt. scale

Table 1 shows that the pre-school teachers were observed to display low pedagogical knowledge on using child-friendly approaches, methods, and techniques of teaching ($\bar{x}$ = 2.00); phasing teaching from known to unknown ($\bar{x}$ = 1.93); inducing children's own learning by providing opportunities for them ($\bar{x}$ = 2.07); and assessing children's learning regularly to know level of knowledge, values, and skills gained by the children ($\bar{x}$ = 1.99); while they displayed average pedagogical knowledge on using variety of teaching/learning aids during lesson delivery ($\bar{x}$ = 2.55); and using local environment as teaching resource ($\bar{x}$ = 2.59). Meanwhile, based on the value of the combined average (2.19) for the six indicators, which is less than 2.50 that is accepted in this study as the value for high display of pedagogical knowledge, it can be inferred that the level of pedagogical knowledge displayed by pre-school teachers in Ibadan metropolis was low.

Table 2
Level of Pedagogical Skill Competence Displayed by Pre-school Teachers in Ibadan Metropolis

Item	No Skill	Low S	Average S	High Skill	Mean	*SD*
The teacher:						
Adapts the school time-table to the needs of the learners	19 32.8%	22 37.9%	16 27.6%	1 1.7%	1.98	.83
Prepares comprehensive scheme of work and lesson plans	27 46.6%	24 41.4%	7 12.1%	- 0.0%	1.66	.69
Relates curriculum content to pupils' needs and experiences	11 19.0%	35 60.3%	12 20.7%	- 0.0%	2.02	.64
Integrates content across subjects/learning areas	14 24.1%	24 41.4%	13 22.4%	7 12.1%	2.22	.96
Demonstrates proper use of child friendly approaches, methods, and techniques in teaching	10 17.2%	27 46.6%	19 32.8%	2 3.4%	2.22	.77
Uses learning aids appropriately in the course of teaching	14 24.1%	13 22.4%	21 36.2%	10 17.2%	2.47	1.06
Makes use of the locally available materials in teaching	13 22.4%	16 27.6%	12 20.7%	17 29.3%	2.57	1.14
Regularly carries out assessment of his/her learners	15 25.9%	26 44.8%	15 25.9%	2 3.4%	2.07	.81
Provides timely and appropriate feedback in the process of learning	14 24.1%	29 50.0%	12 20.7%	3 5.2%	2.07	.81
Creates and maintains a conducive learning environment	21 36.2%	22 37.9%	15 25.9%	- 0.0%	1.90	.79
Fosters self-discipline, responsibility and creativity among his/her learners	17 29.3%	23 39.7%	17 29.3%	1 1.7%	2.03	.82
Gives clear instructions and checks understanding	16 27.6%	26 44.8%	15 25.9%	1 1.7%	2.02	.78
Ensures that learners are actively engaged in a wide variety of experiences and settings within and outside the classroom	20 34.5%	16 27.6%	19 32.8%	3 5.2%	2.09	.94
Prepares pupils to assume age-appropriate responsibility for learning through effective decision making, goal setting and time management	10 17.2%	23 39.7%	22 37.9%	3 5.2%	2.31	.82

Combined mean – 2.12 on the 4 pt. scale

Table 2 shows that the pre-school teachers displayed low pedagogical skill competence on adapting the school time-table to the needs of the learners ($\bar{x}$ = 1.98); preparing comprehensive scheme of work and lesson plans ($\bar{x}$ = 1.66); relating curriculum content to pupils' needs and experiences ($\bar{x}$ = 2.02); integrating content across subjects/learning areas ($\bar{x}$ = 2.22); demonstrating proper use of child-friendly approaches, methods, and techniques in teaching ($\bar{x}$ = 2.22); using learning aids appropriately in the course of teaching ($\bar{x}$ = 2.47); making use of the locally available materials in teaching ($\bar{x}$ = 2.57); regularly assessing learners ($\bar{x}$ = 2. 07); providing

timely and appropriate feedback in the process of learning ($\bar{x}$ = 2. 07); creating and maintaining a conducive learning environment ($\bar{x}$ = 1.90); fostering self-discipline, responsibility, and creativity among learners ($\bar{x}$ = 2.03); giving clear instructions and checking understanding ($\bar{x}$ = 2.02); ensuring that learners are actively engaged in a wide of experiences and setting within and outside the classroom ($\bar{x}$ = 2.09); and preparing pupils to assume age-appropriate responsibility for learning through effective decision making, goal setting, and time management ($\bar{x}$ = 2.31). Based on the value of the combined average of 2.12 on the 14 indicators, it can be inferred that the level of pre-school teachers in Ibadan Metropolis display of pedagogical skill competence was low.

Discussion

The results of this study revealed that the level of pedagogical knowledge and skill competences displayed by the pre-school teachers in Ibadan, Oyo state Nigeria was low. The average values (2.19 and 2.12) respectively in Tables 1 and 2 above showed this discrepancy. This result was corroborated by Omotuyole (2013) who found that the observed behaviours and practices of the early childhood education teachers in creating a caring community of learners and in teaching to enhance development and learning was very low. Oduolowu (2001) also revealed that the classroom practices and exercises in Nigeria primary schools do not encourage creativity among the children. For example, it was shown in the result that teachers' display of pedagogical skills in fostering self-discipline, responsibility, and creativity among their learners was very low. The same result applies to ensuring that learners are actively engaged in a wide variety of experiences and settings within and outside the classroom. Where these aspects are lacking in pedagogy, it will definitely affect the quality of learners being produced. The results of this study may be explained in that many of the pre-school teachers observed were not early childhood education specialists even though they were experienced teachers. It may also be a lack of necessary requisite knowledge and skills in handling pre-schoolers that accounted for the low knowledge and skills they displayed.

Conclusion and Recommendations

The researchers were able to conclude that pre-school teachers involved in the study displayed a low level of pedagogical knowledge and skill competences in handling the children. This means that teachers' knowledge and skills in planning, organizing, and presenting learning experiences for the children was low. The result of this is that young children may not sufficiently and adequately develop the knowledge, skills, and values they need for further education and life-long learning.

Based on the findings of this study, which revealed low knowledge and skills of pre-school teachers, the following recommendations are made:

- Child educators rather than experienced teachers should be recruited to teach in pre-schools.
- Early childhood educators should be trained and retrained to develop the professional knowledge and skills in handling preschoolers in all the pre-primary sections of the public primary schools in Nigeria.
- The curriculum of teacher education programmes in Nigeria needs to be revised to include rigorous preparation of pre-service, pre-school teachers.
- Inservice programmes for pre-school teachers should incorporate and emphasize pedagogical components such as methods for helping teachers acquire specific skills for teaching meaningful rather than just rote learning and for developing in children the creative ability and positive attitudes towards life-long learning.

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Authors

Moses Dele Amosun, Dr. is a lecturer at the Department of Teacher Education, Early Childhood Education Unit, University of Ibadan, Ibadan, Nigeria. His areas of interest are childhood development and education, classroom interaction, and language development.

Olufunke Aanuoluwapo Kolawole is a higher degree student in early childhood education at Department of Teacher Education, University of Ibadan,Nigeria. She teaches at Estate High School, Akobo, Ibadan. Her areas of interest are early childhood and language education.

A SNAPSHOT FROM A RURAL AREA OF AUSTRALIA: WHY AND HOW EARLY CHILDHOOD EDUCATORS AND CARERS TAKE ON BOARD SUSTAINABLE PRACTICES

Karren Amadio
Tabulam, Australia

Abstract: *A report card on the wellbeing of young Australians does not paint a promising picture (ARACY, 2013). Some of the poor performance indicators from this report can be linked to early childhood education and sustainability, which forms the basis of this paper. A survey of recently graduated Certificate III and Diploma students will provide a snapshot of their feelings on sustainability. This will provide a point of view from a new generation of early childhood educators and carers in one rural area of Australia. The survey questions how these educators rate the need for sustainable practices and why. Will these educators follow their services program, or do they genuinely feel they have a role in the big picture of ensuring young people gain knowledge about sustainable practices? The second part of this paper will give an overview of a case study of sustainable practices being undertaken in a rural preschool that caters to Aboriginal and low income families. These practices will be linked to the 2009 Early Years Learning Framework that has the philosophy of children being, belonging, and becoming (DEEWR, 2009). The case study will demonstrate how sustainable practices can be linked to the wellbeing of children as well as providing them with hands-on learning opportunities and knowledge. This is done in the hope that these educational practices will contribute to the children's sense of well-being and thus contribute to their resilience in our volatile, uncertain, complex, and ambiguous world.*

Key words: early childhood education, preparation of educators/carers, rural education, sustainability

Introduction

Australian Research Alliance for Children and Youth [ARACY]'s (2013) report card on the wellbeing of young Australians does not paint a promising picture. In an international context of Organisation of Economic Co-operation and Development (OECD) countries, Australia has been best described as "middle of the road" (ARACY, 2013, p. 1). Nineteen headline indicators for children's health, development, and wellbeing have been developed to rate a country's performance. ARACY (2013) states that "Australia is ranked in the bottom third of OECD countries for around one-quarter of the indicators" (p. 4).

In Australia there is a notable gap in wellbeing between Indigenous and non-Indigenous people. An Indigenous person has a life expectancy of 10 to 17 years less than non-Indigenous people, and Aboriginal babies have twice the mortality rate of other Australians (Oxfam, 2009). It is Aboriginal infant mortality that contributes to Australia's position in the bottom third of OECD countries.

When assessing the big picture, Australia is not performing that well when it comes to children's wellbeing. Some of the poor performance indicators from *Report Card: The Wellbeing of Young Australians* can be linked to Aboriginals, early childhood education, and sustainability (ARACY, 2013). Issues from my local area that are related to these areas of the report are (a) the general values of the community, (b) the training requirements of early childhood educators, and (c) Australia's new National Quality Framework. These are the underlying issues that will form the first

part of this paper. The second part of the paper is a short case study of a rural preschool that is working toward addressing areas of wellbeing for children attending that service.

Australia's New National Quality Framework and Sustainability

As of 2014 all educators working in the early childhood profession in Australia must have a minimum training of a Certificate III in children's services. Several subjects within the certificate address the need for sustainability. The students must study the new Early Years Learning Framework (EYLF) and the National Quality Standard (NQS) as required knowledge, and these also discuss the need for sustainable practices. Therefore, every new early childhood educator working in this profession should have a basic knowledge of the standards and the elements that include sustainability.

Australia's new National Quality Standard specifically discusses the need for early childhood educators to ensure that sustainability is part of the program and management of their services. The standard is made up of seven quality areas that address the national regulations for early education and care services. The third quality area addresses the physical environment and is made up of several elements. Elements 3.3.1 and 3.3.2 specifically address sustainability:

> Element 3.3.1 – Sustainable practices are embedded in service operations.
> Element 3.3.2 – Children are supported to become environmentally responsible and show respect for the environment' (Australian Children's Education & Care Quality Authority [ACECQA], 2011).

The quality standards are a guide and should be part of the basis of every good early childhood educator's planning, thus we can see that sustainability should be included in children's learning in education and care services.

The Community, Early Childhood Educators, and Sustainability

Before discussing the feelings of early childhood educators who have recently undergone training to work in the early childhood profession, an example of the community will give insight into the region. The northern rivers area of New South Wales in Australia is where sustainability is often considered an important issue to the community. At present there is a movement to stop coal seam gas mining and fracking in the area. People are genuinely concerned about keeping the good quality of our water. A survey from residents in our local government area found that 86.9% of people did not want this type of mining in the area, even with the promise of more jobs (Luke & Lloyd, 2013).

Other example of the community's commitment to sustainability includes the uptake of installing solar power systems on private homes. In NSW 8.5% of houses have installed a solar power system while in the northern rivers area, 18% have installed these systems (Page, 2014). When it comes to recycling the local councils provide a pick up service for some recyclable items. One of the local councils proudly stated that they were the first council in Australia to achieve an organic certification for their compost made from kerbside food and garden waste collection (Lismore Council, 2014). These are a few examples of the community where the small group early childhood educators live and where the data were collected.

A short survey of a group of students, who recently completed their first steps in training to be early childhood educators, was conducted. The survey included eight Certificate III (one year course including 80 hours work placement), and 12 Diploma in children's services (two year course

including 120 hours work placement) students. Sustainability issues were embedded in classes within the Certificate III and Diploma coursework. Of the 20 surveys given to students, half were returned. The students were asked 5 questions and given room to make final comments. They were asked to rate their answers to the question on a scale of 1 to 5, with 1 being unimportant and 5 being extremely important. Table 1 lists the questions asked, and the average response given.

Table 1
Questions and a Sample of Comments from Sustainability Survey

Questions	Average Response	Some Comments
1. As an educator and carer in today's uncertain and complex world, how do you rate the issue of sustainability in the early childhood profession?	4	Researcher comment: Most people responded with a 5, two people responded with a 1 and 2.
2. Why		Quotes from students included: "To teach children good sustainable habits", "to care for the world's resource", "children need to learn about and care for their world".
3. How would you rate the importance of climate change in your life?	3.5	
4. How would you rate the importance of climate change in the early childhood education profession?	3.5	
5. How would you rate your role in helping children to understand the need for sustainability?	4.5	
6. Any further comments		Quotes from students included: "We are role models", "We need to help children and families understand the importance of sustainability".

Klein (2014) explained how many people are engaged in climate change denial or find it too hard and complicated to deal with so they forget about it. The questionnaire asked students how they rate the importance of climate change. These new early childhood educators had rated climate change as an above average concern, and most considered their role of teaching sustainability to be most important. Maybe as Klein (2014) suggested, climate change is too complicated to deal with, but these students indicated that promoting sustainability is a responsible, ethical part of their work with children. This is an area that requires further research. Two of the educators involved in the survey were active participants in the following case study.

Case Study about an Early Childhood Preschool and Sustainability Learning

I believe that giving children an opportunity to learn about sustainability is not only an important part of early childhood education, it also offers many opportunities for learning in all developmental areas and it is our responsibility as global citizens. This case study is from a small rural

preschool, where I job share the position of director and teacher. I am a member of a team of educators who ensure sustainability is an everyday part of our program. We are a small rural preschool who cater to the local Aboriginal community, farming, and alternative life style families. We have several projects going that assist children to learn about sustainability, and this paper will discuss two.

The first project was our chooks. After converting our greenhouse into a chook yard, we were given four hens and a rooster. The first part of this project was to teach the children how to care for the chooks. At first many of the children were tempted to chase or throw stones at the chooks. Discussions with the children lead to the drawing up of 'chook rules'. The children came up with the rules with the assistance of the educators. They were written up on a poster with pictures that some children chose to contribute. As the children were the authors of the rules, they also became the enforcers, so that if a child was chasing or hurting the chooks in anyway, the other children would remind them of the rules. The rules also included the feeding, watering, and collecting of the eggs. Although the children cannot read, they do refer to the written word and pictures on the 'chook rules' poster.

Pictures 1 and 2. The chooks share the playground with the children; and a hen lays an egg in a child's bag storage area.

The children collected their food scraps throughout the day to be fed to the chooks. When the lawns were mowed they raked up grass cuttings to put into the chook house. We found a group of boys who had challenging behavioural problems became dependable members of our group when given responsibilities in caring for the chooks. This same group of boys, who in the past had shown no interest in pre-literacy and pre-numeracy skills, became very interested in literacy and numeracy that related to our chooks.

Pictures 3 and 4.* A child collects grass cuttings for the chook house; and children put the collected grass cuttings into the chook house. (When the grass has mulched down by the chooks it is removed and added to the vegetable garden.)

An example of a numeracy skill was when eggs were collected and added to the carton, there was a need to count all the eggs in the container with comments on how many had been added. When one of the hens sat on some eggs, all the children were involved in counting down the days until the chickens were due to hatch. A poster was created and put up in the classroom. It was referred to as a whole group as well as small groups and individuals checking how many days were left until the chickens hatched.

A positive learning environment gives children the best opportunity to learn and grow. When the environment is safe and where the child feels like they belong, then an atmosphere is created that fosters mathematical and literacy learning (Department of Education Employment and Workplace Relations [DEEWR], 2009; Rey et al., 2012). If learning is offered in a way that is meaningful and connected to the child's life, such as growing and cooking food, then this will improve the student's

ability to retain skills (Rey et al.). Cooking the produce that children have cultivated is a fun and meaningful way to bring literacy and numeracy learning into the classroom. Not only do these activities promote literacy and numeracy, but they also encourage children to learn about growing and preparing healthy food, thus contributing to their developing resilience and well-being. To share this information with parents, learning stories are recorded for each child's personal portfolio.

The second project was to extend our garden using recycled plastic milk and soft drink bottles. The children and educators collected and washed the plastic containers. The containers were cut so that potting mix could be added, then attached to the fence with cable ties. The children then planted strawberry plants and watered them in. This hanging garden was at the children's level so they could watch and care for the plants. As the children helped to set up this hanging garden they became aware of another use for empty plastic bottles. Again this project became an experience where the children had opportunities to practice skills in most of their developmental areas.

*Picture 5**. Children water the seeds they have just planted in the hanging garden.

This also reflects the EYLF Outcome 2, where children are connected with and contribute to their world (DEEWR, 2010) as they were willing participants in a sustainability project. This project reached further into the community through newsletters and parents visiting the service, as they were given the opportunity to view a productive way to recycle plastic bottles. Feedback from families indicated that they liked this idea and would try it at home.

Wellbeing and Belonging

The Australian EYLF among other prospects has been written to provide an opportunity for educators to work towards 'a clear focus on children's learning and wellbeing' (DEEWR 2010). The framework also states "fundamental to the Framework is a view of children's lives as characterised by belonging, being and becoming" (DEEWR, 2009, p. 7). Belonging is about when educators and children feel the sense of connection to the group. That is, that they have a relationship and place within it. With that belonging, each child is in a safe place to work toward becoming themselves in their society, but can also have time to being themselves: a child with all life's joys and complexities. When the children and the educators belong, they may feel ownership of their environment, and then learning in its many forms, can become a natural part of their day in the early childhood service (DEEWR, 2009, p. 7).

An essential part of pedagogy practices highlighted in the EYLF is documentation of children's education and sharing this information with the child's family (DEEWR, 2009). Appendix 1 is an example of one form of documentation undertaken at our service. It shows a 'learning story' that uses the EYLF learning outcomes and key components. Each child has input as to what he or she keeps in the portfolio as well as educator's recording learning stories to add to them. The recording of learning stories is printed and glued into each child's portfolio with other artwork the child has chosen to add. The learning story shares information with families about the different types of learning that happen in the early childhood environment and how it relates to the five learning outcomes. While most of the outcomes generally relate to children's education, areas in the learning

story show the key components of EYLF. The children often revisit this type of documentation as they share their portfolio with friends and family.

Conclusion

According to ARACY's (2013) report of Australian children's wellbeing, we are in an average position, but I believe the new Australian framework has created a space for improvements to be made in the early childhood educator and care sector. The two projects that have taken place at our service had been planned using the EYLF and the NQS as a guide. They were undertaken with the children, who were involved in all aspects from planning, implementation, caring and maintaining the projects, and also enjoying the benefits. The educators have ensured that every child has a sense of belonging, and these two projects were part of that process. The benefits to children have been observed in all developmental and wellbeing areas. We have had less behaviour problems and a greater interest in literacy and numeracy when linked to the projects. The educators at our service believe that we are contributing to these children's learning and wellbeing, thus contributing to their resilience in our volatile, uncertain, complex, and ambiguous world.

*The author has parental permission to publish the photos of the children.

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Appendix A

Learning Stories	Learning Outcomes and Key Components
 **18/7/13** **R., D., and A.:** this was their first day back after school holidays. As soon as the boys got off the bus they noticed how big the snow peas had grown. They immediately started to pick the peas to eat. The boys spent twenty minutes discussing how big the peas had grown and searching for more to eat. They also called out to the other children to let them know there were lots of snow peas. **Interpretation:** The boys understand and use language to discuss the mathematical concept of size (plants and which snow peas are the correct size and are ready to eat). They understand where to find the snow peas ready to eat. They enjoy sharing information with each other and other children (language and social skills). **Where to from here:** Children to create hanging garden on fence from empty plastic milk and soft drink bottles. They may plant strawberries and herbs for the summer.	1. Children have a strong sense of identity. --Children feel safe, secure and supported. --Children develop their emerging autonomy, inter-dependence, resilience and sense of agency. --Children develop knowledgeable and confident self-identities *Children learn to interact in relation to others with care, empathy and respect. 2. Children are connected with and contribute to their world. --Children develop a sense of belonging to groups and communities and an understanding of the reciprocal rights and responsibilities necessary for active community participation. --Children respond to diversity with respect. --Children become aware of fairness. --Children become socially responsible and show respect for the environment. 3. Children have a strong sense of wellbeing. --Children become strong in their social and emotional wellbeing. --Children take increasing responsibility for their own health and physical wellbeing. 4. Children are confidant and involved learners. --Children develop dispositions for learning such as curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and reflexivity. --Children develop a range of skills and processes such as problem solving, enquiry, experimentation, hypothesising, researching, and investigating. --Children transfer and adapt what they have learned from one context to another --Children resource their own learning through connecting with people, place, technologies, and natural and processed materials.

Author

Karren Amadio has a Master of Education with Honours in Early Childhood Education and Care. She has over thirty years teaching experience in a preschool. Since 2004 she has worked for a Registered Training Organization to teach courses for Certificate III and Diploma of Children's Services. She also does contract teaching for the University of New England.

COMMUNITY-BASED INSTRUCTIONAL STRATEGIES, SCHOOL LOCATION, AND PRIMARY SCHOOL PUPILS' ENVIRONMENTAL KNOWLEDGE

Sunday Olukayode Ajitoni and Tolulope Victoria Gbadamosi
University of Ibadan, Nigeria

Abstract: *The environmental issues we face as individuals and as a society are pervasive and ingrained in our cultural ways of being so that we can no longer look to science and technology to solve these problems alone. Instead, educators have been charged with providing students with environmental education through community-based service learning and educational trips. This study investigated the effects of these two community-based instructional modes relative to traditional instruction and any moderating effect of school location on primary school pupils' environmental knowledge in Oyo Metropolis, Nigeria. The study adopted a pretest-posttest quasi-experimental design. The Environmental Knowledge Test was used to elicit responses from 264 primary-5 pupils across 12 schools. There was a significant main effect of instruction on pupils' environmental knowledge and significant interaction effect of treatment and school location. This suggests that curriculum developers and planners should promote service learning and educational trips for effective teaching and learning of social studies.*

Keywords: community-based, educational trips, service learning, environmental knowledge, school location, social studies

Introduction

Social studies addresses humankind's social, economic, and political behaviours. It is a programme of study that equips learners with the knowledge and understanding of the past in order to cope with the present and plan for the future. The National Council for Social Studies (NCSS, 2015) reports that social studies enables learners to understand and participate effectively in their world, as well as explain their relationship to other people and to social, economic, and political institutions. It is an important subject that provides students with the skills for productive problem solving and decision making as well as for assessing issues and making thoughtful value judgments.

Humans are a powerful force within of the ecosystem. Humans are the most precious resources within the biosphere, but also the most dangerous as their activities, especially the exploration and exploitation of resources, sustenance and creation of wealth, produce potentially adverse effects (Chinyere & Ohia, 2010). Therefore, if human beings must continue to exist on earth, they must exploit and use natural resources in the most prudent and sustainable manner. Nigeria is facing environmental challenges resulting from the complexity of interaction between the environment and human beings. These environmental challenges include erosion, deforestation, desertification, urban waste, and industrial waste disposal (Gbadegesin, 2012; United Nations, 2011).

To this end, policies have been formulated, and conferences held at local, national and global levels to reduce the menace of environmental hazards. The importance of environmental education also has been acknowledged nationally and internationally (Intergovernmental Panel on Climate Change, 2007; United Nations, 2011). With the recognition of school as a

solid agent of socialization, some scholars have begun to explore strategies to teach environmental education effectively (Ajiboye & Ajitoni, 2008; Gbadamosi, 2012; Olatundun, 2008). While these researchers have made useful contributions to teaching, environmental problems continue to increase (Economic Commission for Africa, 2012; Gbadegesin, 2012).

It also is documented that effective teaching of environmental education is impeded at the school level. The use of such instructional methods, such as lecture method, dictation, and note taking, for a subject that requires interactive techniques for development and sustenance of problem-solving skills seriously impeded the learning outcomes (Okebukola, 2001). Teachers often fail to connect the school with the community needs and circumstances by concentrating only on available instructional materials provided by the school. Traditional instruction, also known as expository mode, focuses on the teaching activity. It is involves a one-way flow of information from the teachers to the learners. The teacher does most of the talking or demonstrating while the learners are expected to listen with little or no involvement (Adeagbo, 2013). These methods are inadequate to optimize student learning and do little to encourage them to modify their behaviours positively towards the environment. In order to raise instructional effectiveness, attention should be given to how teaching and learning take place in a school setting. What students learn depends not only on what they are taught but on how they are taught (Ajitoni & Gbadamosi, 2012; Chinyere & Ohia, 2010). Therefore, it is necessary to improve how educators incorporate community-based instruction when teaching environmental education.

Community-based instructional strategy involves using the local community and environment as a starting point for teaching concepts in language arts, mathematics, social studies, science, and other subjects in the curriculum. Emphasizing hands-on, real-world learning experiences can increase students' academic achievement, develop stronger community ties, enhance appreciation for the natural world, and creates a heightened commitment to active citizenship (Sobel, 2004). Community-based instructional strategy can be categorized into two instructional methods: service learning and educational trips (Smith & Sobel, 2010). Their study determined the efficacy of service learning and educational trips in promoting environmental knowledge among pupils.

Service learning is an instructional strategy that engages young people in solving problems within their schools and communities as part of their academic studies or other intentional learning activities (Chowdbury, 2008; National Commission on Service-Learning, 2002). Service-learning activities provide relevant and motivational opportunities for students to connect the principles and processes of democratic live with practical community problem solving. With guided practice and application of social science knowledge as part of collaborative problem solving, students learn that they can make a difference in the community (Billig, Rook, & Jesse, 2005; Hart & King, 2007). However, most of the research on service learning was conducted in developed countries such as the United States of America and Britain while the few completed in Nigeria were theoretical in nature (i.e. Dugguh, 2013; Olabode, 2010).

