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Perspectives on Curriculum Restructuring in distance education

Badu-Nyarko Samuel Kofi
Department of Adult Education and Human Resources Studies

University of Ghana,
Legon
GHANA
sbnyarko57@yahoo.com

Abstract: *Curriculum innovation (restructuring) in distance education has been of concern to many universities and institutions of higher learning. The technological changes and the increasing numbers of students entering institutions of higher learning, access and cost of managing higher education all calls for restructuring and innovative approaches to survive. Thus, to meet the challenges of the 21st century education institutions of higher learning are restructuring their curriculum to meet environmental uncertainties. Most of these curriculums either in the subject matter or whole curriculum have been done without much consideration to the issue at stake and stakeholders. It is often politically motivated and imposed from outside. This article tries to examine the basis upon which curriculum could be restructured and implemented over time. The assumption here is that there is the need to understand the difference between change and innovations as well as the role teachers, or lecturers, students and others will play in planning and implementing the desired change.*

Key Words: *Distance education, Curriculum restructuring, curriculum Innovation, curriculum implementation*

1 Introduction

Distance education has been described as the system designed to facilitate distance learning. In essence, distance learning is what the distance learner does. The educator does the educating, the learner does the learning Roblyer and Edwards (2000) citing the United States Distance Learning Association 1988 define distance learning as "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance(p. 192)."

According to Johnson (2003) distance education is often defined as simply a form of education in which the learner and instructor are separated during the majority of instruction. But unlike independent or self-directed study, distance education usually implies the presence of an institution that plans curriculum and provides resources and services for its students.

In line with the above, Johnson (2003) thinks distance education should be considered as the institutional or organizational provision of support for learners that involves no on-site attendance or face-to-face contact on the part of the learner. The distance learning support will provide an equivalent level of academic quality and learning experience as on-site, face-to-face delivery for the same learning outcomes (Garrison, 2003).

The nature and delivery of distance education continues to change and this has affected the way higher education institutions operate. This requires that the curriculum developer at a distance must continue to effect the needed changes in order to attract students and to survive in the changing educational environment. Thus, to succeed, curriculum innovations must be encouraged at all cost.

Curriculum defined

The definition of curriculum had been mixed. Its definition had been related to either the purpose or the relationship it seeks to establish. Earlier educationist like Taba (1962) and Tyler (1949) saw curriculum as a plan for action or a written document involving strategies for achieving desired goals or ends. Thus, to them the process of achieving the end result reflects curriculum. In like manner Wiles and Bondi (1989) define curriculum as a plan for learning (whereby) objectives determine what learning is important (p 131). This definition is wholly not tentative as the curriculum involves all the experiences students have under the guidance of the tutor or facilitator (teacher). Bondi's (1989) definition considers all the things experienced in and outside the school with regard to the student.

Relating curriculum to the social development of the student it was defined as a special environment for helping children achieve self-realization through active participation within the school. In the words of Hass (1993) the "curriculum is all of the experiences that individuals have in a programme of education ….which is planned in terms of theory and research, past and present professional practice" (p 54).

According to Ornstein and Hunkins (2009) curriculum involves "a field of study comprising of own foundations and domains of knowledge, as well as its own research, theory and principles and its own specialist to interpret knowledge" (p. 10). Also, the concept of curriculum relates to the subject matter (History, psychology, philosophy or chemistry) or the content representing the process to organize and assimilate the information. These ramifications of the curriculum make it difficult to understand what really a curriculum represents. But in all these the underlining fact is that curriculum involves a plan, a system and a field study. These three are mutually related. Therefore, to understand a restructuring or change process, all three must be considered. Restructuring connotes modification of the educational system where new concept of teaching, roles and responsibility of the players are emphasized

2 Curriculum_Change_and_Innovation

There are many issues relating to curriculum innovations in schools and a country. Miles (1984) tries to draw a distinction between 'change' and 'innovation'. To him, innovation is more willed, deliberate and planned than change. Innovation is not merely change; it has purpose and hence unfolds in a systematic way. Change relates a complete replacement of existing document or procedure (Fullan, 1993). Richlands (1985) states that " innovation is … the creative, selection, organization and utilization of human and material resources in new and unique ways which will result in the attainment of higher level of achievement to the defined goals and objectives. '(p.18)

In the above statement, there is selection, organization and utilization of resources, which must be done with the outmost use of creativity. Morrish (1986) thinks it is common to assume that any innovation embarked upon is an improvement upon what has been in use in the past. He categorically indicated that an innovation on its own is a new thing, which has been put in place. It is usually completely different from the previous one and 'it may be good or bad or neither (Morrish, p. 20). This could be done by examining the outcomes in relations to its aims.

Curriculum innovation is defined as deliberate actions to improve a learning environment by adapting a method of presenting material to students that involves human interaction, hands-on activities and student feedback, according to the Annual Review of Applied Linguistics. Changes in curriculum may involve innovation, but in general, change in terms of curriculum involves adapting a new educational method and not necessarily a method with human interaction (Miles, 1984.

Thus, when curriculum innovation is made in the classroom, it can enhance the social skills of students and focus on unique methods for teaching historical, technological, organizational or political lessons. An innovative lesson may encourage students to use online tools, multimedia software applications or hands-on lab experiments and outdoor archeology adventures. An innovative curriculum relies on students to make

discoveries with an instructor present to serve as a mentor or guide instead of taking the role of the expert who controls the learning. Projects may include individual self-study assignments or group activities that produce a final product, such as a newsletter, video, presentation or theatrical production. Curriculum innovation encourages educators to defy the norm and think outside of the box to reach all types of learners with individualized styles instead of focusing on lessons that are effective for just a few average students in a classroom

Other writers like Tooley (2000), Gerber (1995), Fullan (1993) hold divergent views and see curriculum change as a reform and a process. Understanding change involves understanding three beliefs: planned change is good; change is divorced from stability; once change is adapted, improvements occur. Cuban (1992:219) argues that change in education whether at higher education or distance education level does not lead to improved practice directly and that the journey from design to practice is far more zig-zag than a straight line.

Similarly, Watslawich, Weakland and Fish (1974) cited in Geber (1995) identified two types of planned change - incremental and fundamental change. Incremental changes are intentional decisions to enhance an existing system by correcting deficiencies in policies and practices. Fundamental changes on the other hand are new goals, structures and roads to alter the ways that organizations are arranged so that novel solutions may be implemented to solve perennial problems. Subsequently, Wingate (2006), Rennie and Tregust (1994) identified the following as a basis for planned change: Effective co-ordination, time or staff stability. They indicated that continuing support is needed for the staff to adequately implement the innovation as well as sufficient funds. A single injection of funds is inadequate for a curriculum intended to have long life. The authors were of the view that it takes time to plan changes in syllabus statement and to modify teaching and learning strategies, to implement those changes and to reflect upon the outcomes. Also, 'the single issue of time appears to be crucial; for the success of a school- based curriculum innovation, and it is unrealistic to expect that significant curriculum change can occur in a short time' (p.23).

In effect planned change needs careful consideration and the involvement of diverse people with different ideas. Rennie and Tregust (1994) for instance indicated 'that effective implementation takes time and money is simply recognition of the fact that curriculum change is not an event but a process'. A well-planned curriculum change must make allowance for a period of implementation as well as the period of planning and development. The factor they identified was staff stability'. They indicated that the potential for schools and for that matter higher education to succeed in implementing curriculum change depends on many factors but central is the degree of control which schools have over the stability or their teachers or lecturers.

3 Theoretical Framework

The term 'Strategic Planning' has been used to refer to processes for change and implementation. The concept of strategic planning is the managerial process of developing and maintaining a strategic fit between the organization's goals and resources and its changing environment or opportunities (Sibley, 1986; Wilson 2006). In order to establish and apply this principle, the first step is for the institution to carry out a careful analysis of its environment, both today's environment and tomorrow's probable environment to ascertain its major opportunities and challenges. Like any higher education, it must ascertain its focus in current practices and future market demands

The next major thing for the institution to do is review its major resources (strengths and weaknesses) as indicating when it can be feasibly hope to do so. The environment and resource analysis lead the institution to formulate new and appropriate goals to pursue in the coming planning period (Wingage, 2006) .

Goal formulation is followed by strategic formulation in which the institution choses the most cost effective strategies for reaching its goals. Its strategy will undoubtedly point to certain changes that must be made in the organization's structure. This requires effective restructuring of departments and units and sometimes rebranding of programmes to suit national and society's development.

Finally, attention is turned to improving the organization's systems of information, planning and control to promote carrying out the strategy effectively. When all these components are aligned, they spell performance. Further, the organization must attempt to identify the major threats it faces. In a country like Ghana, these threats centre on the students applying to the public universities and the competition with the private universities as well in terms of course offerings, cost and the academic environment.

4 Rationale for change in curriculum

Distance education is undergoing radical transformation in all sectors: teaching and learning, administration and environmental uncertainties. Thus, many of the current innovations particularly in Ghana have centred on political interventions especially the direction of high school programmes affecting the products entering higher education, introduction of new courses and staff development. As a result, after using most materials either print or electronic are used in institutions of higher learning and distance education for a number of years and observing the content and outcomes of student's performance, it becomes necessary to change certain aspects of them to suit new dimensions, directions and social needs (Badu-Nyarko & Donkor, 2014). It has been observed that the curriculum in most higher education institutions is loaded and does not meet the needs of the current society and need task-reduction as well as proper sequence and content. Instructors teaching and facilitating at the distance continue to complain about the number of courses they teach and the number of students in a class preventing them to complete courses as scheduled and time spent in marking examination scripts and assignments.

The various time table constraints per day and week-ends for distance students do not allow higher education institutions in Ghana to offer the desired range of information to the students often producing low achievers and preventing students from pursuing programmes or courses at the higher levels after graduation. For instance, in the USA, the Institute of Medicine Report: Dental Education at the crossroads: Challenges and change cited by Crawford, Johnson, Knoernschild, Parson and Zaki (2007) urged"dental schools to develop a plan and time table for curriculum reform. The report pointed out that traditional dental schools curricula are crowded with redundant or marginally useful materials and students do not have time to consolidate concepts or to develop critical thinking skills". According to Crawford et al., (2007) the report concluded that the science base of oral health is not effectively related to clinical practice and recommended decreasing the number of lecture hours and increasing time spent in more active learning strategies such as small group discussions.

One major element for consideration in any proposed innovation is the concept of time. Innovated teachers and the schools have always found time to change and adopt their teaching methods spontaneously and gradually. According to Fullan (1991), change that is impose from outside with a deadline exert much pressure on individuals particularly if they have not participated in the thinking on which the changes are based. Although they may be sympathetic to the aims and intentions underlying those proposals, they may not, at first sight, be able to internalize the link between the philosophical framework and its manifestation in terms of course outlines, teaching approaches, and assessment criteria (Oliva, 2006).

5 Implementation Activities

In order to effectively put the curriculum into effective use, a survey is to be conducted to ascertain the feasibility of the changes through information gathering from lecturers or faculty, higher education boards

and committees, parents, alumina and students. Also, the new programme has to be tested in a few pilot departments and senior high schools randomly selected in the country to attest its viability before being implemented.