Educational trips refer to learning experiences that involve taking learners out of school to places where students can observe first hand and study in a real life setting (Gilbertson, 2013; Mezieobi, Fubara & Mezieobi, 2008). Ajaja (2009) and Olatundun (2008) indicate that educational trips arouse and create interest in learners, sensitize students to the needs of the

community, add instructional variety, provide opportunities for learners to explore their environment and fosters school-community relations. However, educational trips are rarely used in schools due to lack of adult supervisors and a reluctance to assume risk. In addition there is a lack of pre-service preparation in the needed skills, methodology, planning, and evaluation of student learning in the field (Ajaja, 2009; Munoz, 2009). In view of the fact that educational trips have not been effectively utilized in disseminating environmental education to primary school pupils in recent times, it is adopted in this study.

There is mixed evidence about the effects of school location and student learning. Danmole (1998) found that school location was not a predictor of students' achievement. Similarly, Akintunde-Olanipekun (2002) showed that school location did not contribute to students' achievement in environmental education and attitude to environmental issues in chemistry. However, studies by Owoeye and Yara (2011) and Alokan (2010) reported that school location had a significant effect on student learning outcomes in environmental concepts. In the face of conflicting results, there is the need to further investigate the influence of school location on pupils' learning outcomes in environmental education concepts in social studies. Therefore, this study determined the effects of service learning and educational trips in social studies on primary school pupils' environmental knowledge. It also explored the moderating effects of school location on environmental knowledge of the pupils in social studies.

Hypotheses

H_{o1}: There is no significant main effect of treatment on pupils' environmental knowledge.

H_1: There is significant main effect of treatment on pupils' environmental knowledge.

H_{o2}: There is no significant main effect of school location on pupils' environmental knowledge.

H_2: There is significant main effect of school location on pupils' environmental knowledge.

H_{o3}: There is no significant interaction effect of treatment and school location on pupils' environmental knowledge.

Methodology

The study adopted a pretest-posttest, control group quasi-experimental design. The participants in this study were made up of 264 primary-5 pupils from public primary schools in Oyo Town of Oyo State. The primary-5 pupils in each school were considered appropriate for this study as they could reflect on what they learnt and on their experiences (Refs). A total of 12 primary schools were purposively selected from four Local Government Areas Atiba, Oyo East, Oyo West, and Afijio in Oyo state. Six schools from urban and peri-urban areas were selected respectively based on the following criteria: being public schools, having one or more environmental problem(s), and being separated from one another in terms of geographical location by at least 12km. The later condition was to prevent pupil-to-pupil interactions across schools. When more than three schools fulfilled these criteria in any of the Local Government Area, simple random sampling was employed to select three schools for the study. One intact arm of primary-5 was used in the selected school. Schools in each local government were assigned randomly to the treatment groups. Oyo metropolises were selected on the basis that they had many environmental problems with little or no government intervention in solving environmental problems in the community.

Students' learning was assessed by the Environmental Knowledge Test (EKT) that contained multiple choice questions with two additional sections adapted from Venas and Doris (2006). Section A comprised demographic data such as sex, age, class, and school. Section B was used to assess students' competence in applying the knowledge that they gained in the programme in solving immediate and future environmental problems. The students were scored dichotomously (correct and incorrect answer). The instrument was validated by the developer with the reliability coefficient calculated was 0.80. In order to ensure that the instrument maintained its status, face, and content validity, items were re-examined using expert reviews. The internal consistency reliability measure was calculated using Kuder-Richardson 20 (KR20) which yielded an internal reliability value of 0.86.

Consent of the parents was obtained to allow their children/wards to participate in the research. Twelve research assistants were employed for the study. The facilitators were trained by the researchers for two weeks. The participating schools were categorized into experimental and control groups by simple random technique. The Environmental Knowledge Test was administered to students in the experimental and control groups prior and after instruction. The pupils in all the groups received eight weeks of instruction as described in the following sections.

Procedure for Experimental Group 1: Service Learning

Phase 1: Preparation. The teacher guides pupils to link the concept with environmental issue in the school/community used. The teacher guides the pupils to mention the areas experiencing environmental issues for the study. Pupils decide on what they would do to solve the problem (services to perform).

Phase 2: Action. The teacher assists the pupils to organize the project themselves and develop a work plan and carry out the service such as making of sand bags and planting of trees to control erosion, washing of toilet, and so on.

Phase 3: Reflection. The facilitators provide structured time for pupils to think, talk, and write about what they did and observed during the service activity.

Phase 4: Demonstration/Celebration. The pupils organize presentations on what they have learnt and how the project has positively affected them.

Procedure for Experimental Group 2: Educational Trips Instructional Strategy

Phase 1: Preliminary phase (before the educational trip). The teacher obtains the factual background and technical skills required to understand the specific purpose of the trip. Teacher gives a brief outline and purpose of the fieldwork to be given to the pupils.

Phase 2: Teacher's and pupils' activities (educational trip). The teacher and the pupils visit the study sites such as illegal dump sites, erosion site in the school compound, Old Oyo National Park, and so on. Each pupil writes down what he/she has observed. The pupils ask questions from the teacher and/or community members.

Phase 3: Follow up/evaluation. The pupils present and discuss their observations from the environmental problems sites visited in the next class. The teacher evaluates the pupils by asking questions.

Procedure for Control Group: Modified Conventional Teaching Method

The treatment was based on four major procedural steps, which are sequentially

linked. They are introduction, presentation, evaluation, and conclusion.

Data Analysis

Analysis of covariance (ANCOVA) was used to analyse the data obtained in testing the hypotheses using the pretest as covariates. ANCOVA indicated the initial differences among the groups. The multiple classification analysis (MCA) was used to determine the magnitude of the performance of the various groups. Scheffé post hoc analysis was carried out to determine the source of significant treatment and interaction effects. All hypotheses were tested at 0 .05 level of significance.

Results

Table 1 shows that 52.65% of male pupils participated while 47.35% were female. Also, 61.74% of the respondents were in urban while 38.26% were in peri-urban areas.

Table 1
Demographic Data

Sex	N	%	School Location	N	%
Male	139	52.65	urban	163	61.74
Female	125	47.35	peri-urban	101	38.26

Table 2
Summary of ANCOVA of Post-Test Environmental Knowledge Scores by Treatment and School Location

Source of Variance	Hierarchical Method					Partial eta Square
	Sum of Squares	Df	Mean Square	F	Sig.	
Covariates						
Pretest	3.01	1	3.01	.47	.49	0.004
Main Effects (Combined)						
Treatment	384.94	4	96.24	14.99	.00	0.498
School Location	384.79	2	192.40	29.98	.00*	0.498
Treatment X	.15	1	.15	.02	.88	0.000
School Location	48.55	2	74.28	11.57	.00*	0.192

*Significant at $p < 0.05$

Table 2 presents the findings of the study with respect to the effects of treatment and school location on pupils' environmental knowledge. There was a effect of treatment on pupils' environmental knowledge: $F(2, 251) = 29.98$, $p = 0.00$; $n^2 = 0.489$). This means that the adjusted post-test scores of pupils in the two experimental groups and control are significantly different. Hence, hypothesis 1 is rejected.

Table 3 shows the magnitude of the mean scores according to the treatment groups and school location. Further, multiple classification analysis was carried out to determine the magnitude of the mean scores according to the treatment groups and school location.

Table 3
Multiple Classification Analysis of Environmental Knowledge Scores According to Treatment and School Location

Treatment + Category	N	Predicted Mean		Deviation		Eta	Beta
		Unadjusted	Adjusted for factors and covariates	Unadjusted	Adjusted for factors and covariates		
Treatment							
Service learning	87	12.43	12.42	1.99E-02	1.75E-02		
Educational trips	83	13.96	13.97	1.56	1.56		
Control	94	11.01	11.01	-1.39	-1.39	.42	.42
School Location							
Urban	163	12.41	12.42	5.74E-03	1.87E-02	.00	.01
Peri-urban	101	12.39	12.38	-9.26E-03	-3.02E-02		

Note: R = .42; R square = .18

Table 3 reveals that pupils in the educational trip instructional group had higher adjusted posttest environmental knowledge score (*M* = 13.97; adj dev. = 1.56) than their counterparts in service learning (*M*=12.42; adj. dev. = 0.01) and control (*M*=11.01, adj. dev. = -1.39) respectively. This means that the educational trip was the most effective of the three strategies at improving pupils' environmental knowledge followed by service learning and control.

Further it is necessary to trace the sources of the significant effect obtained for treatment on environmental knowledge. Hence, the Scheffé post hoc tests were carried out and findings are presented in Table 4.

Table 4
Scheffé Post hoc Tests of Environmental Knowledge by Treatment

Treatment	N	M	Treatment		
			Service Learning	Educational Trips	Control
Service Learning	87	12.42		*	*
Educational Trips	83	13.97	*		*
Control	94	11.01	*	*	

* Pairs of groups significantly different at $p < 0.05$

Table 4 shows that there were significant differences ($p<0.05$) between pairs of groups service learning (*M*=12.42; *SD*=4.25) and educational trips (*M* = 13.97; *SD*=2.71) and control (*M* =11.01; *SD*=6.32) as well as educational trips (*M* = 13.97; *SD*=3.97) and control (*M* =11.01; *SD*=7.82). The difference of participation on the experimental group 1 is 4.25; that of group 2 is 2.71 while the control had the higher difference of 6.32. Meaning that participation in experimental 1 and 2 have better spread than those in control group.

Effect of School Location on Pupils' Environmental Knowledge

From Table 2, it is seen that school location had no significant effect on pupils' environmental knowledge: F (1, 251) = .02, p=.88;$\eta^2 = 0.000$). This means that there was no significant difference in the environmental knowledge scores of pupils' from urban and those from peri-urban schools. Hypothesis 2 is not rejected.

H_{o3}: There is no significant interaction effect of treatment and school location on pupils' environmental knowledge.

Table 5 shows a significant 2-way interaction effect of treatment and school location on pupils' environmental knowledge: F (2, 251) = 11.57, p= 0.00;$\eta^2 = 0.084$). Hence, hypothesis 3 is rejected. The direction of the interaction effect is shown in Table 5 and Figure 1.

Table 5
Estimated Marginal Mean of Treatment and School Location

Treatment	School Location	Mean
Service Learning	Urban	12.08
	Peri-urban	13.17
Educational Trip	Urban	14.62
	Peri-urban	12.21
Control	Urban	10.83
	Peri-urban	12.01

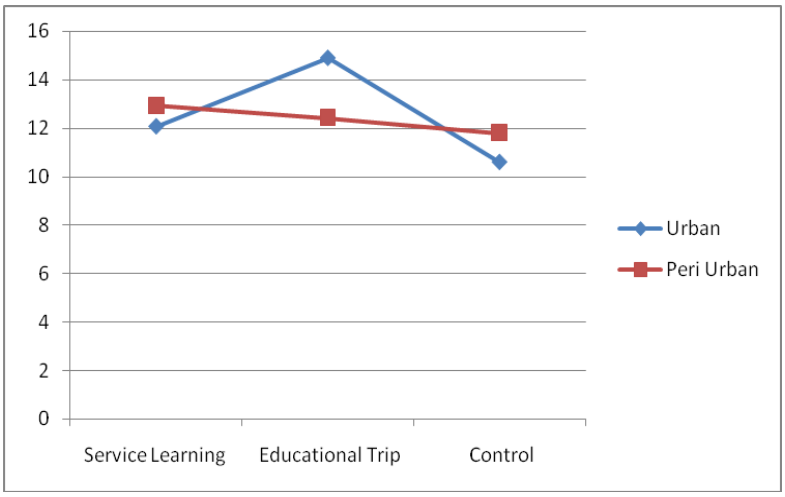

Figure 1. Interaction effect of treatment and school location on environmental knowledge.

Figure 1 shows a disordinal interaction effect of treatment and school location on environmental knowledge in which the effect of the treatment on environmental knowledge of the students does not follow the same trend across the school location. It shows that among pupils exposed to service learning instructional strategy, those from peri-urban schools obtained higher environmental knowledge than their urban counterparts. This trend is the same for the control group where peri-urban pupils also performed better than their urban peers. However, in the educational trip instructional group, urban pupils performed better in environmental knowledge than the peri-urban pupils.

Discussion

The findings in this study reveal that community-based instructional activities effected pupils' knowledge in environmental education. Details from the results indicate that pupils exposed to educational trips and the service learning instructional strategies performed significantly better than those in the conventional (control) group. Educational trip instructional group had higher adjusted posttest environmental knowledge score ($\bar{x}$ = 13.97; adj dev. = 1.56) than their counterparts in service learning ($\bar{x}$ =12.42; adj. dev. = 0.01). This means that the educational trip was the most effective at

improving pupils' environmental knowledge followed by service learning.

These findings support the findings of Smith and Sobel (2010), Chowlbury (2008), and Olatundun (2008) that learners' performances improve when engaged in community-based education. Community-based education differs from traditional instruction in that it requires a different approach to teaching and learning than one centred on textbooks, lectures, and classroom demonstrations.

Educational trips hold great potential for effective environmental education as they offer learners the opportunity to develop immediate and concrete knowledge of their environment. Educational trips also seemed to have provided these participants with a great deal of motivation for learning. Behavioural psychologists emphasized the importance of learners' active participation in the learning activity and the value of immediate feedback. A correct response needs to be reinforced in the shortest possible interval of time, and that such reinforcement encourages students to continue in their efforts. Participants in the educational trips received such immediate feedback which in turn may have served as a motivation to engage in the learning activities. The findings confirm the views of Ajaja (2010), Smith and Sobel (2010), and Olatundun (2008) who argue that educational trips empower learners to take ownership of their learning as they move from teacher-mediated learning to student driven learning whereby the student develop the capability to construct their own experience (independent learning).

Moreover, the results of this study indicate that students assigned to the service learning condition demonstrated higher environmental knowledge scores than those in the control group. Service learning seems to have provided students with the unique opportunity to participate in the real-life projects and solve environmental issues and problems in their immediate communities. The result is consistent with Hart and King (2007) conclusion that service learning emphasizes hands-on, real-world learning experiences that can contribute to increase test scores.

Though, the result of this study are inconsistent with the findings of Kenrick (2006) and Miller (2004) that service learning is more effective than educational trips. This finding reflects the submission of Duffin et al. (2007) that students' service learning does not always translate to higher scores on standardized tests of academic achievement per se, but nevertheless are reflective of students' competence and represents learning that is meaningful to parents and students.

The study also revealed that school location had no significant effect on pupils' environmental knowledge. However, the interaction effect of treatment and school location on pupils' environmental knowledge was significant. The result shows that participation in educational trips favoured the learning of urban pupils ($\bar{x}$ =14.62) while service learning favoured peri-urban pupils' ($\bar{x}$ =13.17). On the other hand, Owoeye and Yara (2011) and Alokan (2010) reported significant differences between learning outcomes of students in rural and urban secondary schools.

Conclusion and Recommendations

The community-based instructional strategies were found to be effective alternatives to conventional methods of teaching environmental students and hold potential for promoting learning as interesting, real, and fun as well as relevant to community needs. Therefore, it is recommended that social studies teachers in primary schools use service learning and educational trips as instructional strategies for social studies.

Also, the interaction effect of treatment and school location was significant on pupils' environmental knowledge. Service learning and educational trips are equally good for both urban and peri-urban areas; therefore, teachers should use the strategies to connect school with the community. This will offers a way to extend young peoples' attention beyond the classroom to the world as it actually is, and to engage them in the process of devising solutions to the environmental problems they will confront as adults. Hence, there is the need for total re-orientation of teachers on the use of community-based strategies in teaching and learning of environmental issues and problems in social studies to enhance learning. In short, learners must not only learn about the environment, they must learn in the environment and for the environment as demonstrated in this study. They should also be part of and not apart from the environment.

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Authors

Sunday Olukayode Ajitoni is a senior lecturer at the Department of Teacher Education, University of Ibadan. He received his Ph.D. at the Department of Teacher Education, University of Ibadan, Nigeria in curriculum and instruction (social studies education). His area of interest is on environmental education and history.

Toulope Victoria Gbadamosi is a lecturer at the Department of Teacher Education, University of Ibadan. She received her Ph.D. from Department of Teacher Education, University of Ibadan, Nigeria in curriculum and instruction (social studies education). Her area of interest is on service learning, environmental education, and economics education.

GOING BEYOND THE RECOMMENDED PRIMARY SCHOOL CURRICULUM AS DETERMINANT OF STUDENTS' LEARNING OUTCOMES AT THE JUNIOR SECONDARY SCHOOL ONE

Monica N. Odinko
University of Ibadan, Nigeria

Abstract: *Nigerian educators are concerned about the need to improve learners' academic achievement in core subject areas (mathematics, English language, science, and social studies). Research, however, appears not to have focused on children who attended private primary schools in which other subjects are taught. This gap is what this study sought to examine by looking at how curriculum contents used by public and private primary schools affect learners' performance. The study adopted the survey design. The population comprised of Nigerian children in junior secondary school 1 (JS1) who attended private primary school and those who did not. A total of 34 proprietors from 17 public and 17 private primary schools, and 680 students participated. These students were traced to their new schools. Five research instruments were used. Results revealed that private primary schools in Nigeria expose learners to extra subjects which are not recommended by the government. Significant differences exist in scores of learners exposed to extra subjects: mathematics exposed ($\bar{x}$=75.3154, SD=12.98728) and not exposed ($\bar{x}$=46.1100, SD=18.1); English language ($\bar{x}$=74.11, SD=14.57) and not exposed ($\bar{x}$ =53.15, SD=18.56); integrated science exposed ($\bar{x}$=59.97, SD=15.1) and not exposed ($\bar{x}$=44.51, SD=171); and social studies exposed ($\bar{x}$=64.35, S.D=14.45) and not exposed ($\bar{x}$=56.53, SD=18.03). The implications of these findings to educational practice in Nigeria were discussed.*

Keywords: curriculum, type of school, academic achievement, primary education

Introduction

Educators are relentlessly concerned about the need to improve learners' academic achievement in core subject areas especially in mathematics, English language, science, and social studies in Nigerian educational system. The glut of research on students' academic achievement in these areas is a disposition to this concern (Adegoke, 2005; Okwilagwe & Falaye, 2005). This is not only because a higher achievement in these core subjects lays foundations for technical skills, social orientation, numerical skills, and skills in written and oral communication, which are in short supply, but also because higher achievement is particularly valued in a society which appears to set high premium on academic success as the panacea for entrance into more prestigious occupations. For instance, Obe (1996) reported that the importance of mathematics transcends all definitions and that the prosperity of any country depends on the volume and quality of mathematics offered in its system.

Further, Setidisho (2001) submitted that no other subject forms a strong binding force among various branches of science as mathematics, and without it, knowledge of the sciences often remain superficial. This, however, cannot be achieved if the learner is unable to interpret the materials which are often written in English language. It is maintained that, given the prevalent and ever increasing mutual suspicion of, and linguistic rivalry among the various Nigerian ethno-linguistic groups, English language will continue to assume the utilitarian role which it plays in the acquisition and transmission of knowledge from the upper primary through the tertiary levels of education in Nigeria. It is a well-known fact that success in learning and

teaching of other subjects tend to correlate positively with the mastery of the language (Ohia, 2009). This appears to be why it is recommended that no candidate can proceed to tertiary level without a credit pass in English language.

Exposing people to social studies helps them to cope with the complexities of life which arise primarily from serial confrontations with one's self, other people, social institutions and the environment (Federal Republic of Nigeria [FRN], 2004). The quest by researchers to find ways of improving academic achievement has led to research on a host of school related variables one of which is an ideal curriculum with respect to subjects to be taught at the different levels of education. Curriculum should be the crux of educational change. Curriculum process is the organization and sequences of learning experiences in view of achieving desired learning outcomes. The objective of any curriculum is geared towards inculcating in learners the ability to proffer solutions to societal needs. There should therefore be a link between school curriculum (subjects taught) and real life practices by people in any given society.

Thus, to ensure that the education of children and youth reflects changes in society, the curriculum must be reviewed and developed to meet the societal needs. Defining the quality of curriculum primarily in terms of relevance to societal needs implies that the management of curricula change must have the capacity for continuous responsiveness to changing demands on education. Curriculum change aimed at ensuring relevance of learning processes and outcomes is thus becoming central to the discussion on the nature and role of knowledge. This development supports the idea of curriculum as the "hub of educational change." This view corroborates that of Vitikka, Krokfors, and Hurmerinta (2012) who stated that the change in society and its values will not be able to establish a constant position in schools if they do not permeate the curriculum. Many different views of theories influencing curriculum include those of Kliebard (2004) and Schiro (2007).

In a time of rapid change such as we are, academic programmes must experiment and evolve in order to keep pace with advances in knowledge, changes in professional practices, and shifting conditions in society. The need for malleable, responsive academic curriculum is of particular concern especially in fields of studies where the growth of knowledge is increasing. Education in every academic field as well as emerging fields of study must adapt to accommodate change in students' interests and needs. This accommodation could be achieved through constant review of the curriculum as it becomes increasingly accepted that curriculum change is an on-going process. From the rigid plan and syllabi that define learning content and the relative weight of subjects to be taught, the trend should move towards the development of more flexible curriculum frameworks that allows practitioners to triangulate resources, methods, broader academic coverage, and linkage such that learners may have a better foundation of knowledge.

Conceptually, curriculum should move from an organization of learning around categorized subjects to a more interdisciplinary approach around integrated learning areas. Thus, curriculum planners should jettison rigidly prescribed learning paths and consider greater options in the determination of learning experiences. This change was reiterated by (Alvior, 2015) by stressing that the fundamental purpose of curriculum development should be to ensure that students receive integrated, coherent learning experiences that contribute towards their personal, academic, and professional learning and development.

Omolewa and Sarunmi (2002) asserted that curriculum development can be with or without government involvement at various levels. This position might give credence to individuals or bodies who feel competent to add or remove from the existing curricular document. The problem arising from such practices seem topical, as curriculum has been an issue in development and progress from ancient Hellenistic period to the present age. As education is useful to the society so is curriculum to education. However, it not the case with the Nigerian curricula that appear to be highly centralized and not flexible, making their adaptability and influence very limited. Despite the call for flexibility in curriculum, the Ministry of Education depends exclusively on commissioning content-driven textbooks that teachers are expected to rely on for instructional guidance. Education under this circumstance is involved in a race to cover a predetermined list of facts in time for students to regurgitate them on cheap-to-grade tests that appear stereotyped in most cases.

Perhaps these issues, coupled with the daunting and assiduous task of curriculum review and the demands of an ever-changing human society, have compelled private school owners in Nigeria to resort to self-help on issues regarding curriculum review. They tend not to wait for those charged with the responsibility of curriculum development in Nigeria, like the National Education Research and Development Council (NERDC) which is characteristically slow (Oduolowu, 2004). Thus, it seems that regardless of government's efforts at giving the educational sector the most befitting curriculum, the implementation appears to be all theory and little practice. Schools (especially public schools) in Nigeria are encumbered with a myriad of rules and regulations that govern how they should operate. Frustrated by the government's irregular and inadequate review of curricula, some schools (private schools in most cases) circumvent the restrictions.

However, some private schools in Nigeria implement British and American curricula in their schools thereby leading to either outright introduction of new subjects outside the ones recommended by government or the addition of extra topics to recommended subjects. The result is the teaching of new subjects in such schools outside the ones recommended in government curricula. Basically, relationships tend to exist among the new subjects which can lead to learners' achievement in the related core subjects. The connections are illustrated in Figure 1.

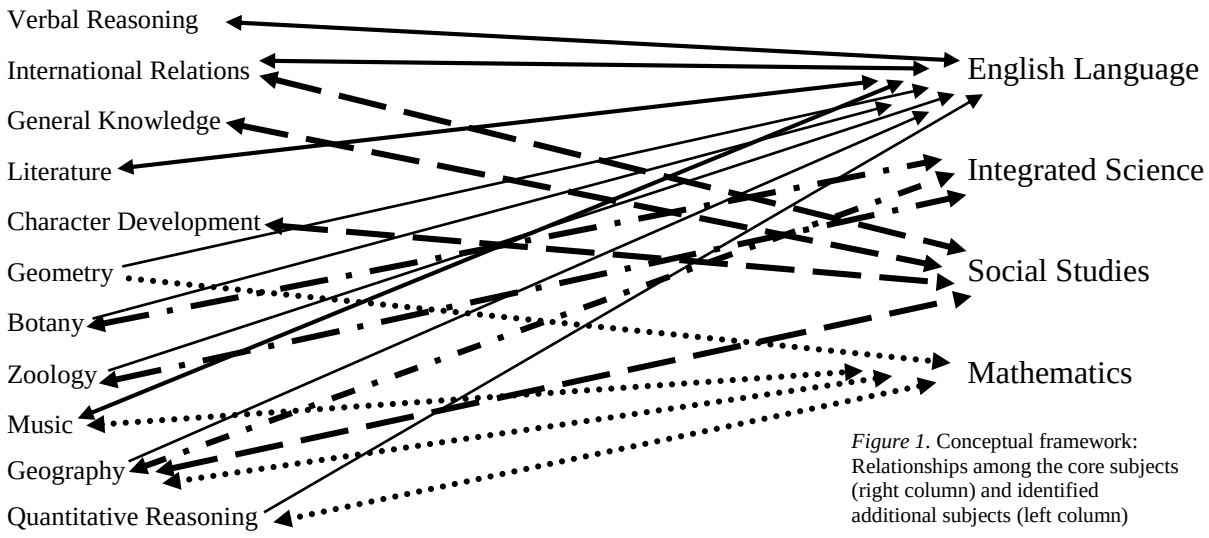

Figure 1. Conceptual framework: Relationships among the core subjects (right column) and identified additional subjects (left column)

Figure 1 reveals that relationships exist among the core subjects and the additional subjects used in some schools. For instance, it shows a link between mathematics and geometry, music, geography, and quantitative reasoning. Another relationship exists among social studies and geography, character development, general knowledge, and international relations. Further, English language studies has relationships in content with literature, music, international relations, verbal reasoning and with all subjects. This may be because the textbooks that are used in these subjects are written in English language. This argument is supported by the constructivist theory.

The constructivists (Baviskar, Hartle, & Whitney, 2009; Piaget, 1967; Sewell, 2002) assume that all knowledge is acquired in relation to prior knowledge. Learners construct knowledge out of experiences. This theory supports the fact that prior experiences encountered by learners could be important in understanding subsequent learning materials, thereby reiterating the interconnectedness of subjects, concepts, ideas, and events. Constructivists believe that there is need to rethink curriculum and classroom experiences so that a link is made about the strong connections between events and objects in the natural world. It stands to reason that practicing teachers who are the interpreters of the curriculum content should be creative enough to understand ways of presenting subject contents so that learners will understand the interconnectedness among subjects and to a wider variety of contents. Ensuring concepts are internalised through the process of accommodation target in an effort to aid mastery and improve learning outcomes.

Constructivists place high premium on meaning making that encompasses epistemology of knowledge building and make provision for heuristic and predictive power of teachers seeking to make rational decisions about curriculum and instruction (Novak, 1993). Teachers should use their wealth of experiences to organise their classroom activities not ignoring their linkages and use methods that will encourage active participation as well as thoughtful reflection by learners. According to Bransford, Brown, and Cocking (2001), teachers should assume the roles of facilitators as well as that of teachers.

Purpose

The impact or effect of the added subjects through the self-induced changes in the standard curriculum is worth investigation to determine their power to predict learning outcomes. Specifically, the researcher sought answers to the following questions:

1. How conversant are school heads with subjects recommended for study in primary schools by the government in Nigeria?
2. What are the extra subjects offered in primary schools outside those recommended by the government?
3. Are there any significant differences in the mean scores in the core subjects tested (integrated science, social studies, mathematics and English language) for those who were exposed to extra subjects and for those who were not?

Methodology

Sampling Technique and Sample

The study adopted the survey design (Kerlinger & Lee, 2000). The population comprised of Nigerian children in junior secondary school 1 (JSS1) who attended private primary school and those who did not. Purposive sampling was used to select 680 students from 34 junior secondary schools and 34 proprietors/head-teachers (17 from private schools and 17 from public primary schools). All the students used were exposed to relatively homogeneous

Nigerian primary school curriculum on the subject areas tested. However, those from private schools were exposed additional curriculum contents which were outside the ones recommended. From the primary schools selected, lists of names of the pupils who graduated from these schools and the secondary schools where they were posted were collected. The students (M=11.37 years of age, SD=2.9) had completed 6.2 (SD=2.1) years of schooling in primary school (public, private) respectively. The selected students were traced to their new schools. In each school 20 junior secondary one students whose names were listed were selected. Because participants' demographic and school variables were unrelated (type of school, public/private; teacher qualification, only children taught by teachers who hold Nigerian National Certificate in Education (NCE); and the students graduated from primary school the same year), they were not considered in the analyses. In all, 34 proprietors from 34 schools and 680 students (20 students from each school) participated in the study.

Instrumentation

Five research instruments developed by the researcher were used to collect data for the study. The instruments include

1. Integrated Science Achievement Test (ISAT)
2. Social Studies Achievement Test (SSAT)
3. English Language Achievement Test (ELAT)
4. Mathematics Achievement Test (MAT)
5. Head-Teacher/Proprietors Questionnaire (HPQ)

ISAT, SSAT, ELAT, and MAT

The ISAT, SSAT, ELAT, and MAT were developed by the researcher. The instruments were designed to measure student achievement in social studies, integrated science, English language, and mathematics. Each instrument contains 20 multiple choice test items with four options, A to D. The 20 items for each instrument were selected from a pool of 36 multiple choice items with content made from the JSS 1 curriculum in the four subject areas tested. The test blue print used to develop these items took into cognizance the volume of learning experiences associated with each sub-topic in assigning percentages to the total number of items. Emphasis was, however, placed on aspects of the curriculum that relate with the content of what was covered in the extra subjects. Thirty-six items were generated on each subject area.

Head-Teacher/Proprietors Questionnaire (HPQ)

This questionnaire developed by the researcher to ascertain the extent to which the head teachers find out the subjects recommended by government for study in primary schools in Nigeria, those done by schools, and subjects outside the ones government recommended done by schools. The instrument has three parts: (a) subjects recommended by government for study in primary schools; (b) those recommended that were not done by schools in areas covered by the study; and (c) subjects not recommended by the government but were included in school curriculum.

Validity and Reliability of the Instruments

Draft copies of these instruments were reviewed by two subject teachers in each subject area under study. They were pilot tested on 50 students who were not part of the study sample but has similar characteristics. The reliability coefficient of these instruments was established using Kuder-Richardson (KR_{20}) at 0.81, 0.791, 0.767, and 0.821 for integrated science, social studies, English language, and mathematics respectively. Cronbach's alpha was used to establish the reliability

coefficient of the principals' (school heads') questionnaire at 0.87.

Data Collection and Analysis Procedure

These procedures were done in stages. At the preliminary stage, the researchers sought consent from the gatekeepers (Punch, 2000) in the schools that were selected to participate in the study. Six research assistants were trained on the technicalities of how to administer the instruments. Students who attended the primary schools selected were traced to the secondary schools where they were posted. Two research assistants were assigned to each LGA selected. The teachers of the four subject areas tested were very useful in selecting students from schools where the extra subjects investigated were done.

Each selected pupil responded to the four achievement tests. The researcher personally administered the HPQ on the head teachers. All the instruments were retrieved back immediately after they were attended to by the respondents. The data collected were analysed using descriptive (frequency and percentages) and inferential statistical procedures (independent t-test).

Results

Results were organized as follows. First, descriptive data presented on how conversant public and private school teachers are with government approved subjects for study at the primary level of education in Nigeria, the extra subjects offered in primary schools outside those recommended by Government while *t*-test was used for comparison scores obtained by the participants in core subject areas tested.

Table 1
Frequency Distribution of Subjects Identified by Teachers as Those Recommended for Study by Government in Primary Schools in Nigeria

Subjects	Private School		Public School	
	Yes *n* (%)	No *n* (%)	Yes *n* (%)	No *n* (%)
English Studies	17 (100)	0	17 (100)	0
Mathematics	17 (100)	0	17 (100)	0
Social Studies	17 (100)	0	15 (94.1)	2 (5.9)
Civic Education	16 (97.1)	1 (2.9)	14 (82.4)	3 (17.6)
Basic Science & Technology	17 (100)	0	16 (97.1)	1 (2.9)
Christian Religious Knowledge	15 (94.1)	2 (5.9)	16 (97.1)	1 (2.9)
Agricultural Science	17 (100)	0	17 (100)	0
Home Economics	15 (94.1)	2 (5.9)	17 (100)	0
Cultural & Creative Arts	17 (100)	0	10 (58.8)	7 (41.2)
Physical & Health Education	17 (100)	0	17 (100)	0
Computer Science	17 (100)	0	10 (58.8)	7 (41.2)
Non-verbal Reasoning	17 (100)	0	3 (17.6)	14 (82.4)
Verbal Reasoning	17 (100)	0	3 (17.6)	14 (82.4)
Hand Writing	16 (97.1)	1 (2.9)	15 (94.1)	2 (5.9)
Drawing	16 (97.1)	1 (2.9)	15 (94.1)	2 (5.9)
Vocational Aptitude	15 (94.1)	2 (5.9)	3 (17.6)	14 (82.4)
French	14 (82.4)	3 (17.6)	3 (17.6)	14 (82.4)
Music	15 (94.1)	2 (5.9)	2 (5.9)	15 (94.1)
Arabic Language	10 (58.8)	7 (41.2)	11 (64.7)	6 (35.3)

N = 34; 100% reported

Table 1 reveals the frequency distribution of government recommended subjects (percentage of responses are in parenthesis) as listed by head teachers/proprietors in the private and public schools used for this study. As it can be seen from Table 1,

respondents in both private and public schools (100%) listed mathematics, English language, agricultural science, and physical and health education as part of the recommended curriculum for the primary level of education in Rivers State. The table also shows that all the private schools listed social studies, basic science and technology, cultural and creative arts, and computer science while not all are taught in public schools. Ninety-four percent listed social studies as a recommended subject; whereas, 6% did not. Further, basic science and technology was listed by head-teachers in public schools at 97% as well as agricultural science at 97% as recommended subjects for children at the primary level. However, while all the head-teachers in public primary school (100%) as well as 94% of the proprietors in private schools listed home economics as recommended curriculum, 6% of private school head-teachers did not. With respect to cultural and creative arts and computer science, only 50% of the public school head teachers listed it as one of the recommended subjects; whereas, 42% did not. However, the recommended subjects according to the Federal Government of Nigeria as documented in the National Policy on Education (FRN, 2004) are as listed in Table 2.

Table 2
Recommended Subjects for Primary Education by the Nigerian Government

Core Subjects	Electives
English Studies	Agriculture
Nigerian Language (Hausa, Igbo or Yoruba)	Home Economics
Mathematics	Arabic Language
Basic Science and Technology	
Social Studies	
Cultural and Creative Arts	
Christian Religious Studies/Islamic Studies	
Physical and Health Education	
French Language	
Computer Studies	
Civic Education	

Source: Federal Republic of Nigeria (FRN, 2004)

Information on the extra subjects offered in primary schools outside those recommended by the Government was analysed using frequency and percentage. The result is presented in Table 3. The table reveals that apart from the subjects recommended by the government most of the private primary schools (88% and above) indicated that they have extra subjects which are offered in their schools. The subjects are literature in English, vocational, verbal reasoning, quantitative reasoning, calligraphy, general knowledge, speech training/phonetics, geography, music, character development, handwriting/calligraphy, non-verbal reasoning, geometry, international relations, botany, and zoology.

Table 3
Subjects Offered in Schools outside Those Recommended by the Government

Subjects	Private School		Public School	
	Yes *n* (%)	No *n* (%)	Yes *n* (%)	No *n* (%)
Literature in English	12 (70.6)	5 (29.4)	3 (17.6)	14 (82.4)
Vocational Aptitude	17 (100)	0	3 (17.6)	14 (82.4)
Verbal Reasoning	17 (100)	0	2 (11.8)	15 (88.2)
Quantitative Reasoning	17 (100)	0	2 (11.8)	15 (88.2)
Calligraphy	16 (94.1)	1 (5.9)	1 (5.9)	16 (94.1)
General Knowledge	16 (94.1)	1 (5.9)	1 (5.9)	16 (94.1)
Speech Training/Phonetics	12 (70.6)	3 (17.6)	2 (11.8)	15 (88.2)
Geography	12 (70.6)	5 (29.4)	4 (23.5)	13 (76.5)
Music	16 (94.1)	1 (5.9)	5 (29.4)	12 (70.6)
Character Development	14 (82.4)	3 (17.6)	1 (5.9)	16 (94.1)
Phonics	14 (82.4)	3 (17.6)	0	17 (100)
Handwriting/Calligraphy	17 (100)	0	1 (5.9)	16 (94.1)
Non-verbal Reasoning	16 (94.1)	1 (5.9)	2 (11.8)	15 (88.2)
Geometry	15 (88.2)	2 (11.8)	0	17 (100)
International Relation	15 (88.2)	2 (11.8)	0	17 (100)
Botany	10 (58.8)	7 (41.2)	0	17 (100)
Zoology	9 (52.3)	8 (47.1)	0	17 (100)

N = 34: 100% reported

The data in Table 4 correspond to the third research question: Is there any significant difference in mean scores of the pupils exposed to extra subjects at the primary level and those who were not in the core subjects tested?

Table 4
Comparison of Mean Scores in Core Subject Areas by Exposure to Extra Subjects and Non-Exposure

Core Subject	Group	*N*	Mean	*SD*	*t*	Sig. two-tail	Eta Value
Mathematics	Exposed	368	75.32	12.99	23.93	.000	0.458
	Not Exposed	312	46.11	18.41			
English Lang.	Exposed	368	74.11	14.57	16.38	.000	0.280
	Not Exposed	312	53.16	18.56			
Integrated Sc.	Exposed	368	59.97	15.10	12.55	.000	0.188
	Not Exposed	312	44.51	17.00			
Social Studies	Exposed	368	64.35	14.45	6.24	.000	0.054
	Not Exposed	312	56.53	18.03			

* $p < 0.05$

An independent-samples *t*-test was conducted to compare the learning outcomes of Junior Secondary 1 students in River States who were exposed to extra subjects beyond the ones recommended by the government and those who did not. There was significant difference in scores for those who were exposed to extra subjects in the core subjects: mathematics exposed ($\bar{x}$ = 75.3154, *SD* =12.98728) and not exposed ($\bar{x}$ = 46.1100, *SD* = 18.1); *t* (679) = 23.93, *p* = .05. The magnitude of the difference in the means was high for mathematics with Cohen's value of (eta squared = 0.458). When expressed in percentage, it means that 45 percent of the variance in learning outcome between the two groups is explained by exposure of

learners to extra subjects beyond those recommended by the government.

Further, there was significant difference in scores for those who were exposed to extra subjects for English language ($\bar{x}$ = 74.11, *SD* = 14.57) and not exposed ($\bar{x}$ = 53.15, *SD* = 18.56); *t* (677)16.38, *p* = 0.05. The magnitude of the difference was not too high with Cohen's value (eta squared=.280). With respect to integrated science, there was also difference in the mean scores of those who were exposed ($\bar{x}$ = 59.97, *SD* = 15.1; and not exposed ($\bar{x}$ = 44.51, *SD* = 171); *t* (679) 12.55. Lastly, the scores for social studies show ($\bar{x}$ = 64.35, *SD* = 14.45) for those exposed, while the mean score for those not exposed was ($\bar{x}$ = 56.53, *SD* = 18.03), *t* (678) 6.24. The *p* was at 0.05 two tailed.

The magnitude of the difference in the means for mathematics was high (45%) while the magnitude of the difference in the means was moderately high for English language and integrated science with Cohen's value of eta squared was 0.28 for English and 0.188 for integrated science, and rather very low for social studies which produced an eta square of 0.054. When expressed in percentage, it means that 28% (English language), 19% (integrated science), and 5% (social studies) were the variances in learning outcomes between the two groups as explained by exposure of learners to extra subjects in combination with the recommended curriculum by the government.

Discussion

In December 2005 the National Council of Education (NCE), which is the highest policy making body in the education sector in Nigeria, directed the Nigerian Educational and Research Development Commission (NERDC), a parastatal under the Federal Ministry of Education, to develop a Basic Education Curriculum to cover the first nine years of schooling while compulsorily offer one or two elective subjects to students. The subjects offered at the middle basic (grades 4-6) are the same with those of the lower basic except for the inclusion of the French language. The school system is expected to expose learners to all the compulsory subjects.

Findings from the present study revealed that most of the schools used for this study do not have complete knowledge of the total number of subjects presently recommended for study in primary schools in Nigeria, nor the elective status of some of the subjects and the changes in their names. For example, English language is now called English studies; Christian religious knowledge (CRK) is now called religious studies; computer science is now computer studies; and basic science is now called basic science and technology. Further, according to the result, 19 subjects were listed as the number of subjects recommended by the government as against 14 subjects. This is not appropriate given that UBE curriculum has been in use for over five years. The Punch Newspaper of July 24, 2011 (Olugbile & Akosike, 2011) reported that most teachers in the nation's school system are not familiar with the new curriculum adopted by the federal government since 2008. This lack of teachers' knowledge led to the workshop organized by the Rivers State Ministry of Education to expose the teachers to the new document, equip them with a working knowledge of the curriculum, and how to use it in teaching and learning as reported in the same edition of the paper. This kind of exercise should have come even before the document was put to work in 2008. One wonders how many states of the federation like Rivers State had undertaken such exercise.

It was further observed that while French was offered in all the private schools under the study, even in their lower basic classrooms contrary to government recommendations, none of the public schools used in the study taught French. All

the schools (both private and public) do not teach any of the three major Nigerian languages in their schools. As revealed in Table 3, the incidence and occurrence of extra subjects is almost limited to private schools as most of the public schools in River State are not offering the extra subjects. This discrepancy may be due to the fact that the subjects are not government-approved, or that the public schools do not have teachers and/or curriculum to teach those subjects. Ordinarily teachers sourcing for extra materials to teach their pupils would have been considered creative and resourceful, but the magnitude of extra materials used by way of extra subjects in private schools as revealed in this study could be very impactful. It could also suggest a yawning gap which curriculum planners need to fill.

Further, a closer look at the core subjects studied and the listed extra subjects will reveal a relationship between them (see Figure 1). Thus, deeper understanding of these extra subjects by the pupils who are so exposed may lead to increases in the academic achievement of such learners. For instance, there is relationship between literature in English, verbal reasoning, phonetics, and English studies. Children who study English language alongside the above extra four subjects are more likely to understand the subject better than those who study just English language. Also subjects such as quantitative reasoning, geometry, and using music (recitation of multiplication tables and other songs and rhymes used in teaching numbers) can positively affect performance in mathematics. While general knowledge, geography, character development, international relations might positively affect performance in social studies. Further, music can also influence academic performance in cultural and creative arts, while botany and zoology can influence understanding of integrated science.

The performance of those students exposed to extra subjects in English language would have been enhanced by the teaching of extra subjects such as literature in English, verbal reasoning, speech training/phonetics, and calligraphy/handwriting. Also, incorporating literature methods (using quality plays, rhymes/poetry, and stories) might be very effective when teaching learners at the primary level of education. Further, reading good story books, rhymes, and singing songs that are linked to the subject areas, could help arouse and sustain the interest of the learners, thus, encouraging them to respond and participate actively. Research has shown that children respond enthusiastically to songs and rhymes and tend to welcome it (Klein, 2005). Şevik (2011) noted that the repetitive nature of poems and songs coupled with the joy songs add to learning activity and the associated power of melody and content of the word may reinforce learning. To buttress this assertion, studies confirmed the efficacy of using literature in teaching reading, listening, and communication skills which aid language learning (Machado, 1999). As a school subject, literature in English has the ability of inculcating in learners critical thinking skills and experiences needed for independent assessment of different issues in life. Literature can aid character formation and inculcate values and positive attitudes for survival. Verbal ability can also be used to predict learners' performance in language skills.

Mathematics, on the other hand, can also be greatly enhanced by previous knowledge that students acquired from taking extra subjects such as quantitative reasoning, non-verbal reasoning, and geometry. What was taught in extra subjects such as geography, character development, general knowledge, international relations, and music would contain aspects of social studies. Knowledge gained from botany, zoology and aspects of vocational aptitude may sharpen the aspects of integrated

science. Students who have taken such subjects will leverage the knowledge attained from such exposure to have an edge over those who did not take such subjects, as the findings from this study revealed. Apart from adding to the vocabulary of learners, which has its own contribution to learning, these extra subjects are capable of helping students become test-wise, and this could be a positive factor in passing examinations.

Conclusion and Professional Relevance

The present findings will assist those saddled with the responsibility of developing school curricula for Nigeria primary schools by contributing concrete information to the continuing struggle of deciding what should be taught in schools. Parents will also find this work useful in securing their position about extra subjects taught in schools where their children and wards attend. Evaluators working for primary schools will also find this study useful or relevant because the basic rationale for evaluation is to provide relevant and objective information for decision-making.

Another set of people who may benefit from this study are career guidance counselors who may use the findings of the study to counsel parents and students on school choice. Furthermore, career guidance counselors may find this work useful when giving counsel on links among subjects. Government and private school owners might discover the importance of, and what constitutes, an ideal academic environment. Educational bodies at the three tiers of government will also find this work useful especially those working in the inspectorate division of this parastatal. Findings from the study may enable inspectors from ministry of education to set proper limitations on what should be taught in schools or give advice to relevant government agencies on what should constitute the content of the primary school curriculum. Findings from this study may help to ventilate the views of those who hold very traditional opinions on what should constitute the content of a curriculum at this level of education to either continue to hold such views or be more flexible with their views.

The implication of these findings to teacher educators is that teachers should endeavour to be creative interacting with learners. This creative tendency could be reflected in the planning a teacher puts in with respect to materials used both recommended and related materials which have links with the subjects taught. When teacher educators are creative, teacher trainees imbibe the culture, and this culture will be reflected in the way they would plan their teaching activities once they are employed.

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Author

Monica N. Odinko, Ph.D., is a senior research fellow at the Institute of Education at the University of Ibadan in Nigeria. She holds two Ph.D.s: one from the University of Ibadan and the second from University of Edinburgh. Her research interests are early childhood education, language arts, teacher preparation, and curriculum in schools.

SHOULD INFORMAL/NON-FORMAL LEARNING BE CONSIDERED IN TEACHER EDUCATION AND TEACHING? – REFLECTIONS BASED ON THE ANHOLT PROJECT

Karen Bjerg Petersen
Aarhus University, Denmark

Abstract: *In the past decades, the importance of developing and validating informal and non-formal learning processes has been launched by several international organizations including UNESCO and the OECD, originally mostly focusing on adult learning experiences. Meanwhile, in recent years an increased focus has been evidenced on introducing informal and non-formal learning environments for learners at primary and secondary school levels as means of re-engaging in particular school-leavers, drop-outs, and disadvantaged learners in the formal educational system. Educational policy, empirical studies, projects, and various pedagogical interventions carried out in Europe, the United States, and other countries evidence this development. Based on empirical data and research from an European project "Anholt 2013" aimed at empowering disadvantaged and disengaged young European school-leavers, and motivating them to take responsibility for their own need for education, this article sets out to reflect whether informal and non-formal learning environments should be considered in teacher education and teaching.*

Keywords: informal learning, non-formal learning, disadvantaged learners, disengaged students, teacher education

Introduction

In the past decades, the interest in how informal and non-formal learning could support formal learning has increased (Carlinger, 2013; Conlon, 2004; Livingstone, 2001, 2006). Concerns about increasing drop-out rates among students in primary and secondary school have worried educators and politicians; Denmark being no exception (Danish Government, 2011; Sørensen, Hutters, Katznelson, & Juul, 2013). As a result, during the past decade a heightened focus in research aimed at identifying drop-out factors, engaging students in schooling, and preventing young people from leaving school before finishing final exams can be evidenced (Doll, Eslami & Walters, 2013; Wang & Degol, 2014). Many educators, being involved in social work and alternative schooling systems for school-leavers as means of re-engaging these young people in the formal educational system, have suggested innovative and alternative intervention forms, which in many cases include informal and/or non-formal learning settings.

Since 2008, in a series of pilot projects and seminars, a group of European educators have focused on re-engaging young school-leavers, aged between 13 and 19 years old in alternative educational activities based on experience- and interest-driven approaches in informal and non-formal settings (Höllmüller, 2011; Lind & Schroeder, 2012; Petersen, 2014a, 2014b). Based on investigations from the project entitled "Anholt 2013", including findings from the project *Anholt 2011* (Höllmüller, 2011), the aim of this article is to discuss whether informal and non-formal learning and alternative educational approaches must be more consciously considered in teacher education and teaching in order to maintain student engagement especially among vulnerable and disadvantaged students.

In section one in this article I will address historical contexts of the notion of informal

and non-formal learning and the recently heightened focus among educational politicians and educators to these notions due to increasing drop-out rates. In section two I will introduce the educational ideas and summarize research findings from the Anholt projects. Finally, in section three, I will reflect upon whether informal and non-formal learning should be considered in teacher education and teaching.

Informal, Non-formal, and Formal Learning – History and Contexts

The notion of informal learning has been addressed in research since the 1950s, particularly in adult education. Knowles's (1950) book, *Informal Adult Education*, is considered the first contribution, which is partly based on John Dewey's ideas that "learning takes place through an individual's experiences, lifelong learning and, the role of reflective thought in education" (as cited in Conlon, 2004, p. 286). Meanwhile, it was not before the 1970s and 1980s that informal learning in connection with the concept of lifelong learning was acknowledged worldwide (Carlinger, 2013).

In a 1973 UNESCO report, entitled *The Faure Report*, on future worldwide educational planning, Platt (1973) raised discussions and notions about informal learning. A variety of "educational vectors" aiming at developing a future "learning society" were outlined in the report (Platt, p. 8). First of all "diversification of learning opportunities" including a set-up of "plural offerings in school and *out of school*" were outlined as being of immense importance for a future knowledge society. The requirement to "design linkages from nonformal [sic] to formal education" was similarly emphasized in the report (p. 9). The demand for equality and equity of educational opportunities was highlighted, and the organization of "'second change' arrangements to serve drop-outs and push-outs" was suggested (p. 10). Several ways of obtaining equality were outlined in the report, for example organizing "work study programmes," "school connected apprenticeship," "creative arts," use of "local environment," and harnessing "informal educational potentials" (p. 10-11).

While the Faure report was the first to highlight the importance of informal learning in global educational policy, in 1996 the Organization for Economic Cooperation and Development (OECD) "agreed to develop strategies for 'lifelong learning for all'" (OECD, n.d.). Like the Faure report, the OECD's concept of lifelong learning "includes formal, non-formal, and informal learning" and the understanding of learning "from-cradle-to-grave." Since, the political awareness of the importance of informal/non-formal learning has increased. In 2004, the European Commission began to systematically develop "Common European Principles for the identification and validation of non-formal and informal learning," and "European Guidelines for validation of non-formal and informal learning" (European Commission, 2013, p. 1).

While the concept of informal learning in earlier years can be traced back to primarily adult education, in recent years it is also linked to engaging vulnerable and disadvantaged young people, who have left primary and secondary education without final exams. Politically, the increased drop-out rates among youngsters in Europe has led to a EU agenda in which efforts of validating young people's non-formal and informal learning have been launched. The European Commission highlights its aims

> …to expand career and life-enhancing learning opportunities for young people with fewer opportunities and/or at risk of social exclusion. In particular, these young people should benefit from the expansion of opportunities for non-formal and

> informal learning and from strengthened provisions for the recognition and validation of such learning within national qualifications frameworks. This can help to open the doors to further learning on their part. (Salto Youth, 2012, p. 4)

Increasing Drop-out Rates

While political efforts in Europe are underway to recognize and validate informal learning, various explanations to the increased amount of school-leavers without final exams have been forwarded. Some researchers have focused on individual reasons and students' own explanations for dropping out by investigating school-leavers personal motives and referring to theoretical models indicating push, pull, and/or falling-out factors (Bradley & Renzulli, 2011; Doll et al., 2013; Stearns & Glennie, 2006). According to Doll et al. (2013)

> A student is *pushed out* when adverse situations within the school environment lead to consequences, ultimately resulting in dropout…. Students can be *pulled out* when factors inside the student divert them from completing school…. *Falling out* of school…occurs when a student does not show significant academic progress in schoolwork and becomes apathetic or even disillusioned with school completion. (p. 293, emphasis added)

While Stearns and Glennie (2006) and Bradley and Renzulli (2011) point to significant variations in dropout rates and reasons by grade level and age indicating that multiple dropout processes may influence teenagers to leave school, Doll et al. (2013) indicate that students' main reasons for leaving school, pushed-out factors constitute 48.7%, pulled-out factors 36.9%, and falling-out factors 14.3%. Meanwhile, these conclusions are based on meta-investigation of various studies, and the authors emphasize that "caution should be taken in making comparisons across years and studies" (p. 293).