Planned change in the higher education curriculum has to take cognizance of the fact that these cannot be done at a single shot. There is the need for careful planning and the need to promote the change in phases. Efforts must be made to arrive at a consensus. As a matter of fact, it will be difficult to envisage the grounds of dissent that would be acceptable for the rejection of the programme where there exist a centralized system like that of University of Ghana. The process of implementation is not always straightforward; rather it is developmental in nature (Fullan, 1993). Fullan (1993) suggests that the initial stages of any significant change always involves the learning of new skills. This explains why in the early stages of implementation, there is considerable resistance to new ideas and why teachers or lecturers prefer to follow closely a highly specified program which requires following directions mechanically.

Before the implementation of the new curriculum, after going through the tryout and the field trial stage, there is the need to have an effective dissemination strategy and carry it through as thoroughly as possible. The strategy to adopt here, according to Ruddock and Kelly (1986) should comprise translocation, communication, animation and re-education.

Translocation refers to the planning and the movement of people and materials required to implement the new programme. It deals with the issues as to whether faculty should have in service training, and what type. People in education system should play different roles through changes in positions. It must also decide whether the programme designers should visit higher education institutions; and how textbooks (printed materials and other materials (online courses) are to be developed. Henry (1989) indicated that the role of the various educating agencies in the implementation process is of great importance. Faculty must be involved in the major decision-making process particularly in initiating the innovation. Undoubtedly, these are issues which have to do with the administrative details of the dissemination process in a curriculum restructuring.

Communication has to do with passing on information about the instructional programme from person to person. This involves personal contact through visits. Information had to be passed through the radio, television, newspapers and websites or advertisements. Therefore, universities and institutions of higher education desiring change in curriculum must have a communication plan and follow through systematically and carefully. These must be related to business and industry for their inputs to the planned curriculum change. This is because they are major stakeholders in using and employing the end products – the students.

Animation concerns the provision of incentives, which will motivate the implementers, that is, the faculty and administrators to perform their task with all the zeal that they can muster. The incentives should provide faculty with desirable attitudes towards the programme. It is also to effect self-generated and individual change towards the implementation of the new curriculum. This is to indicate that the success of any curriculum change or restructuring depends on the faculty. Faculty is more likely to feel comfortable with the programmes which encourage the use of strategies with which they are familiar. If the contents are familiar, they feel confident in implementing them.

The issue of re-education cannot be left out. Ruddock and Kelly (1986) indicated that this has nothing to do with in-service and pre-service faculty education. It implies that in-depth understanding and high degree of commitment are required if the programme is to be implemented effectively. This involves the establishment of cooperative experience among the lecturers and the establishment of intimate rapport between the designers and faculty. Many writers stress the importance of staff development in achieving implementation (Osrntein and Hunkins, 2009; Wilson 2005). It is often assumed that faculty or lecturers have the expertise to implement proposed changes but in general they may require some re-education the development or refinement of competencies necessary to implement the innovation. Secondly and probably more importantly, faculty or lecturers may require re-socialization. For example, it emphasizes the development or refinement of roles and role relationships required for implementation. This means changing certain

interactive skills, attitudes and habit's that had existed over the years to conform to the new programme envisaged (Petterson and Czajkowski, 1979).

Another major aspect that cannot be ignored in this direction is the issue of resources needed to implement the reforms. This is vital because the gathering of information on these reforms will provide useful data for analyzing effective outcomes (Anwyl, 1992). When a thorough dissemination is done, there is the need to investigate if there is adequate input such as equipment, and materials such as tools, textbooks and other teaching and learning resources to sustain the implementation process (Fullan, 1986).

It is also necessary to see to it that lecturers who will implement the new curriculum are adequately prepared to handle them effectively (Petterson and Czajkowski, 1979). A short-time measure is to run an in service training programme for serving teachers. The long term measure is to redesign the doctoral (PhD) or graduate programmes and orientation for lecturers so that new lecturers who join faculty are equipped with the requisite knowledge and skills for an effective implementation of the instructional programme. For example, it is essential to restructure the doctoral programme for the new curriculum to meet the needs of the students which are going to use the new curriculum or programmes. This is exactly what University of Ghana is doing by introducing the four-year doctoral programme in which the first year is used for taught courses and comprehensive examinations, experiential learning component in the second year before thesis writing in the third and final year.

There is also the need to re-design the end of course examination to suit the latter and spirit of the course of instruction. This will help provide the needed motivation for both lecturers and students who use the new curriculum. If this is not done, the innovation will not see the light of day. Over an extended period of time, lecturers and instructors must understand that the change is different and that their classroom practice will be enhanced and not radically altered by the changes proposed. They must also understand how the change works to improve student learning and that they are capable of implementing change such as on-line teaching (Thiessen, 1990; DuFour, 1995).

Agencies and agents like course associations (e.g. Sociological Association of Ghana), subject organizers, lecturers associations (University Teachers Association of Ghana) and inspectors of higher education institutions such as National Accreditation Board (NAB) and National Council for Tertiary Education (NCTE) will be made to play important roles in diffusion of the innovations ideas or programme proposed. The subject association will serve as agents for dissemination of innovation in the new curriculum through the papers, which they will produce and the discussions held during conferences, seminars and workshops. The subject organizers and inspectors of higher education will also serve as propagators of ideas on innovation ventures in the curricula. Parents and community opinion leaders in the academia will also be involved to express their views.

6 Factors Inhibiting Curriculum Innovations

However essential innovation proposal may be viewed, it is important to reiterate that is cannot take off if it is not backed by adequate funds and political will. An innovation of the curriculum may face formidable reaction against it. The reaction may come from people who think innovation is something cheap and ought to be done for the sake of it. These resisters often refer to the past and feels it is always the best especially when the system is going on smoothly. Resistance to innovation may also come from people who espouse the older order which they would not have changed. It is sometimes a surprise to find out that those who are supposed to take decisions on or implement the innovative process block the adoptive proposal. These may include decisions implementers at the Ministry of Education, Government officials, politicians, Heads of educational institutions, university or higher education boards and lecturers.

Another major impediment to curriculum innovation is lack of personnel to implement the new programme. There should be an advance preparation of personnel to carry out an innovation programme that is proposed well ahead of time of the implementation to meet the demands of the programme.

Curriculum innovation is impeded when there is constant rejection of innovation ideas. A reason for this may be ignorance or lack of information. This type of rejection occurs when the purpose of the innovation is unknown or the vision (objective) is ambiguous and varied Armstrong 2010). It is therefore appropriate that for such innovations to occur all the parties involved are informed and their views solicited (Ramirez-Smith, 1995; Mayer, Heizer, and Lonn 2001).

7 Conclusion

In proposing innovations to curriculum, efforts should be made to scan the environment to determine the possible threats to the innovation. However, the success of this will depend on its acceptability and would motivate those who are going to effect the changes and how feasible it would be to them. Infrastructure to support the innovation and the genuine involvement of lecturers in the proposed distance education programmes as well as effective time allocation at least two years for the field-trial (pilot stage) will go a long way to ensure success. It is proposed that 'cooperative learning' as well as problem-solving techniques be used in the dissemination of instruction in the new programme using on-line learning management systems. It would also be appropriate to support the inclusion of another essential element - formative evaluation of innovation as it proceeds.

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The Impact Of The Pastor's Immoral Life In The Community: A South African Pastoral Investigation

ME Baloyi
Practical Theology Discipline
College of Humanities
University Of South Africa
Baloye@Unisa.Ac.Za

Abstract: *Pastors and ministers are highly regarded not only by church, but also by the society, the government, companies, media and other sectors of our society. That is why the pastor's wrong doing easily find its way to front pages of our media and also affect many people, including no-church members. The escalation of public offences like rape, crime, killing, theft, robbery and violence has always been expected to be the deeds of non-christians and non-church members. The most worrying factor is that without condoning the immoral behavior and actions of the ordinary people, pastors and ministers who should be preaching peace and condemn all signs of immorality are becoming part of the problem rather than of the solution. It is therefore the intention of this article to unveil by way of research that for the pastors and ministers to be on front pages of the media for wrong reasons is the betrayal of the trust which the community, society and the country at large has invested in them, and that is playing a pivotal role in the growth of criminal acts as we observe. The article will also evaluate and give some pastoral guidelines as to the church's responsibility in eliminating pastor's immoral actions. The context of the study focuses amongst some of the impacts of South African pastors not only towards the church, but also in the entire community, considering that the society view the pastors as custodians of the moral regeneration also. It is within these confines that the church may through its pastoral leadership play a role in regenerating the morals which the country is already groaning about.*

Key concepts: Immorality, pastors, betrayal, trust, church leadership

1. INTRODUCTION

A bishop in the article entitled "Horny Bishop's 4-5 surprise" (Sisulu, 2014) was caught sending the wife of his faithful deacon an sms in which he pictured his private parts. The angry deacon, who received this 4-5 picture of the bishop from his faithful wife's sms, was quoted saying: "I am going to take this conversation to the church leaders. You are trying to seduce my wife while I am still alive" (Sisulu, 2014:1-2). The couple has already threatened to leave the church and join another since they have lost trust in the leading pastor, whom they honoured for some years. The wife of the bishop has also testified that when she tries to ask him about the matter, the bishop avoids her. This is one of the few published reports on the immoral life of pastors. On another incident, one popular and welknown married pastor's naked body was pictured in the internet as well as daily sun newspaper (Luhanga and Buthelezi, 2015:1-2) as he was walking around in the house naked, while the woman who is not his own wife was taking on pictures. A week later the pastor confirmed that the woman was sent to humiliate him and he was under severe threats for the pictures to go online (Buthelezi, 2015:3). This was a confirmation that the woman was not his wife, which would obviously suggest that it was a girlfriend.

South Africa as a country is groaning because of the immoral life which leads to so many such offences that impact on other people's rights and dignity. The wife of a known pastor in Soweto started receiving messages from an aggrieved woman and was quoted saying: "She started sending me messages that my husband should start acting like a pastor and that he should pay her back" (Saba, 2014:13). This statement came after the

pastor concerned had obtained an amount of R4500 from a woman to use as a bribe to buy her a driving license from the department of transport. After he failed to deliver according to the promise, the woman was angry and wanted her money back; hence the messages she sent to the pastor's wife. It is even more painful when these kinds of offences are committed by spiritual leaders like pastors, who should be trying to ensure that the wellbeing, dignity and moral life of the people are promoted and catered for. I was prompted to do this research in the wake of reading a report entitled "Let's kill him: residents fury over rape pastor" (Sigwela and Sizani, 2014:4), in which angry residents demanded the release of the man arrested for assaulting a pastor accused of rape in Masangwanaville in Port Elizabeth. Daman (2011:1) argues: "Only one out of every ten individuals who start their career in ministry will end their careers still faithfully serving the church." Even though there are many causes for this, it is my conviction that most of the pastors end up being destroyed by different types of immoral life. While some pastors are involved in cheating on their wives, others are involved in fights. This is sad for both the ministry of the church and for the ordinary citizens who look to church leaders for signs of hope in their hopeless situations. It is so sad that pastors are on the front pages of media reports for bad reasons while the communities expect them to be the custodians of good morals. I am in agreement with Rainer (2014:10) that the media love the sensational stories behind clergy failure because the expectation of the people was just the opposite. Forster (2010) echoes this sentiment in asking: "Why do some Christian leaders, who appear to be pillars of strength, fall into sin?" Therefore the question is whether the church and the community can do something towards improving pastors' behaviour as well as their moral life. The intention of this article is not only to unveil the bad lives led by Christian pastors in our country, but also to look for ways to deal with these issues so as to restore the positive image of pastors for the benefit of the community, which looks to them as custodians of their moral lives. I fully agree with the North West premier that we can no longer shy away from saying something is wrong, even when it is done by our own leaders (SABC News, 21 February 2013, 07h07).