In contrast, other educational researchers have pointed to structural, societal, and educational policy reasons for increased drop-out rates. Critical European and American researchers and educators have for example highlighted unintended negative implications of neo-conservative education policy (Ball, 2006, 2009; Berliner, 2014; Berliner & Nichols, 2005; Biesta, 2007, 2010; Shohamy, 2001; Winter, 2011). One negative aspect is that the intense focus on testing in formal education leads to both inequality and inequity, higher drop-out rates, and a narrowing of curriculum content with teachers and educators focusing on merely teaching-to-the-test activities and excluding disadvantaged students (Berliner, 2014; Berliner & Nichols, 2005). Fear and inequality created by increased testing is another critique raised by the Israeli test researcher, Shohamy (2001, 2006). The "democratic deficit" in neo-conservative educational policy and thinking desiring "to have total control over the educational process" is a further critique outlined by the prominent European educational researcher, Biesta (2011, p. 539). The tendency to reproduce inequality in the formal educational system was highlighted by Bernstein (1971) and is repeated by Biesta, Berliner, and others in the 2010s.

Notions and Definitions of Informal/ Non-formal and Formal Learning

The increasing drop-out rates of particularly vulnerable and disadvantaged students have led politicians, researchers, and educators to suggest alternative educational approaches including informal/non-formal learning as means of re-engaging school-leavers without final exams in the formal educational system. In the past decade, researchers and politicians

have sought to define the notions of informal/non-formal and formal learning. Livingstone (2001) defined informal learning as "any activity involving the pursuit of understanding knowledge or skill which occurs without the presence of externally imposed curricular criteria…in any context outside the pre-established curricula of educative institutions" (p. 4). Livingstone outlined that "when teachers or mentors take responsibility for instructing others without sustained reference to an intentionally-organized body of knowledge in more incidental and spontaneous learning situations, such as guiding them in acquiring job skills or in community development activities" (p. 2), this might be called informal learning.

In contrast, non-formal learning is considered the type of learning in which "learners opt to acquire further knowledge or skill by studying voluntarily with a teacher who assists their self-determined interests by using an organized curriculum, as is the case in many adult education courses and workshops" (Livingston, 2001, p. 2). While Livingstone focused on the non-curricular environment of informal learning, Ainsworth and Eaton (2010) emphasized the educational outcome of informal learning in the following way: "…when learners can see the real-world application of their skills they are more likely to understand why it is important to continue to build their skill and competence level" (p. 36). Carlinger (2012) recently broadened the concept of informal learning to include "situations where the learner determines some or all combinations of the process, location, purpose, and content, and may or may not even be aware that instruction has occurred" (p. 5).
The distinctions between formal, informal, and non-formal learning have also been launched by organizations like UNESCO, OECD and the EU.

Although discussions and ambiguities in both the literature and the practical understanding of the distinctions between informal and non-formal learning persist, it is emphasized by many that those involved in informal learning are often not aware of that they are learning. The European educators in the Anholt projects, setting out to develop new alternative educational approaches for disadvantaged young people (Lind 2014), defined their understanding of informal learning in continuation of Livingstone (2001), Robinson (2010), and the above outlined definitions. Lind and Schroeder (2012) stated

> The term 'informal learning' includes anything we do outside of organized courses to gain significant knowledge, skill, or understanding. It occurs either individually or with other people. An interesting aspect of informal learning is that although it may be intentional, in most cases it is unintentional, incidental, random, or ad hoc. (p. 6)

The Anholt Project

The educational approaches (Lind, 2014; Pozo, 2014) in the *Anholt Project* (hereafter used as a generic term for the educational approaches) were implemented and investigated in two projects on the Danish island Anholt in 2011 (Höllmüller, 2011) and 2013 (Petersen, 2014a).

In the Anholt project, the European educators constructed

> an informal and non-formal space around the young people for a period of about 2 weeks, where, in relatively safe but isolated settings, they managed all aspects of their lives without any adult assistance interfering in the young people's ways of life and choices. (Petersen, 2014a, p. 10).

Anholt 2013 took place as a fourteen-day project for twenty-four young people from six youth organizations in six European countries: Germany, Austria, Italy, Portugal, Spain, and Denmark. The gender

distribution was eleven girls and thirteen boys. The participants were aged thirteen to nineteen years. The group of young people consisted of school-leavers, students facing academic or other problems, and some were considered vulnerable or disadvantaged due to various individual reasons. The participation in the project was voluntary (Petersen, 2014a).

The educational approaches in the Anholt project were conceived of and implemented as an opportunity for young people to *voluntary* and *electively* engage in various experience- and community based and interest-driven informal learning processes. The Anholt project hence created both opportunities and structure for the young people in terms of providing the opportunity to freely and optionally participate in various *leisure volunteer activities* and *work experience/internships*.

The assumptions behind the pedagogical considerations were that "left to individually choose and self-organize, young people are capable of much more formal organization than adults expect of them. They are able to take responsibility for their own lives and to choose activities and training, based on their own, and not someone else's choices" (Petersen, 2014a, p. 10). Furthermore, the European educators believed that "some of the skills the young people acquired in the course of the project may to some degree be transferred to formal educational settings" (p. 10).

Research Findings: The Anholt Project

In the research of Anholt 2011, Höllmüller (2011) investigated whether (a) it is possible to make informal learning processes visible and (b) how informal learning can be supported by a non-formal setting (p. 2). Based on 225 observation charts (p. 5), 89 reflection charts (p. 10), and short daily interviews with the participants (p. 14-17), Höllmüller came to the conclusion that "on the whole" the Anholt project "showed how informal learning processes within a nonformal frame can be observed and thus made visible" (p. 27). Regarding the second research question, Höllmüller stated "that informal learning often happens in less structured, self-organization-enabling programs with little distraction" in which in particular the relationship between adults and the young people are of importance (p. 27).

The purpose of linking a further researcher to Anholt 2013 was to bring the European educators "closer to valid documentation of the values and importance of the learning methods" they were exploring (Petersen, 2014a, p. 6). Two research questions were investigated in Anholt 2013. In continuation of Anholt 2011, the first research question was whether (a) informal learning occurred at Anholt 2013 and in what ways, and (b) whether intercultural learning occurred at Anholt 2013 and which kinds (p. 12-13). Compared to the research in 2011, the research in 2013 was focused towards investigating the participants' outcome of the educational approaches. Based on theories about mixed-method research and triangulation (Frederiksen 2014), the data collection methods in 2013 were extended. As a result, comprehensive data were collected: 711 observation charts; 312 short daily interviews with the 24 participants; three in-depth individual interviews with the participants before, during, and after Anholt 2013 (in total 72 interviews); 180 observations from ethnographic fieldwork (see Blommaert & Jie, 2010); and finally, interviews with Anholt 2011 participants and European educators (Petersen, 2014a, p. 12-13).

After collecting, the data were processed, analyzed, coded, and recoded in quantitative and qualitative data based on EU Youthpass key competences (EU Youthpass Guide, 2011, p. 20). The skills

investigated in Anholt 2013 were (a) communication in foreign languages, (b) self-knowledge, (c) basic skills, (d) other skills, (e) social and civic skills, (f) entrepreneurship and sense of initiative, and (g) intercultural skills (Petersen, 2014a, p. 48). The quantitative data consist of three SPSS-processed data sets: (a) observation charts, (b) daily interviews, and (c) in-depth individual interviews. The qualitative data consist of field notes, responses, and extracts and statements from the various interviews (Petersen, 2014, p. 14-19).

In a research report on the outcomes of Anholt 2013 and the answers to the two research questions are stated as follows:

> both informal and intercultural learning have been identified and analyzed occurring in the interaction among the young people in very different situations, especially in connection with the activities and internship opportunities made available to the young people, but also in everyday situations, and other situations in which the young people stayed on the island of Anholt during this project. (see Petersen, 2014a, p. 48; for in-depth findings see p. 19-41)

The participants' overall impressions of the project can be evidenced in the third in-depth individual interviews, carried out after they returned to their home countries. A young Austrian school-leaver at-risk summarized his impressions: "It was great because we could take responsibility for ourselves and make own decisions without being criticized by adults" (Petersen, 2014a, p. 48).

Follow-up investigations on two particular Danish participants, who both were school-leavers, indicate "that informal learning in the Anholt project has influenced [the participant's] motivation for education" (Christiansen & Hansen, 2013). In 2014, in connection with the release of a film documentary about the Anholt project, the two Danish participants were interviewed again and responded that they had returned to the formal Danish education system (Tv2oj Tema, 2014). In October 2015 a Spanish participant responded to the question of impact that "Anholt 2013 has changed my life." Another young Spanish participant from 2013 replied, "I learned that I am responsible for my own actions, that nobody was telling me what to do, and that I had to learn it myself. For me it was a 'key to life'" (Petersen, 2015).

A film documentary following three of the participants before, during, and after Anholt 2013 evidenced how the informal concept of giving young people possibilities, the freedom to choose, and be responsible of their own life without interference apparently had a significant impact on their personal development and life (anholt-project.eu., n.d.; Tv2oj Tema, 2014). The film documentary summarized the "adventure" of the three young people on Anholt 2013 as "…a journey inwards, to take control of one's-self, take risks, expand horizons, love, loose and perhaps realize that their past need not determine what they can do next in the future" (anholt-project.eu, n.d.).

Despite the fact that longitudinal impact studies are required to fully evidencing the applicability towards disadvantaged students and school-leavers of the educational approaches in the Anholt project, in continuation of Ainsworth & Eaton (2010), the research findings and outcomes from 2011 and 2013 may indicate, that "the real-world application" of the young peoples' skills in the Anholt project made the participants "more likely to understand why it is important to continue to build their skill and competence level" (Ainsworth & Eaton, 2010, p. 36).

Reflections about the Relevance of Informal Learning for Teacher Education and Teaching Based on the Anholt Project

The research findings, data, and case studies from the Anholt project introduced alternative pedagogical intervention forms, and interest-, community-, and experience-driven educational approaches aimed at developing independent, responsible young people. The findings indicate that the European educators have succeeded in their striving to re-engage school-leavers and at risk young people to return to the formal educational system.

These findings, on the other hand, may raise reflections about formal education, and in particular teacher education and teaching. Apart from an overall consideration whether informal and non-formal are at all relevant to formal education, and in particular to teachers and teacher education, another reflection could be raised whether alternative educational approaches, like the ones introduced in the Anholt project, are worth considering and introducing in schools and teaching. A further consideration to be raised is whether teachers and teacher educators ought to be more aware of various kinds of learning possibilities in informal learning settings.

Such reflections may foster a variety of responses, ranging from more general reflections about informal/ formal education and the overall purpose of education to discussions about specific proposals for extracurricular informal activities, which could be introduced in elementary and secondary school.

General Reflections about Informal and Formal Education: The Heritage of John Dewey

In the endeavor to discuss whether informal and non-formal educational approaches as implemented in the Anholt project should be considered in formal education, teacher education, and teaching, it might be relevant to return to one of the most influential educational philosophers, John Dewey's general reflections about the aim of education. It is well known that one overall theme in Dewey's work was his belief in democracy – in politics, education, and communication. Dewey's statement from 1888 that "democracy and the one, ultimate, ethical ideal of humanity are to my mind synonymous" is essential (as cited in Boydston, 1969, p. 138). Linking education to democracy, equality, and humanity is at the core of Dewey's ideas about the aim of education. Biesta's (2007) critique mentioned in the beginning of this article about the 'democratic deficit' in contemporary education may remind us about some of the core values of education forwarded by Dewey more than 100 years ago.

In 1897 in his *Pedagogic Creed*, Dewey forwarded many of his beliefs and ideas that might remind today's teachers and teacher educators about general aims of education, schools, teaching, and teachers' roles. Dewey emphasized the importance of seeing schools as supporting both the individual psychology of a single child *and* the child's social life. In fact, Dewey put the importance of social life and social activities in the foreground of education. The aim of education according to one of Dewey's creeds is to support children's development in their own social activities. Dewey wrote, "To prepare [a child] for the future life means to give him command of himself; it means so to train him that he will have the full and ready use of all his capacities" (Dewey, 1897/1959, p. 19-20). Dewey continued "I believe therefore, that the true center of correlation on the school subjects is not science, nor literature, nor history, nor geography, but the child's own social activities" (p. 25). Dewey's critique of his own era's understanding of the teaching profession resonate with today's educational researchers' criticism of the

distinctive focus on accountability, narrowed curriculum focus, and high-stakes testing as mentioned earlier in this article. Dewey stated, "I believe, that under existing conditions far too much of the stimulus and control proceeds from the teacher, because of the neglect of the idea of the school as a form of social life" (p. 24). Dewey continued, "I believe finally, that education must be conceived as a continuing reconstruction of experience; that the process and the goal of education are one and the same thing" (p. 27).

Dewey's idea of education as "a continuing reconstruction of experience" that gives students "command" of themselves so that they "will have the full and ready use of all [their] capacities" mirror the educational ideas and outcomes in the Anholt project, in which informal learning settings have enabled many of the young participants to take command of themselves. The critique of the European educators' being in charge of disadvantaged students, and European and American researchers outlining negative implications of current global education policy for formal education echoes Dewey's considerations and reflections about the purpose of education more than 100 years ago. In continuation of the many celebrations on John Dewey's' relevance for the past, present and future educational considerations, dedicated researchers' and educators' voices concerning recent decades development within formal education throughout the world, indicate that alternative and other informal educational approaches such as implemented in the Anholt project might be relevant to consider, reflect, and include in both teacher education, formal education, and teaching (Ball, 2006, 2009; Berliner, 2014; Biesta, 2007, 2010; dewey2016.co.uk; Winter, 2011).

Reflections about the Implementation of Informal Learning Processes in Formal Education

The educational approaches forwarded by the European educators in the Anholt project are not new. Experience-, community- and interest-driven educational approaches, implemented in formal education have been evidenced and developed since the 1990s (Boud & Miller, 1996; Experience Based Learning Systems [EBLS], n.d.; Kolb & Yeganeh, 2012; LIFE, n.d.).

The emphasis in the Anholt project that such approaches might be of particular benefit for disadvantaged students and school-leavers may nevertheless cause interest in a formal educational system striving to prevent young people from leaving school too early. The educational approaches invented in the Anholt project, enabled teachers to be 'at eye level' with at-risk, disadvantaged, and vulnerable young students by first giving the students opportunities to take responsibility for themselves, and second, establishing trustful relations with adults, could be important to consider in formal education and teaching throughout the world as a way of addressing increasing drop-out rates.

When it comes to 'hands-on' considerations about whether educational approached like those introduced in the Anholt project could possibly be introduced as specific extracurricular proposals for re-engaging vulnerable and at-risk students in the formal educational system, it should be reminded that this specific educational approach needs profound preparation, reflections, and collaboration among teachers and educators. The European educators have themselves forwarded a number of "Practical Advices" (Pozo, 2014) and outlined an "Educational Framework" (Lind, 2014) in order for others to follow and understand these educational ideas. No doubt, the

educational approaches could be adapted in various extracurricular activities, aiming at putting students' own activity and understanding in center of learning. Many other educators have forwarded similar or other proposals for arranging extracurricular activities, and evidence has been forwarded for the efficacy of such approaches. Nevertheless the introduction of experiences must be done in the specific context of specific schools taking many factors into account.

In sum, when it comes to considerations about whether teacher education and formal education should consider introducing informal learning processes as a possibility in line with the ordinary curriculum, here similarly, it seems necessary to both reflect and eventually adapt some of the educational ideas to specific facts. It has been seen in Piagetian approaches, for example, that it is possible to adapt and introduce profound experience and learner centered approaches in teacher education. One example is the Canadian-American teacher educator Eleanor Duckworth's longstanding work at the Harvard School of Education to introduce profound Piagetian approaches into in teacher education (Duckworth, 1997, 2006). As it is known from meta studies carried out by another influential educational researcher the Australian/New Zealand John Hattie (2009), Piagetian programmes are mentioned as the second most efficient study programme (1,48) out of 138 ranged indicators, in which for example feedback is mentioned as number ten (see visible-learning.org, 2015). Alternative approaches like those introduced in the Anholt project, hence, seem to be worth listening to in both teacher education and schools. As is the case with the introduction of alternative educational approaches and extracurricular activities in specific teaching settings, however in teacher education, reflections about introducing informal learning processes, enabling students to take responsibility for their own learning processes on one hand seem worth taking into consideration, and on the other hand, also undoubtedly require further and specific development.

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Author

Karen Berg Petersen, Ph.D., is an associate professor at Aarhus University in Denmark. She has been a long-time member of ISfTE and is currently the journal editor. Her research interests include informal/intercultural learning; second language teaching and learning; curriculum studies; culture education and theory; and testing and benchmarking within educational policy.

EFFECTS OF THREE CATEGORIES OF MANPOWER ON UNDERGRADUATE STUDENTS' LEARNING OUTCOMES IN TECHNICAL EDUCATION AND THEIR IMPLICATIONS FOR THE CURRICULUM IMPLEMENTATION

Ibiwumi Abiodun Alade
Tai Solarin University of Education, Nigeria

Abstract: *The implementation of technical education curriculum has been besieged with dearth of qualified teaching personnel over the years in Nigeria and some other African countries. Similarly, the available higher institutions where vocational and technical education experts are prepared have not been able to meet this demand of the manpower. This calls for possible intervention strategies which could perhaps address this lingering problem. It is on this observation that this study examines the effects of three categories of manpower on undergraduate students' learning outcomes in technical education and their implications for the curriculum implementation. The pretest, posttest control group, quasi experimental research design with a 4x3x2 factorial matrix was adopted for the study. Sixty technical education undergraduate students from a Nigerian university were purposively sampled for the study. Seven null hypotheses are generated and tested at 0.05 level of significance. Three research instruments were developed, validated, and used for data collection. Data collected were analyzed using Analysis of Covariance (ANCOVA) while Scheffe's post-hoc test was used to explain significant main and interaction effects respectively. Results showed that there is significant main effect of treatment on students' learning outcomes in technical education ($F_{3, 57} = 132.314$; $P<0.05$). The students taught by vocational educator performed best in basic vocational knowledge acquisition ($X=16.38$) while those taught by literate artisans had the highest means score on vocational skills acquisition ($x = 42.82$), then those taught by higher technician group had a mean score of $x = 38.27$ in vocational skills acquisition, while the control group performed least ($x = 31.60$). It was concluded that the three categories of manpower are effective at enhancing students' learning outcomes in technical education in various dimensions. To this end, it was recommended that literate artisans should be integrated to the teaching of vocational skills in the tertiary institutions.*

Keywords*:* attitude, higher technician, literate artisan, vocational educator, basic vocational knowledge, vocational skills, vocational education

Background to the Problem

Education for gainful employment has long been considered desirable for every individual to participate as productive members of his/her culture. Education remains the bedrock of growth and development of any nation and a major tool for bringing about desirable changes (Alufohai, 2011). The adoption of this idea can be traced to countries like America, Britain, Japan, and India, among others, which have due consideration for skill-oriented educational programmes. Among such avenues of education which make provision for marketable skills acquisition is technical education. It is often structured in such a way that trainees have the opportunity to acquire manipulative skills and related theory for gainful employment and/or self-employment. This form of education is geared towards production and specific job creation.

Some technical institutions in Nigeria provide technical education with the aim

of turning out many skilled craftsmen, technicians, vocational technical teachers, and other sub-professional personnel to satisfy the manpower needs of Nigeria. This aim makes the role of teaching manpower to put the curriculum content of technical education into practice to be very significant. However, despite of the emphasis placed on vocational and technical education programmes in the *National Policy on Education in Nigeria*, the dearth of qualified teaching personnel over the years has been of much concern. It has been observed that the issue of teacher supply and demand for vocational-technical programmes has been social rather than economic (Alade, 2004). Some schools of thought believe that it is very expensive to establish and maintain technical programmes when infrastructure, equipment, and cost of training teachers are considered. Some other quarters declared that the major issue is that of the attitude of the society towards skilled programmes. Also one problem, which resulted from unfavourable dispositions and inadequate commitment of previous governments in Nigeria, caused a dearth of qualified teachers and researchers in the area of technical education.

As a result, a majority of the unemployed graduates and school leavers have no employable skills because of the nature of the education they received (Abusomwan & Osuyi, 2013). Where there are a dearth of vocational technical education experts, the inadequacies in practical skills acquisition by technical education students in higher institutions becomes worrisome. Alade (2004) observed that as at year 2002, only fifteen universities (ten federal and five states) in Nigeria were offering vocational and technical education courses at the degree level. Even though, as of 2015, the Joint Admission and Matriculation Board records show that there are 147 of federal, state, and private universities in Nigeria, fewer than fifteen of them are still offering technical education as a course of study, thus, creating a shortage of vocational technical graduates expected to teach the senior secondary school vocational subjects.

Lack of enough vocational educators with adequate vocational skills to train Nigerian technical undergraduates is a challenge in Nigeria universities and the other higher institutions where technical education is offered. Consequent upon the rush to produce more vocational technical teachers who will instill manipulative skills in future technical teachers, some modes of training have been suggested over the years. These modes include how people can be attracted and restricted in the teaching of technical subjects; the need to link industrial training with the institutions' means of preparing technical teachers; relationship between technical teacher programmes and curricular innovations of Nigeria educational system, and so on. Similarly, out of the research priorities noteworthy in technical teacher preparation is the involvement of relevant tradesmen in imparting manipulative skills beyond the co-operation received from them during technical teacher trainees' industrial attachment periods.

In Kenya training of technical teachers is targeted at offering the technical institutes a competent workforce that is able to perform the various tasks within their area of specialization (Wafula, Ferej, & Kitainge, 2013). In addition, Kerre (2010) noted that national reviews of education and training reveal that almost 90% of vocational teachers and instructors working in the public vocational training system in Kenya require continuous of upgrading of training skills. Staff members of tertiary technical training institutions feel that a variance exists between the requirements of training institutions and technical teachers trained

in Kenya (Wafula et al., 2013) In the United States of America, manpower production in vocational-technical education gives attention to working practices: the ability to plan one's work, to use materials and time economically, to handle measuring instruments, and to keep the work place tidy. In Great Britain, recruitment of skilled personnel from cooperating developed countries in vocational-technical education such as United States and Japan is paramount, especially in auto mechanic and computers as it geared the national effort towards effective manpower production. Vocational training of students in Germany operates through a dual system: Vocational training is given to students first in the company and later supplemented theoretically in the vocational schools. Germany further set up other supplementary training centres for systematically imparting skills and knowledge through formal training in various courses; all geared to prepare trainees for the world of work.

In Nigeria, other researchers lamented the unsatisfied state of students' vocational and job skills, inconsistent student/vocational teacher ratio, the incompetency of technology teachers, the need to equip young graduates with adequate skills, and the gross deficient of qualified technical teachers in technical education options in Nigerian institutions (Adeyemi, 1997; Apagu, 1997; Okorie, 1993; Olabiyi, 2003). Perhaps due to the very few numbers of universities in Nigeria offering technical education at both undergraduate and postgraduate levels and shortage of manpower in the area, the available research efforts relevant to technical education have been largely unable to solve the critical problem of technical education (Alade, 2006).

Over the years the shortage of vocational manpower in Nigeria secondary schools as a specific case has led to the use of the teaching personnel not specifically in the technical education field handling some vocational subjects like basic technology, basic electronics, and technical drawing. It is not uncommon to see graduates of polytechnics with higher national diploma certificates in engineering/technology/science courses teaching technical education options in secondary institutions. This lack of teaching personnel has led to the invitation of some literate artisans in Nigerian cities to serve as support staff on an informal basis to handle some practical aspects of technical education in some Nigerian higher education institutions.

The artisans, popularly referred to as roadside artisans because they usually operate on roadsides and strategic places in both rural and urban areas in Nigeria environment, are trained under the non-formal apprenticeship schemes, also known as roadside apprenticeship scheme (Olateju, 2001). They work as automotive technicians, metal workers, wood workers and furniture builders, creative artists, electrical/electronic technicians, etc. Roadside artisans have emerged as one of the most dependable group of contributors to national economic development in Nigeria. They are within the reach of the society and are always available to offer prompt and quick service to the public.

The impact of technologists, whose expertise is also in a cluster of high-level technology education added to engineers' function, have often been combined in knowledge, vocational skills acquisition, and activities systematically planned to educate the youth for gainful employment in Nigeria. In any case, there is no clear and laudable evidence to the relative effects of those technologists on technical education trainees at any level in Nigeria.

Uwameiye (1996) recorded a significant difference in students' academic achievement in technical education based on gender and school type. Abayomj (2000) considered gender, educational qualification, age, and salary grade as among the factors that could affect a training objectives. Because these variables are not exclusive categories, and considering the significant place of gender as an issue in technology education worldwide, gender and academic ability are taken as moderating variables in this study.

In spite of the increasing demand for well-equipped technology teachers for vocational and technical institutions in Nigeria, and as laudable as technical education is in Nigeria education policy, the curriculum implementation of technical education programmes in Nigeria is still starved with adequately prepared technical teaching personnel. Also, as with skill development and market productivity, the effect of technical education products from Nigerian higher education institutions has not been felt in the society to an appreciable extent. All these put together informed the need for the study.

Statement of the Problem

The dearth of qualified vocational teaching personnel to implement technical education curriculum in educational institutions in Nigeria has been a lingering problem. Many relevant theoretical and empirical researches available have not been able to conclusively and convincingly solve the critical problem of manpower shortage. It is on this thrust, that this study examined the effects of three categories of manpower on undergraduate students' learning outcomes in technical education and their implications for the curriculum implementation

Research Hypotheses

The following research hypotheses were tested at 0.05 level of significance. Each hypothesis was tested on … students' acquisition of (a) basic vocational knowledge, (b) vocational skills, and (c) attitude to technical education.

H_{01}: There are no significant main effects of treatment (vocational educator, higher technician, and literate artisan) on…

H_{02}: There is no significant main effect of gender on…

H_{03}: There is no significant main effect of academic ability on…

H_{04}: There is no significant interaction effect of treatment and gender on…

H_{05}: There is no significant interaction effect of treatment and academic ability on…

H_{06}: There is no significant interaction effect of gender and academic ability on …

H_{07}: There is no significant interaction effect of treatment, gender and academic ability on ….

Description of Concepts and Variables

- *Basic vocational knowledge:* Rudiments in the concepts and principles of technical education courses often learned before their practical applications in the workshop.
- *Higher technician:* A product of polytechnic with a Higher National Diploma Certificate in technical education related courses and/or a first degree holder in engineering/ technology course(s) related to technical education.
- *Literate Artisan:* A self-employed individual or group of individuals (with the ability to read, write, and communicate to an appreciable extent in any vocational trade similar to university technical education options.
- *Literate:* An individual who can give

vocational information in both theoretical and practical terms to another party in an appreciable understandable English language.

- *Manpower category:* It is teaching personnel with specialization in technical education trade options though with varying professional certificates and / or status.
- *Science-Based Educator:* A science-oriented personnel with vocational ideas sometimes used to teach technical course/trade option(s) in the university system.
- *Vocational educator:* At least a first degree holder in vocational industrial technical education (B.Sc. Ed).