2. THEORETICAL ARGUMENT, RELEVANCE AND METHOD OF THE STUDY

It is the central theoretical argument of this study that if the immorality of Christian pastoral caregivers and spiritual leaders can be appropriately addressed and eliminated, perhaps half the battle against immorality in our country would be won, since many people believe in Christian leadership. The study will identify some of the offences committed by Christian leaders, particularly pastors, by way of media reports in newspapers and on TV and radio. The study will mainly be theoretical, although in some instances case studies relevant to the research will be incorporated. Due to the fact that most of the offences and bad stories about pastors are South African, the study will confine itself to the South African context to avoid unnecessary generalizations. The immoral lives of the pastors have included many things, as will be highlighted in the coming section, but for the purpose of this study much attention will be given to the scandals relating to money and sex in which pastors have been involved. The lives of many people are thus misdirected and ignored by the pastoral leadership here; hence it becomes an important task of theology to be relevant to the people's cry. I support Cone (1987:1) in arguing that theology should be not only relevant to the lives of the people but also liberative.

3. PRACTICAL ISSUES ON IMMORALITY OF THE PASTORS

In the article entitled "Drama unfolds in pastor's trial", Damba (2014:5) reported that the pastor was denied bail in the Khayelitsha Magistrate's Court, where he faced six counts of rape after two girls from his church pressed charges against him. Although there were two groups in the court, one in support of the pastor and the other against, the drama is that the man of cloth was behind bars for wrong reasons. The problem of moral regeneration has been a topic for a long time in our country. Immorality controls the lives of many people more than ever. Mojela (2014:12) is correct in saying: "Today we live in a society that is full of uncertainty and immoral behaviour. Our community leaders set an unholy path of corruption." It is my understanding that spiritual leaders like pastors and other church leaders are included in the concept of community leadership. Among other leading figures of this country, the Premier of North West, Thandi Modise, has indicated that there is a growing demand for united action against moral decay and its underlying

factors in our society (Tshehle, 2012:9). Even though the context of the Premier's speech was teenage pregnancies at schools, the fact remains that this is one of the moral issues that tops the agenda in our country. It is very worrisome that just as the government and other stakeholders are trying to engage with issues of immorality, those spiritual leaders who should channel their energies towards possible solutions are becoming part of the problem.

Just under the title "Cops bust church" there was a picture in which three pastors of the Presbyterian Church of Africa in Motherwell, Port Elizabeth were loaded into the back of a police van. Sigwela and Sizani (2011:3) reported that these men of collar had been engaged in a battle for power so extreme that the police intervened by arresting them plus seventeen other members of the church. To me this is an illustration of how pastors, instead of helping to solve church differences in peaceful way as expected, find themselves in newspaper headlines for the wrong reasons. It is the expectation of the community that when violence occurs, pastoral leaders should support the police in bringing about peace, instead of being on the opposite side.

The worshippers of the Remnant International Church in Tshwane were shocked when their leading pastor, a bishop, decided to dump his wife in full view of his church members, and left. The wife alleged that the bishop had left their marital home in Pretoria East two months before the incident. After the wife had given her own story, indicating that he no longer took proper care of his two children, the church suspected him of having an affair outside his marriage (Thamage and Ramotsho, 2012:6). It was a very disturbing moment for many church members, who had always looked on this pastor as their leader and motivator.

On 15 February 2013, another pastor was bust by police when he was leaving the premises of the Acts of Harvesters Church in Vosloorus (Ekurhuleni) after leading members of the church had reported him for allegedly defrauding the church of funds amounting to around R200 000. One of the claimants indicated that he was shocked when checking the church's bank statement to realise that only R4 700 was left in the account. He went on to say: "The pastor withdrew the money without consulting us. I asked the pastor about the church funds but he failed to give me answers that made sense" (Mnguni, 2013:4).

Elsewhere a pastor angered his wife and some members of the church when he stated that, being a virgin, he wanted to marry a very young and lovely girl in the church. After he became engaged and set a date to marry this young lady it was discovered that the pastor not a virgin but had previously had a child with another woman, who responded furiously to the news of his latest romance by saying: "I had sex with Bheki last week. We have been engaged since 2005 and I have been waiting for him to set our wedding date. Now he made a fool of me and he is going to pay for it. I took care of him and our baby. We had so many plans for our future together, but now he dumps me like this. I will be at his wedding and I will trash it" (Langa, 2013:3).

According to a SAPA report (South African Press Association, 2013), a 17-year-old girl was raped by her own pastor in Phokeng near Rustenburg when the pastor had promised a private prayer session for her. The most unfortunate part is that this man of the cloth used prayer (which most people believe in) to lure this child into the bush and rape her. She trusted that the pastor was going to do something to help change her life for the better, but on the contrary the pastor had his own selfish intentions.

Kotlolo (2013:120) also reported recently that a 48-year-old pastor was alleged to have raped a 14-year-old niece in Soshanguve, outside Pretoria. At the time of the report it was said that the pastor was still on the run and police were investigating as well as searching for him. Besides the issue being a sex scandal, it is unimaginable that the leader of the flock decided to force himself on a very young girl who was fit to be his daughter. Moreover, it is questionable how this pastor could handle the youth-related issues and education of the young people in the church. All this I am bringing to the argument because the future of this young girl was being disturbed by a community leader. The article entitled "Priest and his wife bust for the same rape" (Thamage, 2013:5) indeed testifies that spiritual leaders who are expected to lead the people in the right direction for a moral life sometimes become the very people who should be feared by their own followers. It

became the main headline of the *Daily Sun* newspaper when a married pastor lied to have sex with one of his church members. According to the reporter of the story, a certain married pastor of the Acts of Spirits Church in Soshanguve, extension 11, reached a written agreement (in a diary) with a female member of his church that they should have sex until they could get married in 2015 (Masango, 2013:1-2). It was only discovered after about three months that the pastor was cheating on his wife, who worked in Johannesburg. Another pastor is also said to be involved in breaking one family by being in love with one married woman who responded to her husband's accusations by saying: "I am happy with the pastor" (Sibiya, 2014:5). This kind of sin seems to be taking its toll on many pastors and hence it brings the churches from which the pastors come from into disrepute.

4. SOME OF THE PRACTICAL CAUSES OF PASTORS' IMMORALITY

4.1. The spirit of Jezebel

Jennifer Leclaire (2013:1) defines the spirit of Jezebel as a spirit of seduction that woos people into sexual immorality and idolatry. In Revelation 2:20 there is a revelation about what the spirit and its motives are. This is the kind of demonic behaviour which drives some females to seduce male pastors in the church. Mike Bradley (2011:1) argues that this kind of seduction spirit is more cunning and harder to deal with once it moves and attaches to a person. Many male pastors have been dominated by the seduction of females in and outside their churches, and that is how this kind of spirit destroys pastors and churches. The spirit of Jezebeel (which is lust in this context) cannot only be pushed to women. One pastor who helped to shelter the homeless family whom stayed in the bush was alleged to have asked sex as a thank you from Phumzile. Since he put them in his church Phumzile claims that he demanded sex from her in place of the rent she could not afford to pay (Masipa, 2014:3). This is a very bad representation for pastoral caregivers who after helping people expect a payment in any form.

4.2. Lack of true commitment to the work and to prayers

While many pastors are guilty of immoral life, it has become clear that their devotional life has also not been properly maintained. Being busy with the life of serving God's children takes a considerable amount of time, so that there is little or no time for such immoral temptations. The example of Martha and Mary from Luke 10:38-42 can be used to argue that those who stay at the feet of Jesus Christ, just like Mary did, are not vulnerable to falling into sin. The well-known story of King David committing adultery with Bathsheba in 2 Samuel 11 typifies how his remaining behind when his army went to battle affected him negatively. The logical argument is that had he committed himself to the battle as he used to, then the issue of his committing this kind of offence would not have arisen. There is always a danger of temptation for someone who is not always busy. David is one of the examples, because when he remained in the city while his troops went out, he had a chance to see the naked woman whom he later wanted for a wife, regardless of her marriage with Uriah.

4.3. The misuse of alcohol

Proverbs 23:29-35 gives a clear indication that many things, including immoral practice, can happen when one is under the influence of alcohol. When drinking of alcohol starts, it is just a harmless sip, but later it tends to influence the drinker's judgement negatively. Verse 33 of Proverbs above indicates that the eyes of a drunk person become less discerning, and they see bad things which could invite them into immorality. Their speech no longer judicious, and their language and vocabulary are no longer good and acceptable; instead they speak about anything, bad or good. Adeboye (2014:1-2) warns such people by saying: "Ephesians 5:18 says you should be filled with the Holy Spirit and not with wine. If you truly want Jesus Christ living in your house, remove all thrones you have created for the devil." In other words anything that will help you get involved with alcohol needs to be destroyed in your house. I support Adeboye in this advice because alcohol

and drugs have destroyed many church leaders, and if nothing is done the Christian church will remain short of leaders due to this.

4.4. When a pastor is made a god

Some pastors believe that they are unquestionable authorities in their churches. They are the only ones to instruct other members in what to do and what not to do, and they cannot be corrected. Many churches have been victims of the so-called "know it all" pastors, to the extent that the members are not allowed to question even his or her clearly wrong ideas. Being a pastor is also dangerous because the members look upon you as the source of all their solutions. This is not necessarily bad unless the pastor himself develops a spirit of pride through believing that because he or she is helpful to so many people, he or she cannot also have any personal shortcomings. Pastors are sometimes believed to be spiritual beings who are always perfect and immune to criticism. Some will even threaten those who sometimes ask questions about the church or preaching, scaring them by saying that the devil is a source of many questions. Therefore, since no one wants to be identified with the devil, people remain quiet even if they see bad behaviour sneaking into the pastor's life. Pastor Joe McKeever, in his blog, has listed about ten ways in which a person can become disappointed in his or her pastor. One way is to expect their pastors to be different from other normal people as well as to be sinless (McKeever, 2014:1). This can push the pastor to adopt the image of being an extraordinary person, whose small sins and even evil ways will be protected by the church members, who want to preserve the image of a sinless pastor.

5. THE END RESULTS OR CONSEQUENCES OF A PASTOR'S IMMORAL LIFE

5.1. Betrayal of the trust of the community

The question of trust can be opened by the quotation: "Trust is at the core of every healthy relationship. When you trust someone, your mind is at peace, and even the thought of that person brings joy to your heart. When it is broken, however, there is a deep and unsettling pain at even the mention of the offender's name." This is how Bubna (2013) interprets the role of trust in most humans' lives. This is the articulation most pastors should bear in mind for the sake of whoever trusts them in their churches and communities. Truly speaking, it takes far more time to build people's trust than it takes to break it down. Without denying that trust is something that is earned, we need to accept the reality that trust is something that is given. People who admire their leader would always want to show them trust. It should be noted that the trust I am trying to discuss here is not "blind trust" but a trust which also expects accountability, whereby people expect the trusted person not to betray their trust (Daman, 2011:1). This is the trust that most communities aspire to in respect of their pastors, particularly because they depend on them for many things, such as teachings, prayers and hope. In her article entitled "When pastors need deliverance," Doris Wagner (2010) has argued that when the pastor does evil the churches are wounded and the flock is often scattered, so that damage control is often impossible and the trust is lost.

Once the pastor is installed in the church and community, certain expectations cannot be avoided. One of the expectations is that the pastor's role will be to help in bringing peace as well as moral regeneration amongst the people. The community develops trust in the pastor's abilities and strength. That is why many people are surprised if the pastor reacts or responds contrary to their expectation; hence his or her mistakes will become a topic of conversation for many people in the area. Pastors and priests are therefore expected to be honest as well as to lead by example (Mokone, 2014:10).

5.2. Disappointment to the community

Since it is widely believed that pastors should encourage and embrace good morals, it becomes a disappointment for many people if a pastor is caught in a situation in which he or she is involved in immoral behaviour. This view receives support from Mokone (2014:10): "I am shocked and disappointed to see priests and pastors who are supposed to be God-fearing supporting and embracing corruption." Similarly, in cases of

alleged wrongdoing by others that are in the public eye, it is unwise for pastors to become judges instead of waiting for the law to take its course before someone is condemned or punished. The community expects the pastoral leadership to bring peace and stability where things are getting out of hand. A recent example of pastors being too outspoken involved their criticism of the Public Protector, Thuli Madonsela. One comment from one of the people who watched the naked pastor's video demonstrated the disappointment that most people have with the church regarding the pastoral immorality said: "In the olden days when families were faced with misunderstanding, they went to pastors. But these days pastors are the ones who break people's families. There is no one left to trust" (Luhanga and Buthelezi, 2015:2). Although this statement ended up with an unfounded generalization, this is what many people are likely to say about their disappointment.

5.3. Custodians of HIV/AIDS

When most people see a minister, they do not expect to see a fighter or someone violent. Many people are shocked when they learn that a Christian church pastor, a spiritual leader, behaves in an unexpected way. They are teachers and motivators who are expected to live what they teach and to behave in a way that is honest, peaceful and loving. The church's response to HIV/AIDS is more than a community demand because God wants to see His church's responsibility being fulfilled towards sick people. This is the emphasis of Belshaw, Calderisi and Sugden (2001) in their writing "Faith in development".

6. THE WAY FORWARD

6.1. Pastors are also leaders of the community

The truth is that spiritual leaders need good theological training on leadership as well as accountability. Rainer (2014:1) is correct in stating that these qualities create dynamic and competent leaders who will always take to heart the lives of the people. Granade (2010) believes that a pastor is more than a preacher because they have a great opportunity to engage in local leadership, for example by serving on the board of a school or business. Before the community trusts and accepts the pastor as their leader, the churches in which the pastor serves should be responsible for helping to develop his or her leadership qualities in general. In his article entitled "The church's responsibility to the pastor", Green (2007) has discussed issues related to how the church can build up the honesty and leadership qualities expected of the pastor. It is not the focus of this study to discuss how the church should remunerate pastors, but it should be understood that if his or her life is taken care of, the church will minimise the risks that come when the opposite is the case. Linton (2014) and Willmouth ([s.a]) support this argument.

6.2. Pastors must be wary of the devil's tricks

Young male pastors need to be careful when giving counselling to the opposite sex. Wagner uses the language of the spirit of Jezebel to summarise how the devil can use a female figure to seduce pastors and other staff members, aiming at the destruction of the church and the pastoral voice. It is not enough for pastors to be wary of the Jezebel spirit as well as their own lust, but it is important for them to put in place strategies to fight lust. My belief is that even if a pastor is seduced, many of them also have lust towards females too. Hence I think it is advisable for most of the pastors involved to admit their sin and weakness. Admission of guilt has always been a good way to start dealing with the particular guilt. In 2 Cor. 12:10 Paul teaches us to admit guilt, saying "When I am weak, then I am strong". Similarly he states: "Let him who thinks he stands take heed, lest he fall" (1 Cor.10:12). Secondly, though it is difficult, it is very advisable that pastors deal constantly with their own thoughts. In Matthew 5:29 we read: "If your right eye causes you to sin, gouge it out and throw it away." Although this must not be interpreted literally, Paul indicates how stubborn Christians should be when dealing with sin. Praying, living a disciplined life and having more time with your spouse are also other examples of advice that Cole (1996:2) gives to pastors. It has been found that in many instances where the pastor has been caught in immoral sexual behaviour the wife was absent. Besides praying, male pastors should start going out with their wives whenever they are asked to do church work such as

counselling. Pastors who spend excessive hours alone in their counselling offices are vulnerable to Jezebel's spirit. The church should encourage pastors to do the work alongside their wives.

6.3. Pastors need mentoring

It is a challenge for a newly ordained or appointed pastor to work within the community without some kind of mentoring. Although the pastor may be theoretically qualified, for the sake of practical life within the community some kind of mentoring by senior pastors may help to guide the new or young pastor into the field. It is a known fact that some community members, even church members, would like to bring down the new pastor, whom they know is inexperienced. A lot of unexpected bad things can be avoided if the new pastor is surrounded by experienced pastors. Rick Warren (2009) uses the practical example of Lebron James when arguing that every pastor needs a mentor. According to him, Lebron James is one of the best basketball players on the planet, but he still needs a coach. This argument is echoed by the fact that no one will ever claim to have learnt it all; rather, to succeed in any field, pastoral work included, they will always need someone with character, values and trust who will always be there for them. This is one aspect that is most ignored by pastors, and it makes them easy prey for the enemy who wants to bring down the church.

6.4. Christian pastors as custodians of moral regeneration

Dane (2005) says: "By accepting the office of a pastor, a person must accept the responsibilities that come with being recognized as a moral fixture before others. We are subject to the same frailties as those we serve, and must remember that the greatest way to guide our communities through their moral quandaries is to live rightly through our own." The author makes this observation to argue how much the community regard their pastors as moral leaders.

Matsane (2004:96) quotes Larry Rasmussen's book entitled *Moral fragments and moral community*, in which Rasmussen argues that the church is the faith community that is called to serve as the moral community in society. In this way he argues that pastors, besides being interpreters of the word, are also expected to preach and to practise what they preach. That is the reason why Christian pastors are expected to carry and uphold the morality which Jesus Christ stood for and preached about, and which He also lived. He loved all people, conversing with prostitutes as well as eating with sinners like Zacchaeus (Luke 19:1-10), but He never became a prostitute or a sinner Himself. In the article entitled "Angie Motshekga turns to prayer" (2013), the chairperson of the moral regeneration movement in Mpumalanga, Micah Nthali, hinted that it was about time that pastors should be put in schools to pray for educators and learners as a way to regenerate morals in the lives of the children. Without going into the details of Nthali's address, which is not the focus of the study, it is important to note that the church is being seen (through its pastoral services) as a custodian of moral regeneration. This kind of realization is therefore an opportunity for the church to use its resources to up-build the community and the nation, rather than breaking their hope in the church.

6.5. The church's responsibility for the life of its pastor

The author is convinced that it should be primarily the church's task to ensure that its own pastor's moral life is protected at all costs. This is a particularly difficult task in some of the independent churches, where the pastor owns the church and becomes its one and only king. The truth is that in such churches it is the pastor alone who decides who must stay and who must go, so that members of the church simply become passive passengers who never want to go against their pastor. Some pastors consider their title as a command to have a hand and decision in everything, and as such they become unquestionable authorities in their churches. In his article entitled "Your pastor: shepherd or CEO?" David Gordon (2002) argues that the CEO is given final authority for decision making while the pastor's role is to guide the church through the leadership of God's word. This means God's word must decide instead of one person deciding.

On the other hand, the Biblical principles that should be used to govern the lives of both the church members and its leaders (pastors in this context) are laid out in the Bible. This has evidently not been done in

many cases where churches have protected their pastors even when they were supposed to be called to order. The Bible is clear in Matthew 18 that the disciplinary code of the church should be practised for all members of the church, pastors included. A pastor must be a steward of God who is answerable to God for his or her leadership in the church (Titus 1:7). The type of pastor who wishes to "lord it over" others is discouraged in the Bible; rather, the pastor is expected to be an example of truth, love and godliness for God's flock to follow (1 Timothy 4:12).

6.6. On financial issues

The teaching about people being content with what they have is not new in the Bible. In Paul's letter to the Philippians (4:12), the argument is very clear. In order to be content one must be realistic (Matthew 6:25-34, Eccl. 1:15). Accepting the situation that one cannot change helps one avoid bad ways of acquiring wealth. However, this does not stop the churches from ensuring that their pastors are taken good care of financially. It is indeed a pity when pastors are serving congregations faithfully but sleeping on an empty stomach. The Bible teaches that those who receive the word of God must share all good things with those who teach them (Gal. 6:6). It is an obligation that the church must pay their pastor well, ensure that his or her children's school fees are paid and so on. The churches cannot avoid having pastors who run around looking for money if they do not take care of him or her. Many pastors are using bad ways of acquiring wealth simply because the churches they serve are financially stubborn towards them. It is within this context that pastors in financially poor churches should engage in tent making, which will help them avoid the agony of financial problems that lure them into acquiring wealth in wrong ways.

6.7. Pastoral counseling towards the immoral pastors

It is important to consider that pastors need other pastors to help them in this regard. The one on one conversation between pastors may sometimes be difficult, but in situations where one pastor is immoral it should be prioritized. The caregiver firstly need to ensure that the immoral pastor accept the reality of being involved in the love affairs outside marriage without the least resistance or denial. This open acceptance will open doors for the discussion on how to get rid of the practice. Thereafter this acceptance the therapist should help the client to identify some other associated sinful or evil acts that partnered this adultery as causes, for instance, unfaithfulness, bad company, etc. According to therapist Schaumburg this will help to also sort out the root cause which might be an unhappy marriage at the pastor's home. Checking the church policies that make pastor to be solving church and marriage problems alone also need to be discussed. This is where the devil uses deceitful women to destroy pastors.

7. CONCLUSION

The immoral life displayed by pastoral leadership in this country has left many people and communities without hope in the church and its leadership. This leaves theology and the Christian church without the pride and influence it should have in our communities. The trust and hope that people had with the church is negatively affected. Mentoring becomes one of the important aspects of building the pastor's life. It is also important that pastors or church leaders need to be occupied with their church responsibilities so that they are left with little time to concentrate on bad practices. Churches must also ensure that their pastors are well taken care of, both materially and spiritually.

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Shifting from teacher-centred to learner-centred approach to teaching English First Additional Language: the use of the Cooperative Learning Approach

Samuel Amponsah
Department of Adult Education and Human Resource studies
School of Continuing and Distance education
Legan,
Accra, GHANA.
agyaus@yahoo.com

Abstract: *Historical antecedents to the establishment of cooperative learning precedes the second world war when Allport, Watson, Shaw, Mead and other social scientist began establishing cooperative learning theory after they found that group work was more effective and efficient in both quantity and quality, as well as, overall productivity when compared to working alone (Gilles and Adrian, 2003). The idea of cooperative learning gained much grounds when May and Doob (1937) researched and established that when people worked cooperatively, the synergic effect of their individual contribution to the group made them more successful than those who worked to complete the same goals independently. Over time, cooperative learning was embraced in the teaching and learning enterprise as the most effective approach when it comes to putting learners in the centre of teaching to make them work cooperatively. The motive behind embarking on this study was to investigate how English First Additional Language teachers use cooperative learning as a learner-centred approach to teach the subject and identify reasons why they use the approach.*

Key words: *Teacher-centred teaching, learner-centred teaching, English First Additional Language, cooperative learning approach, outcome-based education, national curriculum statement, curriculum and assessment policy.*

1 INTRODUCTION

The approach to teaching and learning in South African schools have taken a dramatic turn from the traditional approach, where the focus was on the mastery of specific learning content, to an outcome-based education approach since independence in 1994. In citing the National Department of Education (NDE) (1996c), Van Wyk (2007) believes that the change in the approach to teaching and learning in South Africa is in line with the cooperative learning and teaching strategy, which focuses on development of skills for the future in line with National Curriculum Statement (NCS) Policy of the NDE and the Curriculum and Assessment Policy (CAPS) also to enable active classroom participation among learners (cf. 1.2).