Methodology

The diagram in Figure 1 shows the conceptual framework/model for the study. The framework shows the independent, moderating, and dependent variables. The independent variables are the categories of manpower. The framework equally contains the moderating variables (gender and academic ability of the students) which perhaps are capable of confounding the result of the study. This is followed by the criterion variables, which are the acquisition of basic vocational knowledge, vocation skills, and attitude to technical education, and they are expected to metamorphose into behavioural change (ultimate end) - gainful employment, self-employment or job creation.

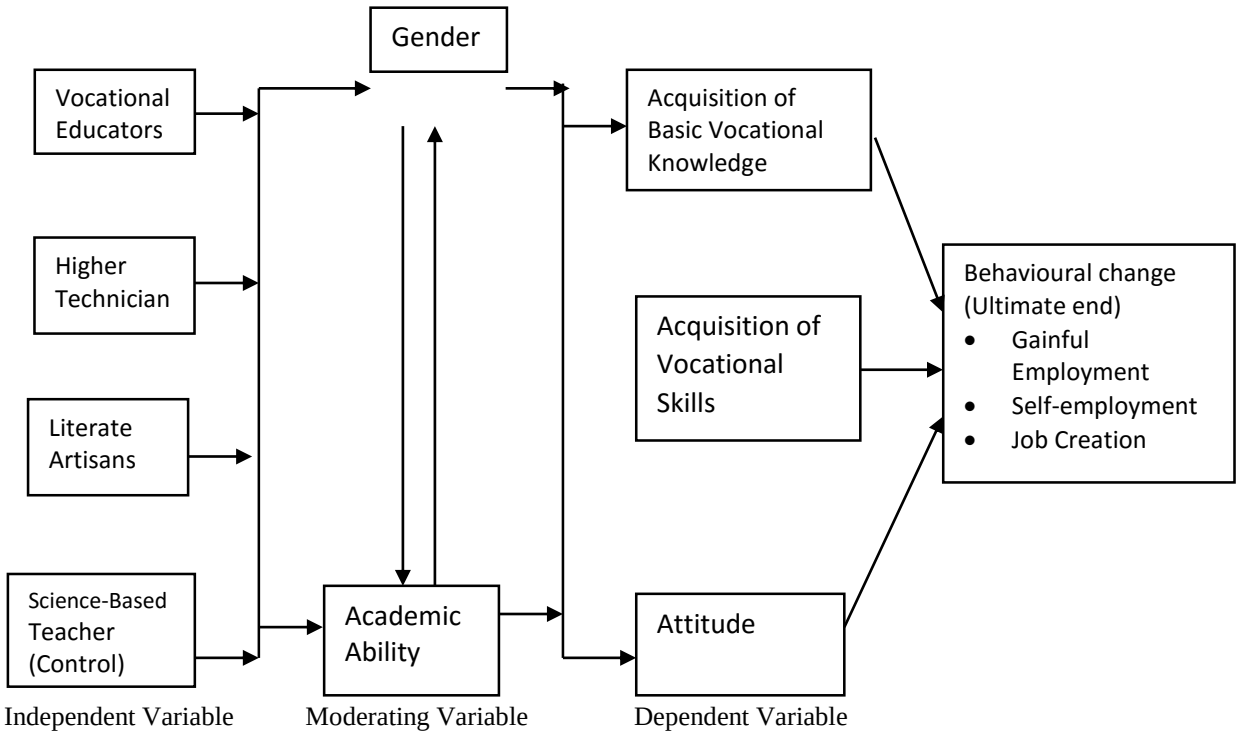

Figure 1. Conceptual framework/model for the study as described in the paragraph above.

Independent Variable

One independent variable (manpower) is manipulated at four category levels: (a) vocational educators, (b) higher technicians, (c) literate artisans, and (d) science-based educator.

Moderator Variables

There are two moderator variables namely (a) gender of participants occurring at two levels: male and female; and (b) academic ability of the participants occurring at three levels: (1) high academic ability (HAA), (2) average academic ability (AAA), and (3) low academic ability (LAA).

Dependent Variables

There are three dependent variables: (a) students' acquisition of basic vocational knowledge, (b) students' acquisition of vocational skills, and (c) students' attitude to technical education.

Research Design

This study adopted a pre-test, posttest control group, quasi-experimental design using a 4x3x2 factorial matrix. These include the manpower categories at four levels (vocational educators, higher technicians, literate artisans, and control group; and academic ability at three levels (high, average and low) (gender at two levels (male and female). The table showing the 4x3x2 factorial matrix of the study is shown in Table 1.

Table 1
The 4x3x2 Factorial Matrix of the Study

Treatment	Gender	Academic ability		
		High	Average	Low
E1	M	Cell 1	Cell 9	Cell 17
	F	Cell 2	Cell 10	Cell 18
E2	M	Cell 3	Cell 11	Cell 19
	F	Cell 4	Cell 12	Cell 20
E3	M	Cell 5	Cell 13	Cell 21
	F	Cell 6	Cell 14	Cell 22
C	M	Cell 7	Cell 15	Cell 23
	F	Cell 8	Cell 16	Cell 24

Note: The 4 x 3 x 2 Factorial Matrix is an indication of how the variables of the study interact together (cells) structurally in practice and not necessarily accommodating any data in the presentation of the research methodology.

Experimental Group 1 (El): O_1 X_1 O_5
Experimental Group 2 (E2): O_2 X_2 O_6
Experimental Group 3 (E3): O_3 X_4 O_7
Control Group 3 (C): O_4 X_4 O_8

O_1, O_2, O_3, and O_4 are the pre-test scores of the three treatment groups and control group respectively. O_5, O_6, O_7, and O_8 are the posttest scores of the three treatment and control groups. X_1, X_2, X_3 and X_4, are the vocational educators, higher technicians, and literate artisans (manpower categories) and the control group (any vocational teacher with vocational idea). The quasi-experimental design adopted was to determine the effectiveness of the three categories of manpower, gender, and academic ability as well as their interaction effects on students' acquisition of basic vocational knowledge, vocational skills, and attitude to technical education.

The record of the participants (technical education students) in their academic ability in the institution was used to place them in difficulty ability groups (low, average, high). Also, the scores in the vocational knowledge and vocational skills test and the technical education students' attitude rating scale were obtained before and after the treatment sessions in all the groups.

The Population and Sample/Sampling Techniques

Sixty, 300-level technical education students at Tai Solarin University of Education, Ijebu-Ode, Ogun State, Nigeria, participated in the study: 46 males and 16 females. The low enrollment of females in technical education programmes in Nigeria is probably the result of the belief that technical education is mostly for males. The students were randomly assigned to treatment groups through simple random sampling without replacement for the purpose of analysis and discussions. The choice of 300-level students was because they have been exposed to the rudiments of all the technical education options in their 100- and 200-level courses. The choice of the university was limited to only Tai Solarin University of Education because it is the only one in Ogun State, Nigeria where technical education is offered at the degree level and has been offering it on degree basis before it became a full fledge university. The curriculum content selected for teaching gave due consideration to the acquisition of basic concepts and principles (knowledge) fundamental to the acquisition of vocational skills and attitudes to the technical education options available in the university.

Instrumentation

Three research instruments were used for data collection in this study. They are (a) Undergraduate Students' Acquisition of Vocational Knowledge and Technical Skill Test (USAVKTST); (b) Technical Education Students' Attitude Scale (TESAS); and (c) Teaching Personnel Instructional Guide (TPIG). All three were designed by the researcher.

Description of the Instruments

USAVKTST had three sections. Section A consisted of the demographic data of the students. Section B consisted of 60 multiple test items on the selected concepts, principles, and themes (basic vocational knowledge) in technical education. All questions were objective form with four choices, A-D. Section C consisted of a 4-hour practical in one of the following areas:

- *Setting of piston in the engine block*: In a four stroke-cycle of a four cylinder engine, automobile technology students were asked to set four pistons in a dismantled motor engine, and all the steps involved are assessed accordingly one after the other.
- *Hinges construction*: Given a sizeable sheet of metal, metal work students were asked to pass through the measuring stage, marking-out stage, cutting stage, assembling and final finishing of the hinges construction.
- *Switch controlling a three lamp holder installation*: Following a circuit diagram, the students were to lay out on a sizeable plywood, a switch controlling three lamp holders, and the stages were assessed one after the other.
- *Picture frame construction*: The constructional stages of measuring, marking out cutting into sizeable pieces, preparation of mitre joint, assemblage, and finishing were followed.

The instrument was subjected to face and content validity by experts in technical education and instrument experts (evaluators). The reliability co-efficient of (0.83) was determined using Kuder-Richardson (KR-21) formula.

TESAS consisted of two sections: Section A was the demographic data of the respondents; Section B consisted of 30 items placed on a 4-point Likert type ordinal scale (strongly agree [SA], agree [A], disagree [D], and strongly disagree [SD]). The scoring key ranged from 4 to

1 for positively worded items, while the reverse was used for negatively worded statements.

The face and content validity of TESAS was done by three experts in educational evaluation to determine the suitability of the items in term of language of presentation, clarity of ideas and applicability to the study. The Cronbach Alpha reliability value of 0.87 was obtained for its reliability.

TPIG was prepared by the researcher. It was vetted, and it enabled a vocational teacher in each experimental group and control group to follow the steps below:
Step 1: Administration of pretest;
Step 2: Introduction of the themes/concepts;
Step 3: Theoretical discussion of the selected themes;
Step 4: Questioning and answering;
Step 5: Practical activities;
Step 6: Administration of posttest.

Procedure for Data Collection

The participating categories of manpower were trained by the researchers for one week with emphasis on (a) the rationale and justification for the study, (b) aim and objectives, (c) technical education curriculum content, (d) methodology, instructional procedures and approaches, and (e) the study ethics. The order of presentation (teaching) expected in each of the experimental groups was vividly instructed to the concluding stage.

The field work covered a total of 8 weeks and included the following phases:
Phase 1: Training of the manpower categories – 1 week
Phase 2: Administration of pretest – 1 week
Phase 3: Teaching of technical education students by the manpower categories in their respective experimental and control group – 5 weeks
Phase 4: Administration of posttest and data collection – 1 week.

Method of Data Analysis

Analysis of the data was done using analysis of covariance (ANCOVA) with the pre-test scores as covariates. Multiple classification analysis (MCA) was used to determine the magnitude of the learning outcomes of technical education students in the four groups. Schefee's post hoc analysis was used to determine the sources of significant main and interaction effects obtained. All the hypotheses were tested at $P < 0.05$ level of significance.

Results

Testing the Hypotheses

H_{01} a: There is no significant main effect of treatment on students' acquisition of basic vocational knowledge in technical education.

Table 2 reveals that there is a significant difference in the students' posttest scores in basic vocational knowledge ($F_{3, 57} = 132.314$; $P < .05$). This shows that there is a significant main effect of treatment on post test scores of basic knowledge of students taught by vocational educator, higher technician, literate artisan and those taught by a science teacher with a general knowledge in technical education. Hence, hypothesis 1a is rejected.

Table 2
Summary of ANCOVA of Posttest Scores in Basic Vocational Knowledge by Treatment, Gender, and Academic Ability

Source of variance	Sum of squares	Df	Mean square	F	Sig. (P)	Remark
Main Effect						
Pretest Covariance	294.030	1	294.030	41.054	1.149	Sig
Combined	2030.200	5	620.045	33.0501	.000*	Sig
Treatment	3625.414	3	3508.462	132.314	.000*	Not Sig
Gender	.321	1	.321	.17	.83	Not Sig
Academic ability	9.150	3	9.150	1.170	.231	
2-way interaction						
Combined	100.611	7	20.724	2.017	116	
Treatment + Gender	160.291	3	44.091	6.415	.140	Not Sig
Treatment + Academic ability	3.623	3	0.874	.192	.632	Not Sig
Gender + Academic ability	6.524	1	6.524	1.326	.350	Not Sig
3-way interaction						
Treat. + Gender, Acad. ability	35.116	3	9.431	1.866	.603	Not Sig
Model	4060.211	16	221.794	41.141	.000	
Residual	4853.603	57	4.426			
Total	10114.32	73	12.109			

Significant at P<.05

Table 3 shows that the students in the vocational educators' treatment group had the highest adjusted mean score in basic vocational knowledge acquisition (x = 16.38), followed by those in the higher technician group (x = 16.23) and literate artisan group (x = 15.82), while those in the control group had the least adjusted mean score in basic vocational knowledge (x = 12.18).

Table 3
Multiple Classification Analysis (MCA) of Posttest Scores on Basic Vocational Knowledge by Treatment, Gender and Academic Ability

Treatment + Category	N	Unadjusted Deviation	Eta	Adjusted Deviation	Beta
Vocational Educator	15	1.20		1.34	
Higher technicians	15	1.12	.703	1.19	.594
Literate Artisan	15	.78		.78	
Control Science teacher	15	4.91		-2.86	
Gender					
Male		.40		.02	
Female		-.34	.104	-0.3	0.006
Academic Ability					
High		-.36		.13	
Average		.36	.010	-.42	.048
Low		.28			
R=0.605					
R^2=.366					

Table 4
Schefee Post-hoc Analysis on Students' Basic Vocational Knowledge Acquisition

Treatment	N	Mean score	Vocational Educator	Higher Technician	Literate Artisan	Control
Vocation Educator	15	16.38		*		*
Higher Technician	15	16.23	*			*
Literate Artisan	15	15.82				*
Control	15	12.18	*	*	*	

Grand Mean = 15.04 *Significant difference

Further, the source of the significant effect of treatment obtained in Table 2 was traced using the Schefee post-hoc analysis, and the results are presented in Table 4. Table 4 reveals that the post test score in basic vocational knowledge of the control group (x = 12.18) is significantly different from each of the vocational education (x = 16.38), higher technician (x = 16.23), and literate artisan (x = 15.82) groups. Also, the higher technicians and the vocational educator's groups are significantly different from one another in the posttest score of basic vocational knowledge acquisition.

H_{01}b: There is no significant main effect of treatment on students' acquisition of vocational skills in technical education.

Table 5 shows a significant difference in the students' posttest vocational skills scores among the three groups (F_3, 57) = 6.247; P < .05). This implies that there is a significant main effect of treatment on posttest scores in vocational skills of students taught by vocational educator, higher technician, literate artisan, and those taught by a science teacher with general knowledge in technical education. On this basis, hypothesis 1b is rejected.

Table 5
Summary of ANCOVA of Post Test Scores in Vocational Skills by Treatment: Gender and Academic Ability

Source of Variance	Sum of squares	Df	Mean square	F	Sig. (P)	Remark
Main Effect	15	16.38		*		*
Pretest covariance	105.705	1	105.705	1.120	.269	
Combined	2253.071	5	450.578	4.472	.000	Sig
Treatment	2914.12	3	881.151	6.24	.000	Sig
Gender	91.811	1	91.81	.566	.000*	Not Sig
Academic ability	105.196	1	105.196	0.728	.185	Not Sig
Gender + Academic ability	1.41	1	1.273	.012	.814	Not Sig
2-way interaction						
Combined	5618.79	7	641.970	6.728	.185	Not Sig
Treatment + Gender	5104.682	3	1124.794	12.953	.140	Not Sig
Treatment + Academic ability	71.164	3	28.165	.138	.670	Not Sig
Gender + Academic ability	1.41	1	1.273	.012	0.814	Not Sig
3-way interaction						
Treat. + Gender, Academic ability	101.484	3	23.495	.182	.139	Not Sig
Model	1027.11	16	532.892	4.323	.000	
Residual	69180.32	57	108.912			
Total	812.29	73	109.582			

Table 6 presents the multiple classification analysis of the groups showing the magnitude of the groups mean scores in vocational skills. From Table 6, the group taught by literate artisan has the highest posttest mean score in vocational skills (x = 42.82) followed by those taught by vocational educator (x = 41.63), than the higher technician group (x = 38.27), while the control group obtained the lowest mean score (x = 31.60).

Table 6
Multiple Classification Analysis of Posttest Scores on Vocational Skills by Treatment, Gender, and Academic Ability

Treatment + Category	N	Unadjusted Deviation	Eta	Adjusted Deviation	Beta
Treatment Educator					
Vocational	15	1.21		1.38	
Higher technicians	15	1.09	.159	-1.98	
Literate Artisan	15	1.67		2.57	.155
Control Science teacher	15	-3.70		-8.56	
Gender					
Male	46	.62		.39	
Female	14	-.58	0.14		0.021
Academic Ability					
High	37			.39	
Average	17	-65	0.48	.51	.047
Low	06	-67		-.53	
R=.174					
R^2=.30					

Grand Mean = 40.25

Table 7 presents the Schefee post-hoc analysis to find out the source of the significance difference obtained on hypothesis 1b. Table 7 reveals that each of the three treatment groups, vocational educator group (x = 41.63), higher technician group (x = 38.27), and literate artisan group (x = 42.82) is significantly different from the control group, that is, the group taught by a science teacher with a general knowledge in technical education (x = 31.60).

Table 7
Scheffe Post-hoc Analysis on Students' Vocational Skills Acquisition

Treatment	N	Mean score	Vocational Educator	Higher Technician	Literate Artisan	Control
Vocation Educator	15	41.66				*
Higher Technician	15	38.27				*
Literate Artisan	15	42.82				*
Control	15	31.60	*	*	*	

*Significant difference

H_{01}c: There is no significant main effect of treatment on students' attitude to technical education.

Table 8 reveals that there is a significant difference in the posttest attitude of the students among the groups (F_3, 57 =18.674; P<05). This implies that there a significant main effect of treatment on the students' posttest attitude to technical education. Hence, hypothesis 1c is rejected.

Table 8
Summary of ANCOVA of Post Test Scores on Attitude by Treatment, Gender, and Academic Ability

Source of variance	Sum of squares	Df	Mean square	F	Sig. (P)	Remark
Main Effect						
Pretest Covariance	140.160	1	140.160	2.201	.126	
Combined	5957.670	5	1292.356	12.214	.000	
Treatment	5837.315	3	1282.372	18.674	.000*	Sig
Gender	99.254	1	99.254	1.024	.000*	Sig
Academic ability	1.016	1	1.016	.101	.793	Not Sig
2-way interaction						
Treatment + Gender	1186.631	3	628.110	5.923	.106	Not Sig
Treatment + Academic ability	30.736	3	12.576	.139	.843	Not Sig
Gender + Academic ability	21.108	1	31.208	.290	.432	Not Sig
3-way interaction						
Treatment + Gender, Academic ability	16.234	3	4.176	.052	.886	Not Sig

To find out the magnitude of the mean scores of each of the groups handled by vocational educator, higher technician, literate artisan, and the control group, the multiple classification analysis is presented in Table 9. Table 9 shows that the vocational educator group obtained the highest attitude mean score (x = 90.40), followed by the literate artisan group (x = 87.44), followed by higher technician group (x = 84.16), while the control group has the least mean score (x = 78.89). Further, the Schefee post-hoc analysis was carried out to trace the source of the significant effect of treatment obtained on students' attitude to technical education.

Table 9
Multiple Classification Analysis of Posttest Scores on Attitude by Treatment, Gender, and Academic Ability

Category	N	Unadjusted Deviation	Eta	Adjusted Deviation	Beta
Vocational educator	15	1.23		1.39	
Higher technicians	15	1.29	.205	-4.85	1.64
Literate artisan	15	1.14		1.57	
Control	15	-3.942		-10.12	
Gender					
Male	46	.42	0.19	0.42	0.5
Female	14	.67			
Academic ability					
High	37	.24		-1.57	
Average	17	.23	0.67	-3.69	0.059
Low	6			-3.72	
R = .294					
R^2 = .66					

Grand Mean = 89.01

From Table 10, it is obtained that the vocational educator group (x = 90.40) is significantly different from each of the other groups. That is literate artisan group (x = 87.44), higher technician group (x = 84.16) and control group (x = 78.89). This implies that the significant effect of treatment on students' attitude to technical education is due to the significant difference between vocational educator group and each of the other three groups.

Table 10
Scheffe Post-hoc Analysis of Students' Vocational Attitude

Treatment	N	Mean Score	Vocational educator	Higher technician	Literate artisan	Control
Vocational educator	15	90.40	*			
Higher technician	15	84.16		*		
Literate artisan	15	87.44			*	
Control	15	78.89	*			

*Significant difference

H_{02}a: There is no significant main effect of gender on students' acquisition of basic vocational knowledge in technical education.

Table 2 reveals that gender has no significant main effect on students acquisition of basic vocational knowledge in technical education (F_1, 57 = 0.83; P >0.05). Hypothesis 2a is therefore not rejected. The Multiple Classification Analysis (MCA) in Table 3, however, shows that male students have a higher mean score in basic vocational knowledge (x = 15.06) than the female students (x = 15.01). The difference of 0.05 has been shown to be insignificant.

H_{02}b: There is no significant main effect of gender on students' acquisition of vocational skills in technician education.

Table 5 reveals that gender has significant effect on students' acquisition of vocational skills in technical education (F_1, 57 = .556; P <.05). Therefore hypothesis 2b is rejected. The MCA in Table 6 also showed that male students obtained a higher vocational skills score (x = 40.64) than the female students (x = 38.24). The difference (2.40) has been shown to be significant.

H_{02}c: There is no significant main effect of gender on students' attitude to technical education.

Table 8 shows a significant effect of gender on students' attitude to technical education (F_1, 57 = 1.024; P < .05); therefore, hypothesis 2c is rejected. As obtained from MCA Table 9, the male students obtained the higher attitude mean score (x = 85.07) than the female students (x = 83.75). The mean difference of 1.22 is significant in this study.

H_{03}a: There is no significant main effect of academic ability on students' acquisition of basic vocational knowledge in technical education.

Table 2 revealed that academic ability has no significant main effect on students' acquisition of basic vocational knowledge in technical education (F_3, 57 = 1.170; P>.05); therefore, hypothesis 3a is not rejected. However, from Table 3, students of average academic level have the highest mean score in basic vocational knowledge (x = 15.18) followed by those of high academic ability (x = 15.17), while the students of low academic level has the least mean score (x = 14.82). The mean difference in each case is insignificant.

H_{03}b: There is no significant main effect of academic ability on students' acquisition of vocational skills in technical education.

Table 5 shows that academic ability has no significant main effect on students acquisition of vocational skills (F_3, 57 = 0.728; P>.05); hence, hypothesis 3b is not rejected. MCA (Table 6) also shows that students of high average academic level have the highest mean score in vocational skills (x = 40.76),

compared with the students of high academic level (x = 40.64) and those in the low academic level (x = 39.72) respectively. However, the differences in each case is insignificant.

H_{03}c: There is no significant main effect of academic ability on students' attitude to technical education.

Table 8 shows that there is no significant main effect of academic ability on posttest attitude of students (F_3, 57 =.101; P>.05) to technical education. Therefore, hypothesis 3c is not rejected. Table 9 shows that students of high academic level have the highest attitude score (x = 87.44), followed by the average academic level (x = 85.32), and the students of low academic level have the least attitude mean score (x= 85.29). However, the mean difference in each case is not significant.

Interaction effects. For all the interaction effects in this study in respect of treatment and gender (H_{04}), treatment and academic ability (H_{05}), gender and academic ability (H_{o6}), and treatment, gender and academic ability (H_{07}) on the dependent measures (basic vocational knowledge, vocational skills, and attitude to technical education, no significant interaction effect was recorded. Hence, hypotheses H_{04}, H_{o5}, H_{o6}, and H_{o7} are not rejected.

Discussion

The findings revealed that there were significant main effects of treatment on students' acquisition of basic vocational knowledge, vocational skills, and attitude to technical education. This finding implies that the three treatment groups are effective compared with the control used. These findings established the fact that literate artisans could also do well in teaching at least the vocational skills under the guidance of vocational educators. The students taught by literate artisan have the highest posttest mean score in vocational skills acquisition (see Table 6). This empirical evidence corroborates Olateju's (2001) study that roadside artisans have emerged as one of the most dependable group of contributors to national economic development in Nigeria. It equally consolidated the report of Alade (2004) that local tradesmen are willing to help the young stars acquire some saleable skill. In fact this would consolidate the efforts of vocational educators through which technical education students acquire more of basic vocational knowledge (table 3) more than those taught by higher technician and literate artisan in this study.

The next findings that gender has no significant main effect on students acquisition of basic vocational knowledge in technical education further reaffirm the research finding of Alade (2006) that female students could equally do well in the technological field especially in the learning of basic concepts and principles in the field. However, disparity occurred significantly in the acquisition of vocational skills where male students performed better (see Table 5). Perhaps this might be as a result of the masculine nature of male students in technical education and a limitation to female students' participation in vocationally-based programmes. Gender has long been found to be a strong factor that could affect a training objectives and cause differences in students' academic achievement in technical education (Abayomi, 2000; Shosanya, 1995; Uwameiye, 1996).

About students' attitude to technical education, the significant difference recorded (see Tables 8 and 9) makes it clear that male students still have more interest in technical education than their female counterparts. On the effect of academic ability on the dependent

measures, the students from average academic level which have the highest mean basic vocational knowledge score (see Table 3) as well as the highest mean vocational skills score (see Table 6) is perhaps a reflection of different categories of manpower used in this study. Thus, the usage of such manpower categories in technical education curriculum implementation would improve the acquisition of basic vocational knowledge, vocational skills, and attitude to technical education, irrespective of gender and academic ability to an appreciable extent.

Implications of the Findings for Technical Education Curriculum Implementation

In the light of the findings presented, this study has implications for the implementation of technical education curriculum vis-à-vis the labour market. Both theoretical and practical aspects of technical education can be better taught using the collective manpower of vocational educators, higher technicians, and literate artisans to further improve the employability capacity of the products in the labour market. When the topic for the day in technical education has to do with acquisition of facts, this study has shown that vocational educators and higher technicians could be more useful, and it also revealed that when the topic is more of psychomotor domain, the expertness of literate artisans should be adopted and integrated into the teaching learning sequence. This change will go a long way to ease the work of vocational educators as well as improving the exposure of technical education students to the marketable skills in their trade option(s). Employing the skills of the manpower categories considered in this study would improve the attitude of technical education students to the course, encourage their confidence to be self-employed, and be job creators in the world of work rather than job seekers at most times.

Interestingly, in Kenya, it is recognized that in today's global market it takes the expertise of talented engineers and technologists together with the skillful hands of craftsmen and technicians to produce high quality goods and services for both local and export markets. This observation in Kenya and the findings of this study call for thorough knowledge of the technical skills that graduates acquired from the institutions offering technical education. The combined efforts of the categories of manpower employed in this study therefore become very significant.