It is understandable that teacher quality is the most dominant factor that affects students' academic achievement at school (Haskins and Loeb 2007; Sanders and Rivers 1996). Though the teaching and learning process has over the years changed from teacher dominance to learner-centredness, the teacher still remains an important factor in the classroom as he/she is in a position to select teaching strategies that would work well for the benefit of all learners, and this can be done when the teacher accepts that what works for one set of learners may not work for others (Berliner and Biddle 1995 cited in Tresner (2010). It therefore makes much sense in agreeing with Brimijoin (2005) that teachers need foundational skills in differentiation to understand how each student best learns the curriculum.

In close relation to the above, it must be noted that even when both teachers and learners are present in the classroom, as in a synchronous classroom mode, there can still be some sort of distance in the teaching and learning environment, which is explained as pedagogical distance rather than geographical distance between the teacher and the learners. To this end, Amponsah (2010) explains that there is the need for special organization and teaching procedures in every educational programme as a way of bridging the pedagogical distance that may be created in the classroom. He further states that transactional distance can be

overcome by ensuring that the medium of delivery [of teaching] has direct impact on the teaching outcomes and also the quality of the dialogue need to be tailored to suit the teaching and learning environment. Furthermore, in preparing the students of today to become successful individuals of tomorrow, teachers need to ensure that their teaching is effective. Teachers should have knowledge of how students learn and how best to teach. Amponsah (2014) concurred that changing how and what to teach are continuous professional concerns and for that matter efforts should be made to shift the focus of teaching from the traditional approach to a more student-centered approach, which ensures learners full participation and a high level of understanding of concepts they are introduced to in the course of learning.

Based on the ongoing, it is justified to agree that education of today must enable students to meet the challenges ahead and demands of the work environment and of daily living because this will shape their need not only for knowledge, but also for skills in communication, problem solving, creative and critical thinking, in the years ahead, which are all synonymous with the main principles of the cooperative learning approach (Amponsah, 2014).

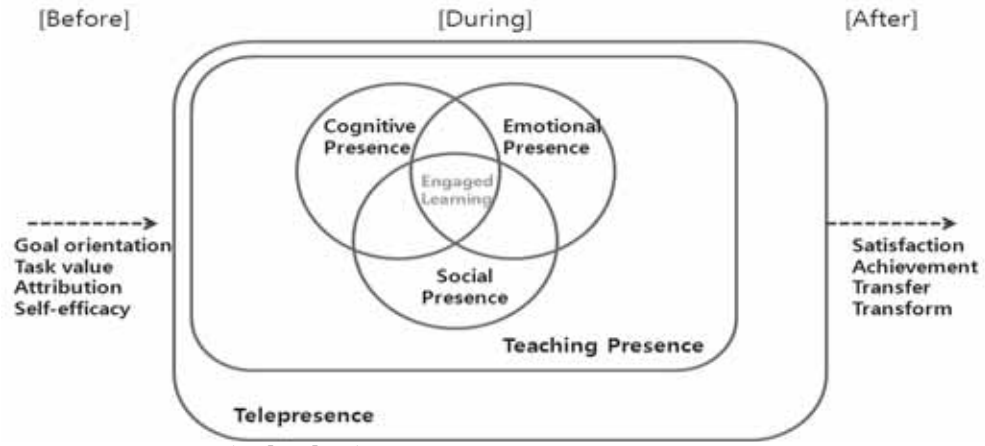
In summation, Van Wyk (2007) opines that learners' performance is influenced by the environment in which learning takes place, which means the teacher has to make deliberate efforts to create a learning environment that is free and at the same time capable of challenging and motivating learners. He concludes by noting that the learning environment must promote a learning culture, which substantiates assertion by experts that the cooperative learning approach works well in the teaching and learning environment. Hence, the approach in question is most suitable in ensuring a paradigm shift from teacher-centred to learner-centred approach to teaching and learning of English First Additional Language.

2 LITERATURE REVIEW

Learner-Centred Methods

According to Barr and Tagg (1995), the paradigm shift from teaching to an emphasis on learning has encouraged that power [in the teaching and learning enterprise] be moved from the teacher to the student. To support the opinion of Barr and Tagg, Kang (undated:p.1) exposes how teacher-focused transmission of information formats, such as lecturing, has received an unprecedented amount of criticism, thereby paving way for the widespread growth of "student-centered learning" (SCL) as an alternative approach. Juke states that "in SCL students might not only choose what to study, but how and why that topic might be an interesting one to study." An important issue that has emerged from the above build up on SCL shows that, unlike the traditional teacher-centred approach, learners have a choice and having a choice is of utmost importance as it will motivate learners to learn better and more comfortably. Figure 1, below gives more exposition on the learner-centred approach to learning.

Figure 1: A Systematic Evaluation Model for SCL



Source: Kang (undated:p.2)

In explaining the model, Kang writes; … *four indicators checking the readiness of students for SCL such as students' goal orientation, task value, attribution and self-efficacy level were identified to be useful before the learning experience. During the learning experience, students' perception of telepresence* [virtual presence], *teaching presence, and learning presence with cognitive, emotional and social domains could be effective indicators to measure the students' engagement in the learning process. Finally, the outcomes of students' satisfaction, achievement, transferability and transformation could be good indicators to measure the success of learning after SCL (p.1).*

From the explanation given by Kang, based on his model, the authors of this study can only reecho the fact that has been established by many experts and researchers in the field of teaching and learning that putting learners in the centre of the teaching and learning process is a powerful way of exposing learners to concepts and making them learn while getting involved with others cooperatively. Amponsah (2014) establishes that the cooperative learning approach instills critical thinking in learners while also teaching them communal living. These virtues established are also reflected on Kang's model which explains why the cooperative learning approach is capable of causing a paradigm shift from teacher-centred to learner-centred teaching.

Conceptualized Cooperative Learning as a Teaching Method

Johnson and Johnson (1992:218) define cooperative learning as the interaction in which teams 'all work for one' and 'one for all'. Gawe et al. (2011:197) submit a similar definition that cooperative learning is "a way of learning in which learners work together to ensure that all members in their groups have learnt and assimilated the same content." The principal advantage that Johnson and Johnson (1992) have about this approach is its ability to give learners emotional and academic support to enable them clear hurdles and obstacles they face in learning.

According to Balkcom (1992) cooperative learning is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. They indicate that each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus setting the tone for group and individual achievement. Bainbridge (2012) in a similar vein defines cooperative learning as a method of instruction that has students working together in groups, usually with the goal of completing a specific task.

Furthermore, Johnson, Johnson and Holubec, (1998) and Adams and Hamm (1996) define cooperative learning as the instructional use of small groups through which students work together to maximize their own and each other's learning. In crowning all that has been projected, Hijazi and Al-Natour (2012) summarize that cooperative learning requires that students work together to achieve goals which they could not achieve individually, bringing to bear how students can learn from one another in order to complete tasks successfully when they are put in the centre of the learning process.

Goor and Schwenn (1993:12) establish that "…cooperative learning views students as active participants in their own learning and as future citizens who are learning to work together and share responsibilities". In agreement to this definition, Van Wyk (2007) and Amponsah (2014) both declare that cooperative learning is a teaching approach in which learners engage in communal learning in group context to ensure that group members engage in joint learning and achieve group outcomes at the end of the cooperative learning lesson.

Principles of Cooperative Learning

The principles of cooperative learning has been identified by The University of Tennessee at Chattanooga (1998), cited in Sims (2010) as the characteristics of cooperative learning and these characteristics are as follows:

- Students work together in small groups containing two to five members
- Students are positively interdependent
- Activities are structured so that students need each other to accomplish their common tasks or learning activities

- Students are individually accountable or responsible for their work or learning

In 1999, Oliver conducted a research and identified three principles similar to the four outlined by the University of Tennessee. Oliver referred to the principles as the main tenets of cooperative learning, which are as follows:

- *Individual and group accountability:* each student is accountable for a specific task or topic as well as topics assigned to other group members
- *Positive interdependence:* each team benefits when all members perform well, and is held accountable when one or more members do not; "sink or swim together"
- *Group processing:* students coached on group process skills-supporting differences, listening, providing feedback, gatekeeping to ensure all participate, coaching others and reaching consensus.

Siltala (2010) further looks at the principles as the five basic and essential elements to cooperative learning discussed beneath:

Positive interdependence: They explain that there should be full participation by students and they should put their best effort to the group activity to ensure the success of the group task.

Face-to-Face Promotive Interaction: The explanation here is that members ensure that others succeed as they are also progressing. Individuals in the group take it upon themselves to explain and assist one another for understanding and completion of tasks.

Individual and Group Accountability: The proponents of the five elements explain that each task team member is responsible in demonstrating mastery of the content under study while also being accountable for the success of the team, therefore eliminating "social loafing".

Social Skills: This principle seeks to establish that teaching of content to learners must be done to ensure the success of cooperative learning and also to inculcate in them skills such as effective communication, interpersonal and group skills. The objective here is that as students are given room to interact, through discussion, debates and negotiations, they learn to accept others' views and share their own views in positive ways, which help in enforcing cooperative learning.

Group Processing: It is important for task teams to often evaluate how effectively they have performed so they can plan strategies to improve upon what has been done. The locus of this last element is primarily based on allowing the students in a group to assess their performance and the development of life skills such as role acceptance, information sharing and respect.

Cooperative Learning Teaching Strategies

Balkcom (1995) and Schul (2012) establish that there are many cooperative learning techniques that can be categorized in accordance to the skill that they enhance. Barkley et al. (2005) concede that "…it is important to recognize that many cooperative learning exercises can be developed to fit within multiple categories." The categories include: *discussion*, *reciprocal teaching*, *graphic organizers*, *writing* and *problem solving*, these strategies are referred to as learner-centred approaches by Jacobs (2011) and each category is made up of a number of potential structures that help in the development of cooperative learning exercises.

Some of the strategies used under the cooperative learning strategy are discussed briefly:

Group Investigations are structured to emphasize higher-order thinking skills which includes analysis and evaluation. To Balkcom (1995), students involved in group investigations work together to produce a group project, which they may have a hand in selecting.

Student Teams-Achievement Divisions (STAD) is used for teaching grades 2-12 students who vary in academic abilities. The students are assigned to 4 or 5 member teams to enable them study what has been introduced by the teacher and to help each task team member reach his or her highest level of achievement possible. Afterwards students are tested individually. Teams earn certificates or other recognition based on

the degree to which all team members have progressed over their past records (Balkcom, 1995; Siefert and Sutton, 2009).

Jigsaw was developed by Aronson and his associates in the late 1970s. According to Coffey (2008), jigsaw is a cooperative learning technique that was created with the aim of reducing conflict and enhancing positive educational outcomes. The jigsaw technique is useful in helping students realize they are essential components of a team and to encourage cooperation in a learning environment. A further explanation of the technique is that students are members of two groups, called home group and expert group. Students in the heterogeneous home group are each assigned a different topic and once a topic has been identified, students leave their home groups to form new groups with other students to work on the topic they have been assigned. In the new group, students learn the material together before returning to their home groups and once they are back in their home groups, each student is accountable for teaching his or her assigned topic to their home group (Schul, 2012).

Jigsaw II is used with narrative material in grades 3-12. Each team member is responsible for learning a specific part of a topic. After meeting with members of other groups, who are "experts" in the same part, the "experts" return to their own groups and present their findings. Team members then are quizzed on all topics (Balkcom, 1995). Slavin postulated a variation of Jigsaw in which members of the home group are assigned the same material, but focus on separate portions of the material. Each member must become an "expert" on his or her assigned portion and teach the other members of the home group.

Reverse Jigsaw is a variation of jigsaw created by Timothy Hedeen (2003). It differs from the original Jigsaw during the teaching portion of the activity. In the Reverse Jigsaw technique, students in the expert groups teach the whole class rather than return to their home groups to teach the content as done in the original jigsaw activity.

Think Pair Share was originally developed by Frank T. Lyman in 1981. Think-Pair-Share allows for students to contemplate a posed question or problem silently. The student may write down thoughts or simply just brainstorm in his or her head. When prompted, the student pairs up with a peer and discusses his or her idea(s) and then listen to the ideas of his or her partner. Following pair dialogue, the teacher solicits responses from the whole group (Schul, 2012).

Reciprocal Teaching was developed by Brown and Paliscar in 1982. It is a cooperative technique that allows for student pairs to participate in a dialogue about text. Partners take turns reading and asking each other questions and receiving immediate feedback. This is a model that allows students to use important metacognitive techniques such as clarifying, questioning, predicting, and summarizing. It embraces the idea that students can effectively learn from each other.

The Williams is a cooperative learning technique in which students collaborate together to answer a 'big' question that is the learning objective. Each group has differentiated questions that increase in cognitive ability to allow students to progress and meet the learning objective (Schul, 2012).

In the nutshell, Van Wyk (2007:177) posits: *Although there are different models of cooperative learning, cooperation amongst learners lies at the core of them all. However, there are clear shifts in emphasis in respect of the weight assigned to each of the following elements in the different models of cooperative learning: interdependent project structure; individual effect structure; team-oriented reward structure; and indirect authority structure.*

He further grouped the various cooperative learning strategies by citing the works of Du Plooy (1993:29-43) and Meyer & Steyn (1989:783-788) as indicated below:

- Socio-technological forms of cooperative learning, consisting of the STAD and Teams Groups Tournament (TGT) teaching techniques.

- The socio-psychological form of cooperative learning, consisting of jigsaw groups and peer tutoring groups.

- Positive controversy, consisting of small-group teaching.
- The group investigation approach.

Based on the buildup so far, it can be declared that the main purpose of cooperative learning is to actively involve students in the learning process; a level of student empowerment which is not possible in a lecture format or traditional teaching and learning set up. The underlying premise is founded in constructivist epistemology, which is a process that requires knowledge to be discovered by students and transformed into concepts to which the students can relate in terms of understanding and making use of the knowledge acquired. The knowledge is then reconstructed and expanded through new learning experiences in what is termed transfer of learning. It comes with no surprise therefore when Hijazi and Al-Natour (2012) posit that learning takes place through dialogue among students in a social setting.

3 Problem Statement

In setting the tone for the use of cooperative learning, Slavin (1994), through his review of literature on cooperative learning, as cited in Coffey (2008) identified three concepts that are fundamental to all cooperative learning or Student Team Learning techniques. First, he establishes that students are rewarded as a team but are graded individually. His second assertion is that all students must help each other to achieve learning goals and the third is that all students are expected to improve upon their own previous performance, thus ensuring all students are challenged to do their best in each follow up task (Coffey, 2008). A similar view is shared in a studies conducted by Motiswe (2011) and Van Wyk (2007) that cooperative learning makes learners encourage one another, whereas traditional approaches to teaching breeds competition among learners. They are of the belief that cooperative learning allows learners to learn in a more concrete and realistic manner, which meant more active participation on the side of students, making them more focused with social skills such as respect and opinions being more valued amongst the learners. Amponsah (2014) corroborates this by indicating that in using cooperative learning; diversity, synergic effect, group achievements and rewards must be factored in so that all individuals within teams will be catered for, in order to be encouraged to do their best for the group to achieve their targets through participation and collaboration and also work to build their own individual communication and people skills.

In the face of issues discussed so far and with the mindset that the cooperative learning approach is imbedded in learning theories such as the Social Interdependence, Social Constructivism, Social Learning, The Zone of Prozimal Development and Group Cohesion Theories (Smith, 1981; McMahon, 1997; Bandura, 1977; Vygotsky, 1978; Festinger and co., 1950), which all rests on the assertion that students should work cooperatively in order to learn from each other and construct knowledge as they work in groups, this research seeks to *investigate how English First Additional Language teachers use cooperative learning as a learner-centred approach to teach the subject and identify reasons why they use the approach.*

4 RESEARCH METHODOLOGY

Research Design

In order to identify reasons why EFAL teachers use the cooperative learning approach to make their classrooms learner-centred, the qualitative explanatory method was used. Casely and Kumar (1988) opine that the explanatory method does not just report, but explains in detail, build and enrich the reasons behind the theory. Hence, the method will help to tap from the rich experiences of participants how they make their classrooms learner-centred as they use the cooperative learning approach.

Sampling

Bailey (1978) asserts that a sample size needs to reflect the population value of a particular variable which depends both on the size of the population and the amount of heterogeneity in the population. By virtue of this assertion, the simple random sampling technique was used to sample three out of the twelve districts in the Kwazulu-natal Province, after which a sample of twelve EFAL teachers were purposively selected for the focus group interviews. The participation of the twelve participants was voluntary and they were selected due to their experiences in teaching EFAL and their use of the cooperative learning approach.

The focus groups interviews each lasted approximately an hour and a half. These interviews were arranged and held at a school that was central to all the participants. The interviews were audio recorded verbatim, transcribed and analysed by using the constant comparison data analysis process adopted from Glasser and Strauss (1967).

Ethical Considerations

Before embarking on this study, clearance was sought from the Kwazulu-Natal Provincial Department of Education. This was followed with permissions from the principals of schools where participants were selected from. The participants were informed in writing concerning the objectives of the study, the time and meeting place, as well as what is expected of them in the focus group interview**.** Before each focus group interview, the objectives were again explained to participants, their voluntary participation was assured. They were also assured of strict confidentiality of information that they provided and their right to exit the discussion without any repercussions if they so wished. Participants were also made aware that the interviews will be tape recorded and the data will be kept for a period of six months after the study and will be destroyed afterwards. Finally, participants who agreed to partake in the focus group interviews were made to read and sign an Informed Consent Form before the commencement of each interview.

5 FINDINGS OF THE STUDY

Subtheme #1: Cooperative learning as a leaner-centred approach

The responses obtained making it evident that participants use the cooperative learning approach, though most of the respondents preferred to use the term group work instead of cooperative learning. Irrespective of the term used, the responses obtained have so much semblance and they are in line with the objective of this study. For example, one Participant reflected on how he makes learners use their skills and knowledge for the benefit of all group member, an indication of positive interdependence – a major principle of the cooperative learning approach. He said:

I put a question before them to double check if they really do understand the words and the meaning of what they read. While one is reading the other members will be listening. Eeem say you give a topic in class or discussion, you set up different groups so they discuss and come to present to the rest of the class. A group member will present for the whole group after that the class will discuss what has been presented.

Another Participant shared how he uses the approach as a discussion tool that also makes learners active in the teaching and learning process. The Participant indicated:

For me I prefer learners to be active in class along with me for them to learn. I don't believe in just giving them information and then figuring out hmmm answers on their own to work together on the answers. Also, I do use group work when we are having class discussion, may be when we are practicing for debating and all that we do use group work and I also like it because learners tend to learn from others and they participate more, because in a way they feel that they are working with other learners and the teacher is just there to supervise so it gives them the freedom to participate in class.

Similarly, a Participant revealed that in addition to making learners active in class through the cooperative learning approach, it also puts learners on the alert so they do their own research before coming to class knowing that they have to participate in their groups. The Participant's reflection is as follows:

I use questions and answers (the communicative approach) because I know that learners know. There is something that they know so you move from the known to the unknown, so it is encouraged that we teach learners before we give them ready made information so that they can do research on their own and they must be active; before you come to class they must be ready that they are going to participate, you make them active participants [that is through the use of group work].

The cooperative learning approach caters for inclusivity. That means learners of diverse backgrounds and abilities are put in a group to learn from one another. For this reason, a participant makes use of the different backgrounds of learners in his class to put them in groups for group activities.

Students have different backgrounds and their backgrounds contribute to the effectiveness of the lesson you are going to teach them. If you don't consider their backgrounds your lessons will not be good and by knowing their backgrounds, you can put them into groups to work effectively on activities that you give them because they will use their background and what they know already to contribute to the task giving to the group.

The study participants have together built a case for how the cooperative learning approach is used by them in making their classrooms learner-centred.

Subtheme #2: Reasons for using the cooperative learning approach

In finding out how the teachers in the study used the cooperative learning approach as a learner-centred one in teaching EFAL, reasons for the use of the approach came up. The reasons reiterates why the approach remains a force in causing a paradigm shift from teacher-centred to learner-centred teaching in modern classrooms.

To this end, a Participant reflected on his own experience as a student for which reason he uses the approach. He said:

If you find yourself not participating in the group, you could feel in yourself that you are doing nothing so you end up trying to do something with yourself. I used to ask my friends 'how do you always find something to talk about'. And they will tell me to do some research about the topic so I can say something during group work. At first when they were talking I will sit and look at them but I learned to talk too. I will say it [cooperative learning] *is a good approach.*

A Participant added some important reasons for using the approach. He stated:

For me the first one is I think it teaches learners creative thinking and critical thinking when you give them a task where they have to come out with new ideas, for instance in a class where they brainstorm solutions for global warming, creative thinking is enhanced and then also learners' self-esteem gets built because they interact. When they say something and their fellow group members are listening to them, something good is being built in them so that is why I like that approach and it also promotes activeness among the learners.

Two Participants indicated that the approach's ability to develop a sense of responsibility, cooperative living and respect for one another were their reasons for using the approach. Their responses are as follow:

With me just to add, I think communication skills are also developed in a group work. Another thing is responsibility; you know in a group there will be people who will be giving certain tasks to do and then they learn to be responsible. There will be a scribe, then someone will be a speaker, etc. so they will learn to share ideas in a group.

It is a cause of team building because in team work learners are encouraged to work together, they are encouraged to respect one another in group work and every learner has a role to play and if you are changing roles in your group; switching your team leader to be someone else, time keeper to be someone, you are making them experiment different roles to play.