In addition, in some other African countries apart from Nigeria, there is a general feeling among the members of staff of tertiary technical training institutions that a variance exits between the requirements of training institutions and technical teachers trained in the country. The technical teachers appear to lack knowledge and skills to handle their core technical subjects they were trained to teach. Meanwhile, it is not clear whether the trend has anything to do with curricula, training facilities/equipment or training duration offered by the training institutions (Wafulaet al., 2013).

The consistent observation is that the approach to technical education curriculum implementation in the area of personnel in use for the programme needs attention. Kerre's view (2010) is in line with this observation by noting that due to increased technological innovations and the demand for higher education and skills in the modern work place much more is demanded of a trained technical teacher today than ever before. Thus, the three categories of manpower employed in this study could be integrated in technical education curriculum implementation process in Nigeria. All put together would empower the teaching force of technical education as a field of specialization and the

recipients of the subject matter in the area to serve as cornerstone for sustainable development in developing countries of the world, Nigeria inclusive. When this is done, the vision of developing countries in their march towards global competitiveness would not be a mirage. By and large, technical education curriculum in Nigerian higher institutions which is vocationalised in content would indeed be vocational in practice in the implementation approaches using diverse and relevant categories of the manpower identified in this study.

Conclusion

This study stands as part of the efforts to shift from much dependence only on vocational educators as chief implementers of the content of technical education curriculum to a more flexible, relevant, functional, result-oriented, and learner-centred usage of other manpower categories available in the society. This effort is with a view to promoting vocational skills acquisition in technical education and building both the entrepreneurial capacity and market employability of technical education trainees at all levels of education. This study has brought to the fore the importance of three categories of manpower that could work collaboratively to facilitate effective implementation of technical education curriculum in vocational classrooms and industrial laboratories.

The development of quality human resources is thus central to the attainment of vocational goals for industrial and societal development the world over. However, the nature of the vocational-technical training offered in technical training institutions or higher institutions may be partly similar or varies. Likewise, the quality of the vocational skills being acquired through the available curriculum may also be inadequate. These challenges look obvious in Nigeria and some other African countries but could be curtailed. In some, the expertise of talented and expert vocational educators in training institutions, private vocational establishments, engineers and technologists together with skillful hands of craftsmen and technicians are needed in developing countries of the world for adequate curriculum implementation of technical education.

Recommendations

Based on the findings of the study, the following recommendations are made.

- The practical way to achieve technical education objectives is through the adoption of the viable manpower categories employed in this study.
- There should be systematic literacy programmes organized for interested roadside artisans available in our environment. This could be done through organized seminars, workshops, symposia, conferences, public lecturers, short and long term training programmes and other relevant means to improve their educational background.
- A post graduate diploma certificate in education should be a condition before higher technicians could be employed in technical education curriculum delivery.
- The challenge is posed to curriculum developers and policy makers to design a workable curriculum or programme structure showing how best interested literate roadside artisans can be integrated into the programme of activities of educational institutions in order to tap from their vocational skills experience.

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Author

Ibiwumi Abiodun Alade, Ph.D., is a university don who specializes in curriculum and instruction/vocational, industrial, and technical education. He has published articles nationally and internationally. His constant drive for excellence in his academics, research, and working career has earned him distinctions, scholarships, and awards.

PROMOTING ADVOCACY IN ENGLISH AS A SECOND LANGUAGE TEACHER PREPARATION PROGRAMS IN THE US

David R. Byrd and Melina Alexander
Weber State University, USA

Abstract: The population of English learners (ELs) is increasing dramatically and teachers need to learn how advocate for these often marginalized students. This study investigates various syllabi from English as a second language pre-service teacher course work that are aimed at preparing future teachers to advocate for ELs. The researchers employed constant comparison methodology to examine 14 syllabi to ascertain in which courses and how pre-service teachers are prepared to advocate for their future students. Findings indicate that prospective teachers are being exposed to advocacy in many types of courses and with a variety of readings and assignments.

Key words: English learners, teacher education, teacher preparation, advocacy for ELs

Introduction

Between 1997 and 2009 the number of English learners (ELs) in the K-12 public school system in the United States (US) grew by 53.25% while the total enrollment at these schools increased by 8.4% (National Clearinghouse for English Language Acquisition, 2011). According to the National Center for Educational Statistics (2013), this increase means that approximately one in ten students in the US is an EL. These students are often overwhelmed by a school system that they may not understand. Further, instructional philosophies often marginalize ELs by placing students with under-developed language and culture skills in classrooms with native speaking peers (de Jong, 2011; Kauchak & Eggen, 2014). As Freeman and Freeman (2011) suggest, teachers, particularly English as second language (ESL) teachers, can help ELs transition by becoming their advocates.

Unfortunately, most teachers in today's schools do not share their ELs' experiences. Goldring, Gray, and Bitterman (2013) report that 82.7% of teachers in the US, including many ESL teachers, are White, while only 7.5% are Hispanic, 6.4% are Black and less than 1% are either Asian or Pacific Islander (p. 6). In the US, teacher preparation programs offer courses that prepare teacher candidates to teach non-native English speakers. The types and number of courses related to this preparation vary from institution to institution, but the course content is expected to be based on the Teachers of English to Speakers of Other Languages/Commission for the Accreditation of Education Preparation (TESOL/CAEP) Standards for P-12 Teacher Education Programs (TESOL International Association, 2010). These preparatory teaching standards consist of five overarching areas: (a) language; (b) culture; (c) planning, implementing and managing instruction; (d) assessment; and (e) professionalism. The standards contain an underlying theory intended to equip teachers in all aspects of language teaching. Standard 5b seeks to address the unique demands of advocating for ESL students and their families. Ideally, pre-service ESL courses present teacher candidates with theories and ideas designed to help them examine what it means to advocate for ESL students and how to implement such practices effectively. As Darling-Hammond (2000) suggests, such courses give pre-service teachers the "ability to see beyond one's own perspective" and "to put

oneself into the shoes of the learner" (p. 170). The various courses required for an ESL endorsement should contain opportunities to introduce teacher candidates to a variety of methods beyond what they experienced as students. These courses can potentially expose teacher candidates to ideas and theories that inform best practices in advocating for ELs.

Review of Related Literature

Advocacy

Domain five of the TESOL *Standards* focuses on the development of prospective teachers' professionalism (TESOL International Association, 2010). Among its goals, this standard expects that "Candidates work collaboratively with school staff and the community to improve the learning environment, provide support, and *advocate* for ELs and their families (p. 68, emphasis added). Benchmarks 5.b.6 and 5.b.7 further the idea of advocacy by having teacher candidates learn to "Support EL families" and "Serve as professional resource personnel in their education communities" respectively (pp. 74-75). This two-pronged approach helps ELs both linguistically (generally with educators) and culturally or in the community (with families).

Although TESOL seeks to prepare ELs for advocacy, the responsibility for advocating is a call for all educators (de Oliveira & Athanases, 2007; Valdés, 2004). Cohen, de la Vega, and Watson (2001) suggest that advocacy consists of organized efforts to highlight critical issues and to make change for a decent society for all. Standard 5 also recognizes this need and aims to help future ESL teachers learn to spearhead this collaborative effort. In the area of curriculum, Varghese and Stritikus (2005) suggest that ESL teachers need to realize that teacher knowledge extends beyond just language and methods to include language policy development and curriculum and assessment critiques. Valdés (2004) suggests that although content-area teachers and ESL teachers often function in separate school worlds, they should work collaboratively for ELs. Beyond the classroom, de Oliveira and Athanases (2007) report that ESL teachers advocate for students by having teachers critique institutional practices and by proposing or creating alternatives.

Syllabus Analysis Research

For the purposes of this study, the term syllabus will refer to an outline of lectures and other presentations in a course at the college or university level. The course syllabus is an important document in post-secondary level teaching. As Thompson (2007) states, the syllabus expresses the course instructor's beliefs related to the course and intended educational purposes. Habanek (2005) suggests that syllabi must be created in ways that provide optimum transparency for the student in an age of accountability.

Madson, Melchert, and Whipp (2004) examined 88 syllabi from both required and general education pre-service courses in a college of education. The researchers developed a Syllabus Analysis Inventory (SAI) to examine how prospective teachers were exposed to and expected to use technology in these courses. Madson and colleagues found that pre-service teachers were exposed to areas of technology both in and out of the college of education in a significant manner.

In the area of academic librarianship, Williams, Cody, and Parnell (2004) looked at 253 course syllabi from their campus at the University of North Carolina at Wilmington. They created an analysis model which allowed them to identify different types of library usage often demanded in academic syllabi. Of the 253 syllabi from 34 discipline areas, they found that 41% use the library for research

purposes, such as reports and projects. The researchers posit that the 'mining' of syllabi is a worthy pursuit that allows them to identify current usage patterns that ultimately allow them to make adjustments to the services that they offer faculty at the university.

In second language (L2) research, Wilbur (2007) conducted a study of 32 L2 methods course syllabi, looking at the content of methods courses in preparing future secondary teachers; how instructors address pedagogical content knowledge; and how instructors help these future teachers make connections between theory and practice. Researcher findings indicated a large variance in content of the methods course syllabi, despite the stable set of standards to guide such instruction in the L2 teaching profession. Because of this difference, Wilbur concluded that prospective teachers were not being prepared optimally in the area of pedagogical content knowledge. She further concludes that L2 methods course students were poorly equipped to meet the demands of the diverse learners that they will encounter. More recently, Byrd (2014) examined ten methods course syllabi to learn how L2 teacher candidates are prepared to teach culture. His findings indicated that the teaching of culture is still viewed as "the other" aspect of teaching language, as many instructors devote less than ten percent of course time to the topic (p. 84). He also concluded that the content of methods courses is not at the same level as professional standards for preparing teacher candidates.

The Study

This study explores how future ESL teachers are prepared to advocate for their students in and out of the school setting. We define advocacy as "supporting or promoting the interests of another" (Advocating, 2015). Because the TESOL preparation standards address the need to prepare future teachers to advocate for their students, an examination of courses within teacher education programs is warranted. We scrutinized 14 syllabi from a number of courses from random programs. As stated in Thompson (2007) syllabi represent the course instructors' beliefs related to advocacy. The research questions that guided our study are: (a) Where is EL advocacy promotion located in ESL teacher preparation programs? and (b) How does ESL pre-service course work prepare prospective teachers to advocate for their future students (and the students' families) as shown in course syllabi?

Data Collection

We triangulated among the following online data sources: course syllabi from various course types, course calendars, online course program sites, and online sites related to the courses. We used several search engine inquiries, combining terms, such as 'advocacy,' 'English as Second Language,' 'ESL,' 'syllabus,' and 'programs' to locate initial data sources. After syllabi were located, we searched online university course catalogues to verify that these courses were part of an ESL teacher preparation program. For manageability purposes, we randomly selected fourteen institutions from eleven states, including: Alabama (2), Arizona, Colorado, Illinois, Massachusetts, New Jersey, New York, North Carolina, Oregon, Texas (3), and Washington, D.C.

Research Design

Qualitative research methods fit the descriptive nature of the present study. We used grounded theory to guide our research and develop a framework upon which to structure the themes found within the documents (Merriam, 1998). Merriam states that grounded theory assumes an inductive stance for researchers, as well as derives meaning from the data. The final result is a theory that emerges from or is 'grounded in' the data (p. 17). This study

examines the developing knowledge base of prospective teachers and is grounded in the description of one of the tools that leads to their learning. The data were analyzed recursively and inductively, using constant comparative methodology (Glaser & Strauss, 1967).

Initially, to promote interrater reliability, each author analyzed two randomly selected syllabi from the fourteen, using a syllabus analysis protocol (see Appendix A). Afterwards, we met together to refine our approach in using the protocol. We then independently read each of the fourteen data sources, meeting frequently to discuss our results. The first reading allowed us to identify potential occurrences of advocacy and where they were located. The second reading focused on course readings. A third reading focused on assignments. After obtaining these data points, we organized them into categories, where two main themes emerged: advocacy was dealt with explicitly or implicitly. Explicit occurrences of advocacy meant that the course instructor made direct efforts to work with the topic, while implicit handling of the topic suggests a tangential approach. We re-analyzed the data sources one final time after categories were identified and looked for common and discrepant themes.

Results

Types of Courses

The first research question asks: Where is EL advocacy promotion located in ESL teacher preparation programs? For research purposes, identified ESL courses were labeled P1-P14. Five of the courses (P3, P8, P9, P10, and P12) were identified as ESL methods courses. Foundations of ESL courses were represented with four syllabi (P2, P5, P6, and P7). Two of the syllabi (P1 and P11) were part of an ESL literacy course. Finally, P13 came from an ESL policy course and P14 from a seminar.

Coursework

The second research question looked at how ESL pre-service course work prepared teacher candidates to advocate for their future students and students' families. The themes of explicit and implicit handling of materials emerged here. In the present article, we focus on two specific areas: readings and assignments/assessments.

Direct readings. Six of the course syllabi listed readings that directly promoted advocacy. In the present data set, all of these readings were contained in a full-length textbook where at least part of the text dealt with advocacy in some manner (See Table 1).

Table 1
Direct Readings

Course	Reading
P3	Herrera, S., & Murry, K. (2005). *Mastering ESL and bilingual methods: Differentiated for culturally and linguistically diverse (cld) students.* Boston: Allyn & Bacon.
P4	Ovando, C. J., & Combs, M. C. (2012). *Bilingual and ESL classrooms: Teaching in multicultural contexts* (5th ed). New York: McGraw-Hill.
P7	Ovando, C. J., Combs, M. C., & Collier, V. P. (2006) *Bilingual and ESL classrooms: Teaching in multicultural contexts* (4th ed). New York: McGraw-Hill.
P9	Faltis, C. (2006). *Teaching English language learners in elementary school communities: A joinfostering approach,* (4th ed). New York: Pearson.
P12	Beykont, Z. (2000). *Lifting every voice: Pedagogy and politics of bilingualism*. Cambridge: Harvard Education Publishing Group.
P13	Echevarría, J., Vogt, M. E., & Short, D. J. (2007). *Making content comprehensible for English language learners: The SIOP model,* (3rd ed). Boston: Allyn & Bacon.

In all cases the students were required to read about advocacy, but the amount of advocacy content varied. Chapter five of the Herrera and Murry book (2005) dedicates part of a chapter on how teachers can become advocates for their students. Faltis (2006), Echevarría et al. (2007), and both editions of Ovando and Combs (2006; 2012) discuss advocacy at several points throughout the text. The Beykont (2000) text has an entire section of essays devoted to advocating for ELs.

Indirect readings. One syllabus contained an indirect reading about advocacy for ELs. P6 requires students to read Freire's (1998) *Teachers as Cultural Workers: Letters to Those who Dare to Teach*. The text generally advocates for the teaching of all subgroups of inclusion classrooms. Prospective teachers may be able to extrapolate the information from the text to include ELs.

Assignments/assessments. Our data found eight of the syllabi (P4, P5, P6, P7, P8, P10, P11, and P12) included assignments/assessments that directly deal with advocacy, and one syllabus (P1) that includes an indirect assignment/ assessment. Each assignment/assessment is unique with no overlap across syllabi.

Direct assignments/assessments. The instructor of P4 requires students to complete and present an advocacy plan. The instructor writes in the course overview, "[S]tudents will create an advocacy plan that will focus on the issues that surround educating bilingual and second language learners. Providing for opportunities for inquiry, research, and collaboration through various assignments and field based experiences in low socio-economic communities."

P5's instructor requires students to create an advocacy module with no further explanation of the assignment in the syllabus except to direct students to a set of learner outcomes, including:

> (a) Students develop knowledge and skills to become cultural brokers within the school community, and (b) Students advocate for English language learners and their families.

P6's instructor provides a written discussion about advocacy in the classroom and school. It reads:

> 4b. According to most proponents of multicultural education, profound changes have to take place in schools in order for it to be effective. These include not only changing the *content*, but the *processes* of education (i.e. pedagogy, organization, climate, and so on) (italics in original).

An inquiry/action project makes up 30% of the grade for the students of P7. The assignment description begins:

> Students will conduct a semester-long inquiry and action project in your school, district, or community. The first week of class, peruse the "Activities for your Classroom" and "Community Based Activities and Advocacy" in Nieto (2010), and choose from among these activity ideas for your project.

The instructor provides guidance by identifying people and materials that can aid students in completing the project.

A partnership project is assigned to P8 students, which allows them to examine their experiences working with ELs and their families:

> The partnership project can be a project with other teachers OR with families. You will need to demonstrate collaboration between ESL, content area teachers, and/or administrators—or with families.

P10's students are to learn to build partnerships with professional colleagues

and parents. The instructor provides these guidelines:

> Early in the semester seek permission, where required, and establish rapport with a classroom teacher and students. You may use your own classroom for this project, but, you will be expected to confer with other stakeholders e.g, colleagues, parents, other resource teachers to: plan, teach, and reflect upon the project.

On the course website, the P11 instructor includes an in-depth eight step project to help students learn about and advocate for ELs. All of the activities require students to explore detailed web materials linked to the activity. The first activity requires students to "learn the terminology associated with ESL students." Activity two is a quiz on the terms. Activity three introduces general issues associated with ESL education. Activity four requires students to interact with a website that outlines a potential day for an ESL student in an inclusion situation. Activity five involves listening to ELs from the inclusion classrooms from activity four. The sixth activity requires students to explore their own definition of limited English proficient, while exploring official definitions. Seven provides students with required resources they explore both on- and offline. Finally, the eighth activity asks students to meld what they have previously learned and to "investigate the research database and see what is known about ESL students." The instructor indicates that this project will affect other assignments.

P12 is an online course. The final assignment listed asks students to create a professional development meeting or parent guide, given the following directions:

> You will create a parent resource/brochure to address one of these top priorities to parents. Design a brochure to give to the parents of your students to help them address one of the issues. The brochure should include the following sections (at a minimum): (a) Introduction; (b) What is the issue? (c) Why is it important? (d) What are the myths or misunderstandings about this issue? (e) How can this be addressed? (f) A list of resources to address this topic; and (g) potential issues.

Indirect assignment/assessment. The only indirect assignment/assessment is an open-ended writing task that can include advocacy, but does not require it. P1 has graduate students create a project that may include a number of possible topics. The instructor describes the assignment as follows:

> Graduate students will choose from among several options, all of which will require uploading PowerPoint slides and a written report to the online course as well as doing a presentation using the slides in class.

It is feasible that the graduate student could choose advocacy as their topic, as it is listed as one of the course learning outcomes.

Discussion

The first research question examined where advocacy promotion occurred in ESL teacher preparation programs. In the present data set, a wide variety of courses from methods to seminars address the need for advocacy. The findings suggest that ESL teacher educators are focusing on the issue of advocacy as it relates to a number of differing teacher preparation sub-areas. Because we did not look at any one teacher education program, we cannot claim that programs are using particular courses to help prepare their pre-service teachers. This finding suggests that teacher educators are trying to make advocacy a cross-curricular issue, at least within the limits of the courses for the endorsement. This latter assumption supports Dannels and Housley Gaffney's (2009) findings that cross-curricular teaching helps prepare professionals more effectively. Likewise,

our findings support McDonald's (2005) research which suggests that it is not sufficient for issues like advocacy to be located in a single teacher education course; rather, effective programs seek the opportunity to integrate such information in several different courses for their prospective teachers. Researchers recommend that a program-wide effort to teach advocacy skills improves teachers' ability to advocate effectively for ELs (Athanases & Martin, 2006; de Oliveira and Athanases 2007). This may occur due to the complex nature of advocacy for both ELs and their families, which cannot be addressed in one course. Likewise, since advocacy issues need to be addressed both in terms of culture and language, dispersing the teaching of advocacy through a number of different courses may more effectively accomplish this goal.

The second research question addresses which course work helps to prepare teacher candidates to advocate for ELs. Course readings indicate what instructors feel is important for students to know about the content of the course (Sappington, Kinsey, & Munsayac, 2002). The present data found that only half of the courses included some type of reading connected with advocacy. This finding indicates that half of the identified course instructors are neglecting a potentially powerful resource in helping prospective teachers learn advocacy skills, which supports Byrd's (2010) work indicating that course instructors need to be aware of and use readings to optimize learning for pre-service teachers. Dow (1991) and Richards (2001) likewise describe how instructional materials such as textbooks can shape student learning. Similarly, readings form a major portion of a course's knowledge base (Grosse, 1993). Instructors cannot afford to ignore such a valuable tool.

Similarly, examining assignments/ assessments provides information about how students are engaged with course materials (Kauchak & Eggen, 2014). Nine unique assignments/ assessments were identified in nine of fourteen (64%) syllabi. With a limited amount of time in a course, instructors must carefully plan meaningful methods for students to show what they are learning (Fink, 2003). Although assignments/assessments represented in this data set vary greatly, they do tend to directly guide students towards advocacy. As Cooper (2004) posits, teacher candidates often find hands-on assignments most helpful. Direct assignments in this data set tend to promote hands-on learning and practical application that teacher candidates can use when they enter the profession.

Limitations

This study is a qualitative description of what is happening in a specific set of data across fourteen courses and at a specific point in time. Therefore, the findings cannot be generalized to all situations (Merriam, 1998). Firstly, syllabi do not necessarily provide clarifications on certain areas within the data. Instructors can change the syllabus to fit course needs in a given semester or for a specific set of students. In the present study, we were also limited by the search for a definite topic. Our data will tend to lean towards finding syllabi that contain advocacy as an issue within the course. However, it must be noted that several false finds occurred, where advocacy was mentioned in a general way, but not addressed in the syllabus itself.

Conclusions

Data from the present study, buoyed by the inclusion of domain five of the TESOL *Standards* (TESOL International Association, 2010), seem to suggest that ESL teacher candidates are being shown that advocacy is necessary and are being encouraged to pursue specific methods to accomplish advocacy goals. This finding supports the idea that teacher education

programs, regardless where they are found in the world, can successfully implement the standards or guidelines established for preparation course work. Future research can examine if such implementations are occurring in various countries.

This study focused on describing how prospective teachers are being taught to advocate for their future students and possibly for families of these students. Theoharis (2007) contends that students and their families must be positioned as integral players of the school community. Although this study focused on non-native English speakers in the US, educational institutions around the world work with marginalized groups. Advocacy can be implemented into teacher candidate preparation programs in ways that prepare teachers to meet the varying needs of individuals (and groups) within their courses.

In the present study, many of the readings and assignments move beyond ESL classrooms to help teacher candidates work towards including colleagues and the community. Coady, et al. (2008) and Suttmiller and González (2006) have found that the most effective programs for ELs stem from school wide efforts. P8's partnership project, P10's content literacy project, and P12's professional development presentation are examples of effective methods to prepare pre-service teachers to become leaders in this effort (de Oliveira & Athanases, 2007). Lucas, Henze, and Donato (2004) and Stritikus (2006) suggest that interaction with non-ESL teaching staff improves that quality of instruction for teachers and, ultimately, students. If, as Theoharis and O'Toole (2011) posit, inclusion in mainstream classrooms provides "each student the right to an authentic sense of belonging to a school classroom community where difference is expected and valued," then preparing future teachers to help bring this situation about is crucial (p. 649). Current mainstream teachers and mainstream teacher candidates need to be taught that advocating for ELs can be effectively accomplished on two levels: linguistic and cultural. Linguistically, mainstream teachers can recognize the difference between social and academic language. Many ELs may seem fluent while conversing with friends, but may struggle with academic subject-matter demands in their classroom, including both content and vocabulary. They also would benefit by adapting the pacing of their classroom to allow ELs more time to process information being presented, if needed. Finally in this area, mainstream teachers need to become familiar with resources that can scaffold EL learning. Culturally, teachers can realize that some cultural references, in books or part of lectures, may not be familiar to ELs. Further, these students and their families may need help in accessing and navigating the US school system in general, and their classes in particular. For instance, as more schools are providing online resources (grade reports or blogs), ESL families may require help to access them. Lastly, all teachers can encourage ELs and their families to become active in leadership positions throughout the school, in parent-teacher organizations, and on school boards.

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Appendix A

Advocacy for ELs: Syllabus Analysis Protocol

1. State: **University:** **Year of course:**
2. Course title/type:
3. Required readings:
4. Recommended readings:
5. Course description:
6. Course objectives/goals:
7. Assessments/assignments:
8. Examination of course calendar:
9. Other:

Authors

David R. Byrd, Ph.D., Associate Professor in the Moyes College of Education at Weber State University. His teaching and research interests include ESL, teacher, and culture education.

Melina Alexander, Ph.D. Associate Professor in the Moyes College of Education at Weber State University. Her research interests are teacher preparation and instructional methods for students with and without special needs.

TEACHING AND LEARNING MATERIALS AS CONTENT IN TEACHER EDUCATION

Hanne Balsby Thingholm

Abstract: *This article has two purposes: (a) To argue that didactically designed teaching and learning materials as content in teacher education can meet two well-known challenges of teacher education: linking theory and practice and linking individual subject areas; and (b) To present the results of an empirical study carried out in connection with the Ph.D. thesis* Teaching and Learning Materials Linking Theory and Practice in Initial Teacher Education? *(Thingholm, 2014). The results show great variation in how the materials are presented as content in teacher education. This variation is attributed to the personal attitudes of the teacher educators.*

Keywords: teacher education, teaching and learning materials, sociocultural differences, new teacher

Introduction

This article has two purposes. The first purpose is to argue that didactically designed teaching and learning materials as content in teacher education can meet two well-known challenges of teacher education. The second purpose is to present the results of an empirical study carried out in connection with the Ph.D. thesis: *Teaching and Learning Materials Linking Theory and Practice in Initial Teacher Education?* (Thingholm, 2014). The purpose of this study was to demonstrate *whether* and *how* teacher candidates experience didactically designed teaching and learning materials as content in teacher education and whether the potential of didactically designed teaching and learning materials are exploited according to the challenges of linking theory to practice and linking individual subject areas within the teacher training program.

Teaching and Learning Materials

A professional teacher can transform anything into a teaching and learning material: a book, a film, an animal (alive or dead), food, or flowers. The limit is only set by the imagination and the relevant content knowledge and skills of the teachers, but didactically designed teaching and learning materials are different from other materials. Although these materials can be defined in wide terms, the distinguishing feature of didactically designed materials is their intrinsic goal of student learning. In general, didactically designed teaching and learning materials are resources that have student learning as their primary aim. Hansen (2010) offers following definition:
Didactically designed teaching and learning materials are pedagogically designed teaching and learning resources as for example a textbook. They are produced with a learning intention and might act as an independent arena for learning. They designate a certain academic content, set specific goals for learning and suggest certain activities for the student to achieve these goals. Didactically designed teaching and learning materials are typically implemented by the teacher and include therefore a teacher's guide with more or less direct instruction to how the teacher might plan, conduct and evaluate his/her own teaching (p. 21).