In the nutshell, it is very important to throw light on the fact that any teaching approach that does not put learners in the centre of the teaching process to enable them acquire the ability to find solutions to problems that they may encounter in their studies by means of being creative as well as innovative in their thinking when it comes to real-life situations is not worth adopting (Amponsah, 2014).

6 DISCUSSION

Subtheme #1: Cooperative learning as a leaner-centred approach

In investigating strategies that can be used for effective teaching, Motitswe (2011:70) is of the view that using different methods such as: *multi-level teaching, storytelling, learning through play, songs, rhymes, group work, individual work and cooperative learning* are beneficial to learners. Additionally, Bentley-Memon (2004), outlines a lot of teaching strategies for teaching language and summed up her study by asserting that differentiated instruction and accommodation helps in catering for all individuals in the classroom. Hence, EFAL teachers resort to using the cooperative learning strategy in their classrooms as a way of making their learners more active in the teaching and learning process.

To further establish how teachers employ the approach, participants in the focus group interview reflected on the use of the communicative approach. They explained that the communicative approach is what is commonly termed the question and answer method and they acceded that the commonest way they start their lessons is to pose a question for learners to think of and answer to set the tone for a longer

communication throughout the lesson as learners work in their respective groups (Oliver, 1999; Trilling and Fadel, 2009).

The participants also agreed that this approach makes them prepare well before they come to class, knowing their learners have been trained to ask and answer questions. Additionally, they made mention of making learners move from the known to the unknown as they get deeper into the communicative approach in line with Bloom's cognitive taxonomy of mastery learning (Bloom, 1956). Killen (2009) adds that "Teaching can be thought of as the process of guiding learners as they work with information." He continues that in teaching, "Teachers help learners to find information, remember it, understand it, organize it, apply it, evaluate it and do creative things with it". Bloom and Killen's assertions go a long way to emphasise the need for teachers to play the role of facilitators and at times that of learners, so students will be in control of their learning and partake in group activities as way of learning from others and also imparting on other members of the group.

A critical look at using the cooperative learning approach gives an indication that inasmuch as teachers crave for success in their work, they also select quality approaches to teaching, in the case of this research the cooperative learning approach, in order to prepare the learners entrusted into their hands to excel in the content they are exposed to in class and also survive well in the context in which the content learned will be applied.

Subtheme #2: Reasons for using the cooperative learning approach

The main reasons why EFAL teachers adopt the cooperative learning approach in their teaching are by virtue of the benefits that accrue from the usage of the technique. First of all, Oliver (1999) considers the benefits of cooperative learning as cooperative goals that emphasize collaboration and shared understanding on any task. He gives examples of tasks as problems, discussions and writing.

In agreement with Trilling & Fadel (2009), participants indicated that good teaching and learning should be able to draw more students' attention, serve different groups of students, and emphasize more on skill practice, thinking process and situational management. The implication thereof is that learning should consist of core subjects and themes that revolve around three core skills, viz: life and career skills, learning and innovation skills, and information media and technology skills in order to create a situation in which students will be prepared for future jobs, products yet to be invented and new skills geared towards their creativity and innovation.

It is further agreed that the cooperative learning approach instills in learners communication and creative skills and also helps in team building among learners. These virtues identified by the participants are in line with four reasons earlier outlined by Nagib (2003), which are:

- Facilitates interaction between students in class.
- Improves attitude, self-esteem, and interpersonal relationships.
- Adds an extra source of learning within groups, such as the high achievers who take on the role of tutors. The end result is a higher achievement for everyone.
- Prepares students to fit into modern society by teaching them to work with their classmates efficiently and effectively

In rounding up the reasons for the use of the cooperative learning approach, the views of experts in the field of this approach is summarized by the participants in this study. They state reasons such as; positive interdependence, full participation of learner, sense of responsibility and higher degree of accomplishment (Colorado, 2007; Van Wyk, 2007; Slavin and Tanner, 1979).

An assertion by Slavin (1994) is adopted in summarizing the discussion on the reasons for using the cooperative learning approach by EFAL teachers. He asserted that cooperative team members are able to share and succeed together by explaining cooperative learning as a didactic strategy whereby small groups, each with learners of different abilities and a variety of learning activities, are used to improve the understanding of certain subjects, with each member of the group being responsible to learn individually what is being taught and also help other group members to learn in order to achieve the aim of the group.

7 CONCLUSION

This study sought the views of twelve EFAL teachers on how they employ the cooperative teaching approach in their classrooms to make their classrooms learner-centred and reasons behind their use of the approach. It was ascertained the participants used the approach as a way of making their learners active through what they termed the communicative approach. They also indicated that through the use of the approach, they prepare themselves well for class whereas students also engage in research before coming to class, with the mindset that they have to prepare for group activities. To the reasons why they use the approach, participants indicated how it ensures participation by all learners and how virtues such as creative thinking, communication skills and team building are instilled in students. Overall, it can be emphasized that cooperative learning approach is beneficial in making the classrooms more learner-centred, compared to the traditional learning approaches and also go a long way to improve upon the confidence and performance of learners of EFAL.

8 RECOMMENDATIONS

Firstly, teachers should create situations where learners will be prepared for future jobs, creativity and innovation. This can best be done when teachers ensure learner-centredness in their classrooms and also structure their teaching to centre on life and career skills, learning and innovation skills and information media and technology skills.

Secondly, equal opportunity for success should be given to learners of diverse backgrounds and capabilities as a way of ensuring that high, average and low achievers are equally challenged to do their best so that they personally improve upon their abilities as the group as a whole progresses.

Lastly, the approach should be employed in such a way that learners will understand they are not competing with other members of the group, rather they are learning to gain more knowledge and skills as they help their task teams to succeed in giving tasks.

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An analysis of the factors that influence the participation of secondary school science learners in classroom communication

Lepholletse AMM
drammlepholletse@gmail.com

interacting with learners in the science classroom is of fundamental to the teacher in order to enhance the teaching and learning of science in schools. The purpose of this article is to ascertain factors influencing the participation of secondary school science learners in classroom communication (CC). Several factors that lead to classroom communication apprehension have been indicated. Besides, the results also suggest that science teachers used primarily teaching-learning procedures that did not conform (i.e. traditional methods) to the requirements of Outcomes Based education (OBE). The reason is not necessarily that they are ill-informed on OBE principles, but the practicality of their teaching situations necessitated it. In the process, learners do not acquire sufficient knowledge and skills needed for science classroom learning activities. This fails the main aim of enabling learners to participate in classroom communication. However, the results also indicate that although they generally warm and accepting they seem to be inflexible and lack dynamism when presenting lesson, which in turn affects learners' participation in classroom. One method of approach has been applied, i.e. a quantitative method. A questionnaire was compiled to investigate learners' level of participation in science classroom communication (CC). A total of 235 Grade 8 learners were randomly selected from twelve (12) schools. Data collection used was structured. Findings as well as recommendations have indicated to augment the participation of learners during science teaching in schools.

Key words: *science, classroom communication, questionnaire*

1 Introduction

The teaching and learning of science in schools has received priority consideration by the South African education department and recognition of its fundamental role in the country's societal development (National Research Foundation, 2001; Department of Basic Education, (DBE). Accordingly, when the society becomes more technologically oriented, science and mathematics becomes increasingly important in everyday life (Hennessy *et al.*, 2007; Anderman & Michigan, 1994). Science education in South Africa is fraught with problems, which include poor comparison internationally (National Research Foundation, 2001), poor Grade (12) pass rate (Bisseker, 2001), and decreasing learner enrolment at tertiary education institutions (National Research Foundation, 2001(NRF). It is now recognised that the number of learners with adequate and sound knowledge and skills in maths and science need to be increased as this will increase the number of Grade (12) to move into higher education, business and industry (The Teacher, 2001; CASME, 1996). According to Gardner (1991) the need for scientific literacy is a focal point in different suggestions for educational change. It is against this background and becomes clear that science teaching and learning need urgent attention.

Abstract: *Teaching is a dynamic process involving teachers and learners in a meaningful and concerted efforts hence*

2 Purpose of the statement

Classroom communication has been recognised as having vital importance in the teaching and learning process (Duschl, 1999; Le Roux, 1990, Vreken, 1996). While science is mostly a practical and hands-on subject, learning it involves different kinds of communication, especially classroom communication where teaching and learning takes place. The teacher has to present and explain the content of science in an acceptable and interesting manner (Wellington, 1994). Hodson's (1998) research on science teaching claims that it involves: identifying learners' ideas and views, creating opportunities for learners to explore their ideas and test their robustness in explaining phenomena, accounting for events and making robustness in explaining phenomena, accounting for events and making predictions, providing stimuli for learners to develop, modify and, where necessary, change their ideas and views, and supporting their attempts to rethink and reconstruct their ideas and views. Cazden (1986), She *et al.* (2000) also maintain that the quality and quantity of the reciprocal interactive communication between learners and teachers determine the effectiveness of instruction and learning in particular as well as the actualisation of educational essentialities in general. Drinkwater (2002) states that a teacher's style of communication and communicative expectations of the learner's behaviour has influence on the learner's self-concept, losing confidence in their ability, and eventually scholastic achievement. Furthermore, Vreken (1996) also supports the above idea by contending that expectations are an integral aspect of communication process, as such, teachers' expectations which are communicated during classroom interaction affect learners" academic performance and classroom behaviour. Wilkinson and Strauss (1989) affirm that the idea of curriculum 2005 is to move away from the stereotype teaching methods and passive learning to a learner-centred approach where learners are actively engaged in the construction of knowledge, using their own knowledge and comprehension. The Outcomes Based Education (OBE) model expects learners to acquire, at their own pace learning outcomes and, at the same time, to construct meaning and acquire shared understanding (Fritz, 1994). Through this approach, learners must be facilitated to demonstrate outcomes as well as assisted to co-construct meaning and knowledge (Brophy & Alleman, 1991). Various factors have been shown to interfere with science teaching and learning in South African school. Research has shown that language (English as a medium of instruction and scientific language) problems can hinder learners from understanding scientific concepts and from participating fully in the classroom (Henning, 1994; Kaunda, 1998). However, communication apprehension also affects the nature of science teaching and learning. Anderson and Helms (2001**)** maintain that some of the problems with science education are that changes called for are difficult to put into practice they create dilemmas for teachers, and require significant changes in teachers' beliefs, values and their teaching as well as for the learners. Anderson and Helms (2001) identify a gap in science education research; they maintain that research is needed which will, amongst other things, focus on interventions into conventional school practice and focus on learners roles and learner work. In an attempt to conduct research into practicalities of science classroom, this research attempts to focus on factors affecting science learners' participation in classroom communication.

3 Purpose of the research

In view of the problem questions, this research proposes to reach the following objectives:

Determine the nature of and the extent to which secondary school science learners' participation in classroom communication.

To identify the factors that influenced the participation of secondary school science learners in classroom communication.

Research questions

What are the nature of and the extent to which secondary school science learners' participation in classroom communication?

Which factors influence the participation of secondary school science learners in classroom communication and to what extent do these factors influence them?