Didactically designed teaching and learning materials differ from semantically and functionally designed learning materials by being designed with a pedagogical approach, and therefore, with the intention

of teaching and learning. The strength of didactically designed teaching and learning materials is that they reduce complexity by identifying both a specific content and how to teach and learn from this content (Hansen, 2010). It is certainly true that there is an ambivalence surrounding these materials (Ball & Feiman-Nemser, 1988). On the one hand, didactically designed teaching and learning materials are strongly criticized for both their form and content and their implicit view on teaching and learning. They are boring and technical, confusing more than helpful, and the teacher manuals contain vague proposals for teaching. Therefore, due to the extensive criticism, it is not recommendable to inspire teacher candidates to use these educational materials either during their intern-ship or in their future teaching profession. On the other hand, because educational materials are used widely and play a key role in schools, it is recommended that teacher candidates learn to use the materials in appropriate ways (Ball & Feiman-Nemser, 1988).

However, there are two reasons to focus on didactically designed teaching and learning materials that extend beyond this ambivalence. First, didactically designed teaching and learning materials are relevant because of their close relation to practice. Secondly, didactically designed teaching and learning materials are relevant because of their double discourse – academic and pedagogical. Focusing on didactically designed teaching and learning materials as content in teacher education is relevant because they play an important role in schools where they are essential to both the teachers' teaching and the students' learning (Hansen & Skovmand, 2011). International research shows that newly qualified teachers use didactically designed teaching and learning materials as scaffolding (Lemmer, Edwards, & Rapule, 2008; Poyas & Eilam, 2012; Shawer, 2010) to develop their own teaching practice (Grossman & Thompson, 2008). The Danish evaluation report *Teaching and Learning Materials in Schools* (Undervisningsmidler i folkeskolen) (EVA, 2009) shows that teachers use didactically designed teaching and learning materials more often than IT-based resources during their teaching practice. The report also shows the teachers focus on their students' interests and common goals when assessing didactically designed teaching and learning materials. Teachers focus less on the academic and pedagogical quality of the materials, which as the report states, "would require further competencies from the teacher" (EVA, 2009, p. 10-11).

Teacher candidates must acquire theoretical as well as practical knowledge and skills. The relationship between theory and practice has been described as a basic challenge for teacher education (Hansen & Skovmand, 2011). Teacher candidates experience two different worlds – a theoretical world on campus and a practical world during an internship (Burstein, 2009; Solstad, 2010). Didactically designed teaching and learning materials offer suggestions to the what, why, and how of teaching, which can reduce some of the complexity that characterises the teaching profession (Rasmussen, 2004). However, in order to plan, conduct, and evaluate a lesson according to the what, why, and how of the learning material, the teacher needs to redesign the material – both in an academic and a pedagogical way – in relation to the students and him- or herself. During their teacher education, teacher candidates ought to acquire the ability to redesign learning materials. Based on this idea and the great extent to which newly qualified teachers use didactically designed teaching and learning materials in schools (Lemmer et al., 2008; Poyas & Eilam, 2012; Shawer 2010), these materials become relevant as content in teacher education. Furthermore, due to their close relation to practice, I argue that didactically designed teaching and learning materials as

content can support the teacher candidates in linking theory and practice. Another reason to focus on didactically designed teaching and learning materials as content in teacher education is their double discourse; they are both academic and pedagogical. They are academic because they present a specific subject or discipline e.g. German grammar, the history of the Vikings, calculation, or how to paint. At the same time they present a pedagogical approach to how to teach and learn this specific subject or discipline, what to do, read or write, what to focus on, and how to do the work alone: in pairs, or groups. For the teachers, it is essential to be able to combine both academic and pedagogical knowledge and skills. Academic knowledge is important; however, according to the learning process of the students, academic knowledge becomes more effective when combined with didactic knowledge (Darling-Hammond & Youngs, 2002). Teacher candidates require academic knowledge and skills, but they also need to know how to communicate academic content. As well as understanding pedagogical theories, teacher candidates must learn to use these theories in practice. It is not enough to "think like a teacher" – one must also "act like a teacher" (Darling-Hammond, 2006, p. 35).

Academic knowledge and skills is essential for the teachers to observe and record both the students' current level of learning and the students' learning potential. Pedagogical knowledge and skills are essential for the teachers to intervene in the students' current level of learning and learning potential. These skills of observing, recording, and intervening can be described as a diagnostic competence (Helmke, 2013). As described in the Order for the Danish Teacher Education, combining academic and pedagogical knowledge and skills demands "a binding interaction between the subjects of the program must take place" (Ministry of Education, 2006, para. 5.2) and "a cooperation between the pedagogical subjects, the academic subjects and internship, which include more than one of the student's academic subjects" (Ministry of Education, para. 28). Due to their double discourse, didactically designed teaching and learning materials are relevant as content in such an interaction and, as such, they can be a communicative theme that connects individual subject areas to an internship. I argue that individual subject areas can interact when teaching and learning materials are presented as content. Furthermore, this interaction allows the teacher candidates to relate the materials – and the subjects they present – to practice. This idea is presented in the following quotation, which compares teaching and learning materials to glue:

> Analysis and evaluation of didactically designed teaching and learning materials in teacher education might act as glue binding the different subjects and creating a more practice oriented education. The special feature of didactically designed teaching and learning materials is the double discourse – academic and pedagogical. If you want to understand what has been called the didactic design, the special organization of knowledge including certain learning potential, a combined approach drawing on both pedagogical and academic subjects is required. (Hansen, 2008, pp. 29-30)

It is, therefore, interesting to explore whether and how didactically designed teaching and learning materials are included as content in teacher education and, in particular, to focus on their potential to form a meeting point for subject areas and for theory and practice.

Field of Research

The research literature appears modest with only few studies on didactically designed teaching and learning materials as content in teacher education (Thingholm, 2014). In

general, it reveals a great variation in how didactically designed teaching and learning materials are included as content in teacher education. This ranges from the materials not being included at all to materials being thoroughly included in a combined academic and pedagogical perspective. The literature also shows a discrepancy between the way didactically designed teaching and learning materials are presented on campus and in the internship (Ball & Feiman-Nemser, 1988; Horsley, 2007, 2010; Nicol & Crespo, 2006; Peacock & Miller, 2004). On campus, these materials are generally presented negatively; whereas, in the internship, they are presented more positively. It is a common feature that teacher educators are more critical of these materials than teachers in schools. This trend has also been identified in the United States, Canada, and Australia (Horsley, 2007, 2010). However, it is possible to identify a different trend in a study from China, which shows that didactically designed teaching and learning materials are regarded as a substantial part of content and are presented from an academic as well as a pedagogical perspective. In China, teacher educators teach their students how to redesign and use didactically designed teaching and learning materials (Li, 2002).

In western countries, teacher educators generally present didactically designed teaching and learning materials in a negative way and do not teach teacher candidates to redesign and use the materials. Instead, they tell teacher candidates that professional teachers do not follow didactically designed teaching and learning materials but create their own materials (Ball & Feiman-Nemser, 1988; Horsley, 2007). However, teacher candidates have not been taught to create their own materials (Horsley, 2010); therefore, when they use didactically designed teaching and learning materials during their internship, they are inspired by their own schooldays and revert to virtually imitating their own school teachers (Behm, 2008). Despite this, during their internship, teacher candidates recognise that didactically designed teaching and learning materials can constructively scaffold both their own teaching and the students' learning process (Ball & Feiman-Nemser, 1988). The teacher candidates wonder why teacher educators do not recommend the candidates to use textbooks: "It is helping me along and the kids are learning the things they need to be learning. I mean, if it works, why should you be worried about making up you own plans for every single thing?" (Ball & Feiman-Nemser, p. 420). When teacher candidates are analysing teaching and learning materials they are more descriptive than analytical (Nicol & Crespo, 2006) and their critical attitude towards the materials, which they acquired from teacher educators, is changing when they experience how well the chosen material helps them structure their own teaching, supports student learning, and saves a lot time by not constantly designing new material themselves (Nicol & Crespo).

Ball and Feiman-Nemser (2005) have found different reactions from teacher candidates using textbooks and teachers' guides during the internship. Some felt pressed to maintain the established classroom practice. Others were overwhelmed by the demands of full-time teaching and used textbooks in order to survive. Some candidates found the guide confusing and insufficient: "I've got the materials, now what am I supposed to *do* with them?… I am not sure what they *mean by* all this stuff…" (Ball & Feiman-Nemser, p. 193). Unfortunately, the candidates revealed the limits of their knowledge and experience when planning outside of textbooks and in some cases the candidates misguided or gave incorrect information. One candidate wanted the students to understand what 'culture' is, but as she reflected; she was having a hard time understanding the concept herself. Then, how is pushing her out of the textbook, as recommended by her teacher educators,

helping her learning to teach subject matter? (Ball & Feiman-Nemser).

Theory and Method

This study was theoretically anchored in the sociological theory of systems developed by Niklas Luhmann (Luhmann, 2000, 2006, 2007). There are three reasons for grounding the thesis in this theory. First, the theory focuses on observation and construction, which represents an epistemological starting point where meaning cannot be discovered ontologically but must be invented (von Foerster, 1984). The theory of observation allows us to observe observations in a methodologically controlled and transparent manner. In this study, I observed how teacher candidates observe didactically designed teaching and learning materials as content in teacher education. Second, the theory focuses on communication and structural coupling. The theory of communication offered a new way to understand teaching as communication and didactically designed teaching and learning materials as a possible theme for this kind of communication – a theme which might encourage teacher candidates to link theory and practice as well as individual subject areas within their teacher training program. Third, the theory focused on distinctions or differences that make a difference. Such distinctions or differences are always set by an observer who has marked or actualized one specific thing, criteria, or phenomenon – some examples of actualized distinctions could be: students/not students, farmers/not farmers, happiness/unhappiness, or poverty/wealth. The theory of distinction offered a new way to understand the classic problem of linking theory and practice. It revealed how the concepts are related and how *practice* is a theoretical reflection:

> The difference between theory and practice appears only to an observer, when re-entering the theory side. This applies whether the observer is a practitioner or a theorist (teacher or researcher) and for that very reason, it is understandable that practice is theorized in many different ways. (Thingholm & Rasmussen, 2010, p. 42)

In this study, I adopted a methodological approach developed by Professor Jens Rasmussen (2004) in line with Luhmann's theory of systems. This approach, which is aligned with operative constructivism, is described as a "radicalization of hermeneutics" (Rasmussen, 2004, p. 322). It is radical because it rejects ontological conceptions. Ontology is the study of being and existing and an ontologically oriented science therefore asks "what?" In contrast, the radicalization of hermeneutics is an epistemologically oriented science and it therefore asks "how?" (Andersen, 1999, pp. 13-14). From this latter position, access to the world is only possible as a result of an observation; there is no observation independent of world or reality. An observation is an operation that marks a distinction or a difference and thereby makes it possible to observe and describe one object (not another) or distinguish between two objects. It is the observer – the researcher – who marks the separation and distinguishes between one object and all other objects – between the current and the potential. An observation is in itself an interpretation and it therefore makes no sense to distinguish between these concepts, since any interpretation involves an observation.

The method was divided into three stages as designed by Rasmussen (2004). The first stage was the empirical construction. At this stage, the reality – as observed by an observer – becomes accessible through transcription and the communication changed from speech to text. The second stage was the hypothetical construction #1. At this stage, the informants' statements were attributed differences by the researcher to show how the informants

observed didactically designed teaching and learning materials as content in teacher education – in other words, to show with which distinction they have distinguished and denoted. These attributed differences were then categorised into 17 different categories (see Table 1 below). The third stage was the hypothetical construction #2. At this stage, the 17 categories were condensed into themes which appear as the result of the analysis.

To follow this method, distinctions must be introduced by the researcher. The selected distinctions were essential for several reasons; they structured the interview guide and represented the theme of the interviews. They also formed the basis for future observations of observations. I selected four distinctions that I considered relevant to the theme of this study:

1. Competent in analysing and using didactically designed teaching and learning materials/not competent in analysing and using didactically designed teaching and learning materials.
2. Theory/practice.
3. Educational training on campus/in internship.
4. Mono-disciplinary/poly-disciplinary.

These distinctions were formulated as questions and structured the interview guide, which was also supplemented with a short questionnaire. In the questionnaire, the informants indicated in which subjects they have been presented with didactically designed teaching and learning materials.

Participants

Six group interviews were completed with a total of 17 teacher candidates: 15 women and 2 men. They have all completed mandatory internships and were approaching the end of their education. The teacher candidates were selected from three different university colleges in Denmark: University College Lillebælt (Odense), University College Nordjylland (Aalborg), and VIA University College (Silkeborg). The transcribed interviews were coded and analysed in the data processing program Nvivo10, and the results are presented below.

Results

The results of the analysis – the condensation of meaning – were based on four distinctions set by the researcher and a total of 17 further categories. The table below lists the four distinctions and their respective categories including the number of references in the transcribed interviews:

Table 1

Distinctions	Categories and Number of References	
#1: Competent in analysing and using didactically designed teaching and learning materials or not	1. the availability of the educational materials	26
	2. critical reflection	20
	3. educational materials analysis	13
	4. subject didactics	6
	5. design and entrepreneurship	4
	6. natural progression	3
#2: Theory/practice	1. professionalism and communication	42
	2. the student's role	18
	3. the teacher educator's role	17
	4. coupling (im)possibilities	5
#3: Educational training on campus/in internship	1. attitude and use	43
	2. the teacher's role (in internship)	41
	3. the teacher educator's role	11
	4. newly qualified teacher	11
#4: Mono-disciplinary/ poly-disciplinary	1. absence of interdisciplinarity	31
	2. general didactic with/without academic content	19
	3. structure of the teacher education program	15
	4. subject didactics	10
	5. the teacher educator's role	9
	6. the student's role	8
	7. resources and educational materials	7

The purpose of the analysis was to answer whether and how teacher candidates experienced didactically designed teaching and learning materials as content and whether they think that didactically designed teaching and learning materials, when presented as content, contributed to creating a structural coupling between theory and practice and between individual subject areas. Or, in other words, whether they thought the potential of didactically designed teaching and learning materials was exploited when presented as content. All indented quotes in this section, unless otherwise specified, were from the teacher candidates' interviews as reported originally in Thingholm (2014, pp. 130-167).

The interviewed candidates all agreed that, during their education program, they continually achieved the knowledge and skills described in the Order of Danish Teacher Education (Ministry of Education, 2006) as assessing, analysing, developing, selecting, using, and developing didactically designed teaching and learning materials for use in schools.

> From when I started the first year, my first year internship and now ... now I feel that, when I see new materials, I quickly evaluate the materials in relation to the class. In that way, somehow unconsciously…I cannot put my finger on exactly what my teacher told us, but it is the entire course.

However, when asked, the candidates explained that they had not been taught how to re-design didactically designed teaching and learning materials. Instead, the teachers often recommended that they design their own materials, not redesign existing materials.

> I don't think so [that our teachers teach us how to re-design], if I'm honest. But perhaps it is also because they are very focused on us making our own designs, and I really like doing so.

> We are often told how important it is [to re-design materials] but we are not told very specifically how to do it ...

> and how to change it to suit one's practice. It is kind of your own problem to deal with in internship.

Some candidates explained that they were competent in analysing teaching and learning materials; this was not because they had been thoroughly introduced to them but because of the didactic reflection connected their academic subject. According to the candidates, there was great variation in how teaching and learning materials were presented as content (superficially/thoroughly), and there did not seem to be a certain pattern with regard to different subjects.

> I had history but we didn't talk about materials at all. We spent time doing it in Danish, but not much. And in Religion we very briefly saw some materials just before our internship.

> In science we are often introduced to teaching and learning materials. When we are introduced to an academic theme, we try to find materials and look into how the materials treat the theme we have just been studying.

> Well…in Danish we have been introduced to teaching and learning materials – a lot actually. Also a lot in History, but Social Science not at all.

Teacher educators mainly urged the candidates not to use didactically designed teaching and learning materials or at least to critically evaluate these materials.

> In Danish, when we had to analyse these teaching and learning materials, our teacher emphasised that we should not use these materials from a-z because then we would probably not be able to differentiate our teaching and maybe also lose other basic stuff.

> I think our Danish teacher has highlighted an important perspective; simply, there is a lot of didactically designed material that is too poorly made to actually use it in a practical teaching context.

> That is also the perspective we gain from here [on campus]…Our teachers have often told us that we must be very critical when reviewing various textbooks to see what other people have made ... Therefore we do not review textbooks very often…at least that is what my teachers explain. It is because we can make something much better…and if we do look at them, we should at least be as critical as possible.

Not all teacher educators were critical of didactically designed teaching and learning materials. Some teacher educators even designed the materials themselves and were therefore inclined to present it to teacher candidates. Some candidates claimed that didactically designed teaching and learning materials were included as a comprehensive and relevant part of content. This was in line with the Chinese study in which teacher candidates first achieve mathematical knowledge and skills themselves, which was connected to a specific academic content for candidates in schools: "How to clearly and effectively present the mathematical ideas to candidates becomes one of the major foci in the methods course" (Li, 2002, p. 190).

> I think…it has been the case that we had to have a theory and understanding ourselves about numeracy...how we understand mathematical concepts and how to use them. Then afterwards we have looked into teaching and learning materials to see what it is like in practice for the students.

Other candidates claimed that didactically designed teaching and learning materials were presented briefly and superficially.

> In Danish it was mostly theories, but we spent a lot of time analysing textbooks. In religion it was only presentation, we did not talked about them, we were just told that they

> exist…as an introduction to our preparation for internship.
>
> I am not 100% a science teacher even though I finished the course. It [the course] was about the knowledge we required and not so much about how to communicate it to the students.
>
> In art it was also like that…we made products ourselves, drew in different ways and stuff like that. We were not told how to teach it to the kids. It was about us learning to be creative.

The candidates attributed the great variation in how didactically designed teaching and learning materials were presented to both teacher educators and teachers in schools. The way teachers presented didactically designed teaching and learning materials depended on their attitude towards the materials. Different attitudes towards didactically designed teaching and learning materials lead to different ways of presenting and using them.

> It also depends on the teacher educators how much they choose to use teaching and learning materials. In social science my teacher educator designed an educational textbook himself and then it is relevant for him to show it to us and tell us how we can use it. But other teacher educators who has not designed any materials and maybe don't like using educational textbooks, well, then they use it less during their own teaching.
>
> I think that the great difference the subjects in between is a huge problem. … Some teacher educators are more focused on the academic content and others on subject didactic.

In general, teacher educators were more critical of didactically designed teaching and learning materials than teachers in schools:

> I think…I don't know if you are too idealistic about it [on campus]…you have to be as authentic and resourceful as possible. In school…they are more down to earth. You have not got all the time in the world, so the textbook is more useful than you think.
>
> I think…in the first year of internship the teacher said "You have to teach this theme from these pages". But the teacher educator had told us not to teach from a-z. Well…then the attitudes differed a lot. It was a bit difficult to decide whether one should stick to what was taught on campus or just rely on practice and go ahead. We did so the first year because we were all beginners wanting to pass the internship.

However, a few candidates also had the opposite experience – very critical teachers in school and less critical teacher educators. The candidates also explained how their own attitude towards didactically designed teaching and learning materials was essential for how often and in what way they included didactically designed teaching and learning materials as content in reports or other study products. The variation in the way didactically designed teaching and learning materials were presented as content was not only attributed to the personal attitude of the teachers and the candidates but also external conditions. The teacher candidates experienced a relation between general resources and learning materials. Didactically designed teaching and learning materials were presented as content more often if they were readily available. This availability depended on both money and storage space, which were issues for both campuses and schools.

In line with the research field, the candidates experienced a difference in how didactically designed teaching and learning materials were presented as content on

campus and in the internship. When presenting didactically designed teaching and learning materials, teacher educators focused primarily on academic understanding and academic goals; whereas, teachers in schools focused primarily on layout and assessed how the concrete material appealed to their specific students.

> I experience a difference…on campus you kind of 'put yourself above it' and analyse it according to the academic content… But teachers in school look for other things…as I see it… They wonder if this appeals to the students. Do I like it? Does it work in practice? I don't hear them talking about categories and criteria success. I don't think they analyse but assess layout, pictures and themes of content. Is it in any way appealing for the students?

On campus, the teacher candidates were often told to compare, analyse, and reflect critically on two or more didactically designed teaching and learning materials – a comparative and critical-analytical approach. During their internship, the candidates were often told to assess the concrete didactic material bought by the school. The purpose of this approach was to be inspired to use it in practice – an inspiration and application oriented approach. This duality was in line with other research that reveals sociocultural differences in these learning arenas (Ball & Feiman-Nemser, 1988; Horsley, 2007, 2010; Nicol & Crespo, 2006; Peacock & Miller, 2004). In the internship, didactically designed teaching and learning materials were presented from a practical perspective. On campus, didactically designed teaching and learning materials were mainly presented from a theoretical perspective. In this duality, the candidates oscillated between academic content (what to teach) and pedagogical methods (how to teach). On campus, the candidates discussed the academic content far more than how the academic content can be taught to students in schools.

The teacher candidates explained how didactically designed teaching and learning materials were presented during their internships and in some of the subject areas on campus. Within the academic subject areas, the materials were presented in connection with didactics. The teacher candidates explained that didactically designed teaching and learning materials were not presented in pedagogical subject areas: pedagogic, general didactic and psychology.

> Not at all in pedagogical subjects, they are more for our own sake…well…we are not teaching psychology for example.
>
> And of course we did not talk about it [didactically designed teaching and learning materials] in pedagogy or general didactic.

Because the candidates did not experience didactically designed teaching and learning materials presented in pedagogical subject areas, they did not experience these materials presented in a poly-disciplinary way. The candidates explained how they themselves "drew on" knowledge from subject to subject. The candidates often described general didactic as a theoretical subject without a concrete academic content. According to the candidates, in order to avoid losing the general perspective of the subject, the teacher educators rarely included an academic content.

> When I think back to general didactic, I wonder why teaching and learning materials were not part of the content…I mean…we talked about didactic models, Hiim and Hippe and how to plan your lesson. It would have made it all more transparent… we never got to the part of 'how to do it' and it would have been helpful.

> General didactic is very theoretical… here you have a model, this is how it works and you have to pay attention to these elements. But we don't grasp anything concrete. What about ordinary textbooks… how to use them…we definitely miss that.

Besides the risk of losing a general perspective, the candidates also described other problems in linking the individual subject areas. Although the teacher educators were very professional within their own subject, they found it difficult to connect their own subject to other subject areas. The structure of the teacher education program was problematic because of the high number of classes and teachers. Two of the interviewed candidates had been following an optional subject called *Learning Material Design and Entrepreneurship*, which – more often than compulsory subjects – combined academic and pedagogical knowledge and skills when presenting learning materials (Thingholm, 2014).

The candidates all predicted that, when they are newly qualified teachers, they will use didactically designed teaching and learning materials more often than they were inspired to do so by teacher educators and more often than they did during their internships.

> They [newly qualified teachers] also say "well, I'll just start by following the textbook" because there is so much to do as a new teacher so you can't manage to teach like you do in your internship. You automatically follow the textbook…I don't know…but I have often been told this.

Despite the double perspective – learning academic content and teaching academic content – the teacher candidates do not experience, when presented with content, that teaching and learning materials contribute to linking theory and practice or linking individual subject areas.

> Internship is another world than the rest of our education. And when you come back your teacher might ask "How did it go?" And then we dive into some of it…but that is it.
>
> Well, it is not my experience, but I might have had a teacher ask, "Did you use a textbook?" I might have had this question ones or twice, but is not common practice.
>
> When I came back to campus, my teacher asked which textbook we used in internship. I told her we used *Speak Up* and the only thing she did was [the candidate shrugs and sighs deeply] and rolled her eyes… "Oh God". Because she is very much against textbooks. It would have been nice if we had had a round telling each other which text-books we had been introduced to in our internship…because…I guess there was a reason for her doing so. I thought…well…it worked well for me and I had positive feedback from the school. It would have been nice to know why she rolled her eyes.

However, the candidates believed that didactically designed teaching and learning materials was a possible theme for structural coupling.

> Textbooks could be a common dimension because within every subject you find textbooks and we could talk about them from an academic as well as a pedagogical perspective.
>
> The only thing we lacked, I think, is some kind of connection to reality. … I feel this connection to teaching and learning materials and our own teaching was lacking.

The candidates recognised a potential to link theory and practice when teaching and learning materials were presented as content, but they also identified problems in

doing so. These problems were mainly based on the difficulties of interdisciplinarity.

In summary, the teacher candidates experienced great variation in how didactically designed teaching and learning materials were presented. This experience ranged from the materials not being presented at all to the materials being presented thoroughly in an academic and/or pedagogical perspective as a relevant part of content. This great variation was primarily attributed to personal attitudes and believes of the teacher educators as well as the teachers in the internship. Furthermore, the candidates experienced that didactically designed teaching and learning materials were presented in a double perspective. On campus, the perspective was academic and critical-analytical; whereas, in the internship, the perspective was oriented towards use and method. Because of this duality and because learning materials were not presented in pedagogical subject areas, the candidates did not believe the potential of learning materials was being exploited – the materials did not act as a structural coupling between theory and practice or between individual subject areas.

Conclusion

Results from this study identified problems and dilemmas regarding didactically designed teaching and learning materials as content in teacher education. These problems and dilemmas were related and difficult to separate. In some ways, they included the concept of curriculum construction. Curriculum construction concerns the gap between the teaching and learning material, and the teaching (communication) situation in which they are used (Ball & Cohen, 1996). Any material used for teaching, even didactically designed materials, must be redesigned or constructed according to the individual teacher, the class, the students, and the school. No communication is ever the same; communication is vivid, alive and must be continuously constructed.

"Good teachers don't follow the textbook" (Ball & Feiman-Nemser, 1988, p. 414). Research showed that teacher candidates are often told not to use didactically designed teaching and learning materials because professional teachers create their own materials, and by doing so, create more exciting and meaningful activities for their classes (Ball & Feiman-Nemser, 1988; Horsley, 2007). However, when questioned, the teacher candidates explained that they are not taught how to create their own materials in order to make a more exciting and meaningful context for the class (Horsley, 2010; Thingholm, 2014). This situation is problematic because teaching and learning materials are used extensively in schools – especially by newly qualified teachers (Grossman & Thompson, 2008; Lemmer et al., 2008; Poyas & Eilam 2012; Shawer, 2010). These materials are essential to the students' learning process as well as the teacher's practice (Ball & Feiman-Nemser, 1988; Hansen & Skovmand, 2011). It is important to conduct more research to establish whether teachers (particularly newly qualified teachers) simply follow the textbook from beginning to end. If teacher candidates are not taught how to design or redesign existing teaching and learning materials when they reach the classroom, they may simply "go by the book." If so, teacher educators actually achieve the opposite of what they intended. Curriculum construction, the ability to design and redesign didactical teaching and learning materials, should be a goal for teacher education not a starting point for newly qualified teachers (Ball & Feiman-Nemser, 2005).

"Janice found planning and teaching all subjects all day long for her second grade class an overwhelming task. She relied heavily on textbooks and teachers' guides

as a way of managing, although she said she felt guilty about doing so" (Ball & Feiman-Nemser, 1988, p. 415). Research showed sociocultural differences in how didactically designed teaching and learning materials were presented on campus and in internships (Ball & Feiman-Nemser, 1988; Horsley 2007, 2010; Nicol & Crespo 2006; Peacock & Miller, 2004; Thingholm, 2014) To a certain degree, the differences conflict, which is why teacher candidates might feel guilty for not following the advice of the teacher educators, but follow the advice of their internship teachers. In a certain way, it becomes a matter of whom to trust – the teacher educator or the teacher in school. Communication on campus and in internships cannot be identical, but when these two types of communication begin to conflict, it becomes even more difficult for teacher candidates to link theory and practice. Communication must be guiding not misguiding. The results of this study also revealed a difference between what teacher candidates do during their internship and what they imagine they will do as newly qualified teachers regarding the use of teaching and learning materials. During their internship, they worked in groups and had ample time to plan lessons and design materials and activities for the class. In contrast, as newly qualified teachers, they imagined that they will be working primarily on their own without much time to plan lessons and design materials and activities for the class. Therefore, they predicted that they will follow the textbook a lot more because of time pressure and other demanding tasks – tasks for which they were not responsible in an internship (Thingholm, 2014). It is possible to question whether the teacher candidates were well prepared regarding the use of teaching and learning materials when leaving campus for the internship, and subsequently, when leaving an internship for the profession. The primary purpose of teacher education is to educate teachers to perform as professionals, professionals who among many other things, are able to design and redesign teaching and learning materials. It is necessary to observe teacher candidates as teachers-to-be (Werler, 2008). Regarding the use of teaching and learning materials, it might even be necessary to observe teacher candidates as newly qualified teachers-to-be. We know from other research that newly qualified teachers benefit from using didactically designed teaching and learning materials when teaching. For this reason, they should be taught how to use them effectively during teacher education.

Through my study and my literature findings, I leave four recommendations:

- Didactically designed teaching and learning materials can be a relevant theme in the tripartite meeting between teacher educator, school teacher, and teacher candidates which is mandatory in some teacher training programs during the internship (Rasmussen & Rash-Christensen, 2015). During this meeting, it is possible to discuss the attitude towards and the use of didactically designed teaching and learning materials from the perspective of the teacher and the teacher educator as well as the teacher candidates. The conflicting perspectives can be analysed and related to the experience of the teacher candidate. These meetings often lack a specific content and the communication seems to be rather random; the teacher educator "interviewing" the candidates about their experience during the internship (Rasmussen & Rash-Christensen, p. 8).
- Teacher educators can adopt a more systematic approach to didactically designed teaching and learning materials. One possible approach is suggested by Peacock and Miller (2004): the teacher-learner-text triangle (TLT). Using this approach the teacher candidates acquire three competencies needed to use didactically designed teaching and learning materials:

"Analysing text, planning for text use and supporting students whilst using text" (Peacock & Miller, p. 220).

- More explicit objectives and methods concerning didactically designed teaching and learning materials are needed in teacher education. Based on their research Ball and Feiman-Nemser (2005) suggested four objectives and methods: "Justifying decisions in teaching, textbooks as sources of subject matter and pedagogical knowledge, implementing curriculum and learning to learn from curriculum materials side" (pp. 196-197).
- Didactically designed teaching and learning materials can be usefully presented and analysed in general didactic or other pedagogical subjects. It would strengthen the pedagogical approach and enable the interdisciplinarity. Teaching and learning materials are important didactical issues or elements in line with objectives, methods, students' preconditions, and the role of the teacher. Furthermore authors of didactically designed teaching and learning materials can collaborate with teacher educators and share their academic and pedagogical ideas and reflections with teacher candidates. The perspective of the author of didactically designed teaching and learning materials seems to be lacking in teacher education.

In this article, I have argued that presenting didactically designed teaching and learning materials as content in teacher education might help teacher candidates to link theory and practice with individual subject areas. The materials hold this potential because of their close relation to practice and because of their double discourse: academic and pedagogical. It is well known that teaching and learning materials play a central role in schools, but as yet, we do not know much about the role they play or do not play in teacher education. However, what we do know is that there is great variation in how they are presented as content, superficially or thoroughly, and we also know there is a difference in how they are presented on campus and during the internship. On campus, they are presented from a comparative and critical-analytical perspective concerning how to understand learning materials; whereas, in the internship, they are presented from an inspiration and application oriented perspective concerning how to use learning materials. Teacher candidates attribute these differences mainly to personal attitudes and beliefs of the teacher educators as well as teachers in the internship. At present, the potential of didactically designed teaching and learning materials is not exploited due to conflicting communication on campus and in the internship and due to the fact that the materials, at least in Danish teacher education program, are not presented as content in pedagogical subject areas.

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Author

Hanne Balsby Thingholm, Ph.D., is an assistant professor at the Centre for Teaching Development and Digital Media, University of Aarhus, Denmark. Her master's and doctoral degrees are in educational sociology. Her fields of interest are the relation between theory and practice in teacher education, and from a pedagogical-sociological perspective, she focuses on teaching as a special form of meta-communication.

STABILITY IN EDUCATIONAL LEADERSHIP – AN IMPORTANT DIMENSION TO ENHANCE EDUCATIONAL RESULTS IN PUBLIC MUNICIPAL SCHOOLS.

Marta Luz Sisson de Castro
Pontifical Catholic University of Rio Grande do Sul, Brazil

Abstract: *This research analyzes the experience of managing four Southern Brazilian cities whose Municipal Secretaries of Education remained for two terms at the helm of municipal education. It was found that these public administrators were able to advance in their practice and obtained better results when compared with other public administrators who remained only one term. Building a team and implementing changes in the educational sector is a slow and complex process that requires time to be successful and resists political changes that occur with each new election process. Building an evaluation culture in the cities of Castro and Serranópolis do Iguaçu is an example of the kind of more permanent change, and it is one of the key points of this research.*

Keywords: stability in management, municipal education, process of change

Introduction

A study of public city education in the Southern Brazilian region showed that cities whose Municipal Education Secretaries (SME, acronym in Portuguese) provided stable leadership for more than one term presented a diversity of projects and a certain level of innovation in their management. This is an indicator that continuity in office allows for the development of a team and for maintaining projects and innovative actions. The study was part of a larger research project that looked into the management of education in municipalities of Southern Brazil. Five cities were studied in each of the three states; the data collection process included a two day visit, interviews with the superintendents of the schools and with the principals, and data regarding teacher qualifications and work conditions.

Hargreaves and Fink (2007) based on an analysis of the change process in secondary schools in Canada established seven principles of sustainable leadership and educational change. These principles are (a) depth, (b) endurance, (c) breadth, (d) justice, (e) diversity, (f) resourcefulness, and (g) conservation. The principle of depth is related to the idea that change and learning should be deep in order to be sustainable and durable. The second principle, endurance, should promote deep and lasting educational change. These changes are circulated by implying the principle of amplitude. Sustainable leadership is socially just. It does not cause damage; in contrast, it promotes social well-being through the dissemination of knowledge. Sustainable leadership promotes diversity, not by standardizing, but by creating cohesion in diverse networks. Resourcefulness in sustainable leadership develops human and material resources, and "renews the energy of the people" (p. 25). "Sustainable leadership honors and learns from the best of the past to create an even better future" (Hargreaves & Fink, p. 25). In conclusion, the authors emphasize that change and sustainable educational leadership has three dimensions: depth, breadth, and duration.

These principles help educators to understand the processes of change that seem to occur in the cities where management remains stable for a longer period. The principle of endurance argues that in order for changes to be established, they need to be introduced over a longer term. Hargreaves and Fink (2007) argue, "Schools and school districts cannot

institutionalize their efforts for improvements over time without a high degree of stability or continuity in leadership" (p. 60).

The Brazilian public leaders in education, in this case the people who play the role of SME (Secretary of Municipal Education) today, have a more political than technical profile. The security of their tenure then depends on political criteria and not necessarily on technical competence or quality management. The SME is politically chosen by the mayor. Recent studies have shown that SMEs are more prepared in terms of professional training and level of expertise, but their profile appears to be more political and less technical (Castro, 2013). This association between public management in education and public government has caused a disruption of educational policies at all levels of public education – municipal, state, and federal – because when there is a change in government, and especially change in the party in power, there are changes in educational policy.

Research conducted by Hargreaves and Fink (2007) in schools in North America indicated that leaders who are doing a good job in schools should remain in office for at least five years, "if you want your improvements to survive after their departure" (p. 61). They argue that "standout leaders should anticipate less successions at any period of their careers, such that leaders remain in specific schools for enough time to ensure that the effects of their leadership will last" (p. 61). These principles also apply to the management of the school because the principals who have been democratically chosen remain for a maximum of four years in office. A study by Drabach and Freitas (2012) discussing the profile of the principals in Brazilian schools built from data collected with questionnaires by Souza (2007) found that:

> … more than half of the principals in Brazilian schools (53%) work in the role for less than 4 years. This is a significant finding since the turnover of principals in this position is an important element in the democratization of school management. (p. 16)

The lack of training for principals and turnover has led to a low level of professionalism of school principals. One teacher said, "I am a teacher, Now, I will be the principal." When he starts to learn about the law and have a little more experience, he leaves, and another person will take the job restarting the whole process. Not always, the benefits of participation outweigh the lack of change in leadership. These strategies are important when we experience the growing politicization of the position of educational manager.

Empirical data about the SMEs indicated that building a work team, an educational proposal, and its implementation requires time (Santos, 2012). The discontinuity of policies and programs that are imposed by governments is a problem that has been faced by Brazilian public education at municipal, state, and federal levels. It occurs with new elections by replacing the people in charge of public education management. It happens to the principal of the school and the Minister of Education as well. In each case, they form a new team; new alliances and programs are organized; all causing policy changes and discontinuities leading to endless new beginnings. This process is cyclical in our educational system and makes it ineffective and unproductive in achieving results and objectives. Stability in management and developing a work team can be an effective strategy of action that makes the system more productive and accomplishes more lasting and meaningful change in education on all levels.

Findings

This study shows that in the cities of Serranópolis do Iguaçu, Piratini, Castro, and Westphalia, where their SMEs remained for a long period of time in managing municipal education, there were positive effects in educational management. In Serranópolis, the SME acted for two terms, that is, for 8 years; the result was positive because the municipality achieved the best Index of Development of Brazilian Education [IDEB] (the Brazilian indicator of quality in education; it is a combination of results from a Brazilian exam, children's age, and grade level). In the city of Piratini, the SME remained for two terms, but the results were not as clear. The Secretary of Education instituted a variety of projects and pro-active actions in the city, but the educational results were not as clear as in Serranópolis do Iguacu. In the municipality of Castro, the SME terms ran from 2005-2009 and 2009-2011, and he stepped down in March 2011. Castro had a very innovative project which included creating their own evaluation system, a kindergarten school blog, and several innovative projects. Westphalia developed a new pedagogical project with the help of José Pacheco, a Portuguese educator, who founded the Escola da Ponte (Bridge School). The data relating to the experiences of the four cities listed above is presented below.

City 1 – Serranópolis do Iguaçu

The administration of the Municipal Department of Education has been held by the same SME since 2005. During this time, there was consistency in the projects that were implemented, such as the projects focused on teacher education. This city has only one school that offers pre-school education for about 120 children and elementary school for approximately 300 students. All teachers who work in education were selected through a public examination. Most of the teachers have a higher education diploma, and during high school, they had a special focus on teaching having attended a teaching school, and 90% of the teachers already had some kind of post-graduate course after graduation. City hall has been concerned; therefore, it invested in teacher training. This distinction affects student evaluations. In 2009, the city received the best IDEB result among the initial grades of elementary education in the state of Paraná.

The numerous projects developed in the city that are worth mentioning include the following:

- The Evaluation of Educational Achievement Project which has been carried out in the city since 2002. Among its goals were to identify the gaps in student learning individually and in classes to propose new content for effective teaching. This project, according to the team of professionals interviewed in the city, has shown excellent results and has been carried out by the association of municipalities in western Paraná. Based on the results of the evaluation conducted with students, courses have been offered for teachers in areas where students had difficulties.
- The Reviewing Knowledge Project launched in 2007 includes revision, fixing, expanding, and sharing knowledge in the Portuguese language and mathematics. It is applied to students from the 2nd to 5th grades. Its objectives are to review and determine the basic content of the grade and evaluate the learning development of each class to offer challenges that contribute in a motivating way to internalizing knowledge.
- The project Knowing Our City has been in effect since 2005. It is applied to teachers and students from kindergarten to the 5th grade. It aims to develop a record of historical and geographical aspects of the municipality to help

students, teachers, and the general community develop their own social and historical identity.

The educational development was considered to be very good by the Secretary of Education. The following items were cited as positive progress: (a) Most of the public employees had completed an undergraduate degree on public management at the Federal Institute of Paraná. (b) The city has an illiteracy rate of less than 4% and among these are generally the "Brasilguaios," immigrants from Paraguay. (c) The investment in education involved 32% of the budget of City Hall in 2011, while by law the minimum value is 25% of the total. This situation is explained by the commitment and involvement of the mayor. (d) Another difference is the good relationship with the community and parents mentioned by the principal of the municipal school. (e) The local education system offered special computer and chess classes to students in the 4th and 5th grades. These classes were offered in alternate periods. (f) Programs in the cultural area were opened not only to students but to the community with workshops in guitar, keyboard, violin and chorus.

The formation of a work team within the city that has been developing over time, the construction of a local identity through projects aiming to support and document the history of the city which incorporated two neighborhoods of an old city, the constant effort of student assessments followed by teacher training were the points identified in the tests as weak. The results obtained in recent evaluations (IDEB) were shown to be above the national average and have progressed significantly in recent years. Between 2005 and 2009 the city scored 7.2, the highest among the state public schools. In 2011, the municipal school did not participate in the evaluation process due to the small number of students. In the years when the test was performed, the result was significantly higher than that of the entire public network in the state of Paraná, 5.3 and well above the national average (4.6) for the evaluation of the initial grades.

City 2 – Westphalia

The city is small, well-organized, and has 34 working teachers: all with a university degree and 47.1% with a post-graduate course. Four have only training in secondary education. Of these, two are still students seeking a higher education degree. The majority of the teachers work twenty hours per week, only 8 teachers work full time.

The city had a difficult time with adolescent students who found school useless. They lacked motivation and interest in learning. These problems have been evident since 2006, but the stability in the management of education led to the development of a special program to deal with the situation. The most pressing issue discussed by SME was the lack of student motivation to learn. To solve this problem, they invited Professor José Pacheco of Portugal's Escola da Ponte (Bridge School) to assist the group in addressing this issue. This rather innovative proposal appears to be geared to helping teachers teach and resolve issues based on research. Students and teachers then learn to deal with the issue of a lack of student motivation. In conversations with teachers, it became very clear that teachers do not know what to do to ensure the students' attention to obtain results and satisfaction with their work. It is a question of how to make good, creative, and challenging work for students and how to make the work relevant for the teacher and the students.

The Bridge School (Escola da Ponte) is an innovative experience created in the seventies in Portugal. It works freely without classes or groups by age. Students come together for emotional reasons and

pursue work in areas of interest. According to Pacheco, the founder of the school:

> Indeed, it is the students who decide. And the teachers are there, attentive, and available. When we understand that each child is a unique and unrepeatable, that it would be wrong to imagine the coincidence of levels of development. We can conclude that it is not inevitable to measure the pace of the students according to the pace of a manual or according to the homogenization operated by lesson plans aimed at a hypothetical average student. And we move to another school organization, a different relationship between the various groups that constitute the educational team (parents, teachers, students, staff), another way to reflect practices. There was a shift from instructional objectives to broader goals of education. This project suggests a school model that is no longer the sum of activities of school time, teachers and students juxtaposed. (Interview with José Pacheco; translated by author from the original Portuguese.)

This experience considers the development of a more autonomous individual capable of pursuing knowledge with more autonomy and interest. Maybe this option is valid for the challenge faced by the teachers of Westphalia. The math teacher says

> Well, what frustrates us the most is not the salary but problems with students. The teacher prepares to give a wonderful class and has some unmotivated students who do not use a notebook: they look tired, do not care, grumble.... (Interview with director and teacher)

The unmotivated students are a minority in a class of 25-27 students, but they all affect the pace of the class. The group seems to be older students in their teens and their behavior raises many issues: from the nature of the student's behavior accustomed to the internet with easy and immediate responses to the curriculum. What is really necessary is help the student learn to have a better and more meaningful life through knowledge.

The other teacher says

> ... the problem is figuring out what really matters to students, and until we discover something, except academic content, this is a generation of typing, push a button, and get an immediate answer without worrying where and how they…it does not matter. 'I want an immediate response; I do not want to put too much effort into it; I push the button and I want the answer.' I'll explain then: 'No, no, now I've turned over a new leaf, and now I wonder if pushing another button how it is going to work.' (Interview with principal and teacher)

The math teacher cares if it is important to teach polynomials and the Bhaskara's formula, which she missed in the Faculty of Physics, and then when the students are working in the city and are unable to do simple percentage calculations, or to calculate the area to buy tiles, in sum, practical issues, they will be responsible. The teacher presents the 'question of concern' with the lack of prospects these young people have. Because the work in school is not a source of satisfaction for this youth, they do not feel the need to be prepared for a job. However, the knowledge they acquired in school can help with this issue and give new meaning to knowledge. The teachers seem to be making the issue of teaching about how to make schoolwork attractive for young people.

Teachers seek meaning and purpose in their work and achieving an outcome, especially with teenage students, has been a challenge for the city of Westphalia. The stability of the SME enabled the development of an innovative project with the help of Prof. José Pacheco for teachers and students to

find meaning in their joint tasks learning/teaching. Educational outcomes in Westphalia attest that there was an improvement in local education test scores with the 2011 results indicating an IDEB above 6.0. In 2009, the city did not have enough students to apply the test. The results for the final grades of elementary education tended to decrease from 2007 to 2011, despite attempts to overcome the difficulties of involving pre-teen and teenage students. The project with Prof. Pacheco was being implemented in 2012, and the results in terms of school performance have not yet been observed.

City 3 – Piratini

The municipal administration of education has been held by the same secretary since 2006, thus exhibiting stability in the leadership of municipal administration. The interviews indicated that there is a link to a political party allied to a practice and knowledge of the area: combining both traditional and political perspectives as identified in a previous study. It should be mentioned that in recent years the municipal education has shown significant changes. New programs are being implemented, and agreements made with the State Government and the Union allowed for the significant advancement of teaching. Among these, is the work done jointly with the Economic Development Department and Gaucho Program of Quality and Productivity. This connection allowed for the use of management tools in planning municipal education and using strategic planning. Piratini was one of five cities in the state that obtained special support and resources from national programs for early childhood education.

The administration made a number of goals and programs with the aim of improving the conditions and levels of education in the county. Among these measures, it is worth mentioning the implementation of a career plan aimed at improving the conditions of education. As already mentioned, most teachers work a 20 hour work week in accordance with the provisions of the plan, and of these, sixteen hours should be devoted to teaching in the classroom. Four hours per week are devoted to professional development. The municipal teachers who were interviewed commented that despite the limitations of the plan, they felt valued in comparison, for example, with the neighboring municipality of Pelotas, which had no career plan.

The Secretary of Municipal of Education prepared a new plan for computer education to enable teachers to work with computers. Therefore, a Municipal Technology Center was created with 23 computers. The courses in the digital area were offered first to the administration, support staff, and afterwards, students made their first contact with the computers. This situation allowed Piratini to be one of three cities in the state that was part of the Digital City project, but the city is still in 71st position in the ranking of digital cities and the site of city itself is not considered up to date despite their participation in this project. There are computer labs in fourteen schools with Pro-Info (a national program for technological education). The Active School program, which takes a closer look at the educational use of computers, has also been developed. Linked to digital education, the “tele-community center” establishment was designed to attend to an average of eighty people per day.

Due to the large territory of the county, school transportation constitutes a major problem for the administration of education. The SME commented that the fleet has been updated, as well as the consequent regulation of transport. Currently, City Hall owns thirty-one vehicles: five microbuses, fourteen vans, twelve buses, and still need to rent two minibuses, six vans, and eight buses. Because the county is very big, student

transportation amounts to 6000 km per day, representing a huge investment for the city.

An analysis of the data collected and the interviews showed an improvement in the condition of education in recent years with the implementation of various projects and programs aimed at advancing the municipal school. The stable conditions in the administration of the Department of Education allowed for advances in educational programs, but these advances have not yet been reflected in the results of educational achievement.

City 4 – Castro

The person who held the position of SME in the city until March 2011 had been President of UNDIME (Union of Executives of Municipal Education) in Paraná state and the national UNDIME, but stepped away from the position of SME to engage in a consulting firm. The current mayor is being subjected to a series of complaints and cases for administrative impropriety, and perhaps this is one of the factors for the resignation from the SME. The current SME is a teacher, and he believes his role is to continue the projects started by the previous administration because at the time, there is no atmosphere or resources for new investments.

The previous administration seems to have been very active, and there are several projects underway coordinated by the municipal staff: early childhood education, the inclusion project, continuing education, and the internal assessment project called IDEC, and the Educational Development Index of the city of Castro. That city was the only one that presented its own evaluation system in the sample of municipalities studied in the main investigation from where these data were drawn. This system was established in 2008 with the goal of providing subsidies for making decisions about the learning process of students. “In practice, the evaluation process is external to the school [and] provides information for the effective improvement in the quality of education” (presentation on IDEC provided by the SME during a visit in April 2012). The evaluation system of the municipality of Castro, formulated in 2008, was consolidated by Law 7058/2008 establishing two annual assessments to measure student learning outcomes. There was an improvement in the IDEB results in Castro with the implementation of IDEC. In 2009, the municipal IDEB was 5.6, surpassing the 2007 IDEB of 4.9. The practice of evaluation student achievement led with to a culture of assessment in which the results are used to monitor the quality of education and guide the actions of teachers and principals. Educational outcomes show that Castro still performs below the average of Paraná, but in general, it has improved its performance up until 2009 and in 2011, it has maintained a similar pattern. There is a collective effort to change the practices of the classroom depending on the results of the IDEC.

The application of IDEC occurs twice a year from the 3rd to 5th grades making evaluation a common practice and a resource for planning in the classroom. The intentions of SMED in Castro, according to those responsible, were not to rank students and schools but to provide diagnostic possibilities for teachers. In an interview with the principal of a public school, she said that initially there were student awards, and the students with the best results won bicycles. However, now the results are used for diagnostic purposes. The IDEC offers a snapshot of the situation so that they know where they stand in the context of local schools.

The development of IDEC led to a revision of the curriculum, and a booklet was developed with the descriptors of curriculum adapted from the descriptors of the Prova Brazil (Brazil Exam). Thus, the realization of IDEC reveals the inductive

nature of the curricular policies in order to generate a narrowing of the curriculum (Sousa, 2009). This system allows for the identification of different levels of proficiency and eliminates the random student responses.

During the visit to a municipal school in Castro, the teaching staff performed tests with students in the 1st, 2nd, and 3rd grades. Each coordinator worked with a group establishing proficiency levels in reading and math. These individual student results were subsequently discussed with teachers to generate corrective measures within the classroom. The regular application of IDEB has led to improved educational outcomes in the city indicating that IDEC has helped to build a more accurate diagnosis of development needs and student learning.

In a later interview with the principal, it was found that the activities of continuing education should also were reflected in planning and action in the classroom. Each activity performed was documented in a book in the form of a report in which the activities are described, and there is a summarized copy of the material. In the second part, each participating teacher made a comment on this activity. The teaching staff monitored the planning by individual teachers.

The Early Childhood Education Project, besides the “Babyteca” (baby library), has a blog where experiences are presented in videos. The blog and the video project really seemed to be quite innovative. Early childhood teachers receive exactly the same pay as elementary school teachers.

The continuing education of teachers is now dealing with the issue of eighty teachers who need to complete 1300 hours of complementary training at the University of Ponta Grossa. This whole program is coordinated by an advisor to the Secretary. These teachers are part of the nearly 40,000 teachers in the state of Paraná who graduated from Vizivali and whose degrees were not recognized at the state level. Ultimately, there are many projects and a diversity and dynamism in the Municipal Education Department. Despite the fact that the Secretary of Education withdrew from the administration of the Department of Education, there continues to be a synergy and innovative influence on municipal education.

Conclusions

The data analyzed indicate that the stability of public city management can be a factor in the improvement of public city education. In the cases analyzed, especially in Serranópolis do Iguaçu and Castro, there has been a breakthrough in innovative projects and results. The creation of a team and the maturation of an educational proposal require time and working together, overcoming difficulties, changes in mentality, and developing an innovative culture. In Serranópolis do Iguaçu and Castro, a culture of evaluation leading to positive results has gradually been built up. In Westphalia, the stability of management enabled city hall to advance from the diagnosis to the implementation of a project in search of a solution to the problem. In Piratini, the diversity of projects is perhaps the clearest result of management continuity. Finding stability in management can lead to a rich journey of deep and lasting change in the quality of education.

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Author

Marta Luz Sisson de Castro is a full professor of education at the Pontíficia Universidade Católica do Rio Grande do Sul. She the national president of the Brazilian Society of Comparative Education, and a researcher for the National Council for Scientific and Technological Development (CNPq). Her main interest is in educational administration looking at the management of municipal education. She has published several articles and books in Brazil and internationally. She was the convener of the ISfTE seminar in 2010.

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Theme – Critical Issues for Tomorrow's Teachers
This was the theme for the 35th annual ISfTE seminar sponsored by Montclair State University in New Jersey, USA. It was held June 21-26, 2015.
Deadline for submission has passed. Publication date is May, 2016

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Deadline for Submission: April 1, 2016 – Publication by December, 2016

2017 (Volume 21, Number 1)
Theme – Emancipating and Transforming Teacher Education for a Better Education System
This theme was chosen by the conveners of the 37th seminar for ISfTE to be held at Kruger National Park in South Africa (April 17-22, 2016). For more information about the seminar see the website at http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=98444
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