4 Theoretical framework

According to research conducted by Baker and Taylor (1990) the literature related to concept development in science learners has increase in quantity and quality over the past 15 years. Their research was based on addressing the development of science understanding in children of the western culture and education whereas little research has focused on learners who are in a non-western country. However, science was found to be predominately western pursuit and based on western values is not doubted by many of those who teach in non-western environments and the study of science has evolved from the western culture (Baker & Taylor, 1990). However, concepts according to Keeley (2010) are learned best when they are encountered in a variety of context and expressed in a variety of ways, for that ensures that there are more opportunities for them to become embedded in a learner's knowledge system. As a result, science teaching and learning depends on the influential aspects which exist within science classroom, i.e. the social and learning environments that result from supporting and nurturing, interactions between the teacher and the learners, and between learner and learner, teaching style of teachers, the network of out-of-class knowledge about the subjects (Keeley, 2010). On the other hand, Keeley (2010) concludes that science teaching and learning is got nothing to do with culture, it depend on the skills, attitudes and knowledge on both side of teachers and learners in the classroom. Their interaction is of paramount important during instruction. Similarly, classroom communication is interactive and should be as the teacher wants to convey and explain subject information to learners, while at the same time awaiting feedback from the learners to test the level of understanding reached. One of the aims of educational change in our country (RSA) today is the building of a culture that is effective for science teaching and learning environment (Drinkwater, 2002).

According to Drinkwater (2002) physical science, mathematics and technology have been identified as key subjects for a growing and to sustain the economy of our country (RSA). Yet, the achievement at school level concerning these subjects leaves much to desire. Drinkwater (2002) indicates that in the TIMMS-Report survey of the 28 countries that participated, South African learners have scored by far the lowest. Less than 0.5% of learners from South Africa reached the International Top 10% benchmark and the bottom 5% scored lower than 7% for the test (Drinkwater, 2002). These dilemmas are evident at the higher grades specifically grade 10 and 12 where learners' motivation toward the learning and teaching of science and technology tends to decline drastically. Myers *et al.* (1992) questions about science are as follows: what cause the decline of science learning on the part of learners? Is it because of their attitudes toward learning science? Is it because of learners' perceived science as the least basic subject? Or is it teachers' signals their lack of knowledge and confidence about the subject? According to research, it was found that learners recognise science to be the least important basic subject and one of their least favourite subjects (Myers *et al.*, 1992).

Communication in science classrooms

According to Jones (2000); Keeley (2010) scientists use the language of science, which incorporates more than just words; they draw on a multitude of signs and symbols, including graphs, charts, diagrams and mathematical symbols and equations, as well as natural language. Furthermore, Jones (2000) emphasise that teachers need to be aware of how these signs and symbols can be instrumental in helping learners to develop scientific knowledge and understanding in the classroom (Hennessy *et al*., 2007). However, communication in the science classroom is complex for at least two reasons: firstly, in any classroom, communication is ruled by a number of factors which include the fact that there is a teacher-learner relationship defined by an adult-child power relationship (Dijkstra *et al*., 2012; Lemke, 1990). The teacher has largely dominated communication in this type of relationship. Teachers usually decide what will and will not be talked about, who has the right to speak and for how long, what is the correct way to speak and to behave while speaking and listening, and what counts as legitimate knowledge, satisfactory evidence and proper argument (Hodson, 1998). Secondly, in the science classroom, there is the additional factor of the language of science. Hodson (1998) maintains that the term like 'reflection and refraction', suspension and solution', contraction and expansion' carry an inferential component rooted in theoretical understanding. The bottom line is that, science learners do not organise knowledge around processes;

they organise knowledge around ideas (Hodson, 1998). It is communication of these ideas and concepts that will make for successful learning in science. Learners come to school with their own ideas, some correct and some not, about almost every topic they likely to encounter (Keeley, 2010). According to Logan (2001); Dijstra *et al.* (2012) classroom communication is a process in which an individual teacher or learner either intentionally or accidentally stimulates meaning in the mind of another classroom member by means of verbal and/or non-verbal symbols and cues. Therefore, communication in science classrooms can occur in different ways i.e. written communication and oral communication. However, effective written and oral communication is fundamental in every aspect of life that teachers of every subject and at every level should place a high priority on it for all learners (Keeley, 2010).

Factors that influence participation of science learners in classroom communication

Effective classroom yields good learning (Vreken, 1996). Additionally, effective classroom communication during science teaching is necessary. Survey of the literature has also indicates that communication breakdown or barriers in communication will cause poor performance in learners' achievement. Some of the factors that influence the communication process are; culture, language development, teaching styles, classroom environment, communication apprehension, physical environment etc.

The impact of culture on science learners in classroom communication

Classrooms are regarded as complex settings where any number of interaction dynamics take place (Duschl, 1999). Culture has many connotations or meaning attached on it. However, different researchers defined it as follows: culture refers to as a system of shared symbols, beliefs, and practices created by a group of people as an adaptive mechanism for their survival and development and transmitted to succeeding generations as part of their communicable (Robbins *et al*., 2009). On the other hand, Hansford (1988**)** perceives culture as relating to those variables that reflect belief system, values, norms and cognitive structures within the school. However, culture constitutes "a mass programming of the mind" (Johnson *et al*., 2014). For that reason, culture is essential for thinking about interaction and adjustment while working with the diversity (Crushner & Trifonovitch, 1989). They (Crushner & Trifonovich, 1989) further made a distinction between objective and subjective components of culture; objective components refer to the visible, tangible aspects of a particular group of people; subjective components of culture refer to the level of people's subjective that most intercultural misunderstandings and communication problems apparently exist. According to research conducted by Baker and Taylor (1990) a cross-cultural study that involved 1635 English-speaking Australian learners and 826 Hindu-speaking learners was investigated, where the results of the study reveal that non-western learners are at a cultural disadvantage when studying western science curricula. Therefore, Baker and Taylor (1990) conclude that the cultural background of each learner has a significant effect on their ways of knowing and learning science.

The impact of poor language development on science learners in classroom communication

According to Le Roux (2001) language touches on every aspect of education and it is also considered as a medium of instruction, the content of instruction and provides the pedagogical means by which instruction is realised. Baker and Taylor (1995) purport that all formal language is abstract; but they preserve their own particular ontological mark because of their very origin; since they derive from the real world. Furthermore, language does not only name or label objects and occurrences, but communicates abstract meaning about the concepts embedded within the names or labels (Leydesdorff *et al*., 2005; Baker & Taylor, 1995). Previously in South Africa the approach to language development was genuinely poor due to the fact that the privileged group (Western) constantly imposed their language on other group (non-Western even in school situation) (Myers & Fouts, 1992). However, with the advent of Curriculum 2005, which stresses the equality and significance of different languages, one hopes that the development of language situation in South Africa shall be improved. This will positively influence the language situation in schools and classrooms as well as better learning and communication in the classrooms. Mathebula (1995) cites an example that in South African black schools, learners' mother tongue was used as the medium of instruction during the first two or four years of education, then English becomes the medium of instruction while the mother tongue is unacceptable as a school subject. This hampers

learners learning due to the lack between the children's competency and the degree of demand for (competency in) English language, which is necessary for active and meaningful learning. Language in science classrooms plays a significant role on concept interpretation as well as learning of science. However, during the study conducted by Baker and Taylor (1990) it was found that learners learn science concepts more effectively when taught in their mother tongue. But this according to different cultures (i.e. eleven official languages) that exist in South Africa placed our Education system on a huge challenge.

The impact of classroom/social environment on science learners in classroom communication

According to Jacob and Gawe (1996) the success of the teaching-learning activity stands or falls by the teacher's ingenuity (or lack of it) in creating a classroom climate/environment that is conducive to active participative learning by the learner. The classroom is defined as the unique interactive combination of teacher interaction, curriculum expectations, and student-to-student interactions which develops in the classroom settings (Myers & Fouts, 1992). However, classroom interaction between teachers and learners exists swiftly in a classroom. According to Hansford (1988) a social climate is enhanced if the participants are encouraged to make use of the communication process. However, classroom setting is perceived as an aspect of physical environment that can influence instruction and classroom communication (Drinkwater, 2002; Hansford, 1988; She *et al*., 2002). In every school setting there are different classroom environments that exist, for example those where learners feel comfortable, free and cared for and those where learners experience fear and where they are not getting any support from their teachers. In a study conducted in middle secondary science classes in Korea, learners' attitudes scores were higher in classrooms in which learners perceived greater leadership, helping/friendly and understanding behaviours in their teachers; second study results revealed that favourable learner attitudes could be promoted in classroom in which learners perceived more personal relevance, shared control with their teachers and negotiated their learning (She *et al*., 2002). Therefore, classroom environment is considered as socially contextual where participants are in continual interaction (She *et al*., 2002). It is a unique social environment which contains individuals who tend not to know each other very well, thus creating a potential for dysfunctional communication (Hansford, 1988).

The impact of communication apprehension on science learners in the classroom

Drinkwater (2002), McCroskey (1984) define communication apprehension (CA) as a feeling of discomfort or fear syndrome which is experienced in relation to either real or anticipated communication with another person or persons. However, communication apprehension has its roots in individual differences with focus on the inclination that specific individuals seeks out for making communication effective or inhibiting the effectiveness of communication. As a result, learners need some kind of encouragement to communicate and need to alleviate this communication apprehension. The work of teachers will then be to focus on the things that will promote not promote this kind of behaviour, but rather to lower it. McCroskey (1984) maintains that CA and academic achievement (AA) are significantly and negatively related. This relationship (between CA and AA) can be considered to be inversely proportional in nature. The inverse relationship is based on the notion that learners who are high in CA compared to those who are low in CA, either avoid or fail to participate meaningfully in classroom communication with teachers and peers in order to avoid experiencing the anxiety they have learned to associate with communication. Since the teaching and learning process in science classrooms are carried out through communication, fear or anxiety about taking part in classroom communication (CC) results in low levels of learning. In order for effective communication to occur in science classrooms, learners must, however, take active participation in classroom communication as both senders and receivers and receivers of messages. Communication apprehension is an obstacle in the development of communication skills (Robbins *et al*., 2009; Vreken, 2001).

The impact of teaching styles on science learners in classroom communication

Teaching style refers to the combination of the teachers' personality, competence and teaching proficiency (Bangeni, 2000). According to Tuckman (1995) teaching styles affect learners learning. The teaching style of a teacher could also have an effect on the communication process in the classroom. However, if the teacher is not well organised and prepared for his/her teaching, then the learners also will be unable to comprehend what he/she is trying to inform them about. It embraces the structuring of the

teaching process. Therefore, this is a crucial component of communication that can seriously be dealt with by teachers. If in their harshness and severity teachers sometimes strike the learners, for example, they will automatically display frustration. Equally, teaching and communication styles do not differ they have a close relationship (Drinkwater, 2002). It is very crucial for one to take into consideration the fact that every aspect of a teacher's style of teaching has significant component consequences toward learners. It can make learners to either develop a negative or positive attitude towards science learning. However, teacher's personality traits are basic to effective classroom communication during science instruction.

The impact of teaching skills of teachers during classroom communication

The prevailing classroom communication determines the efficiency of science teaching and learning. The classroom environment is composed of all the psychosocial relations in the classroom and also refers to the individual perception of the classroom environment, or the emotional context within which learning and teaching take place (Hansford, 1988). However, effective teaching should provide learners with the potential that can actually made them to remember more material for future use. Without skills and teachers' confidence brought about by knowledge, learners are apt to lose interest to communicate and in learning science.

Effective facets for Classroom communication model applicable to OBE (Vreken, 1996)

Coding for the message (FACET 1)

Within the Outcomes Based Education (OBE) framework, the teacher can manage this facet of communication by gathering information that could suit the diversity in his/her class. S/he needs to take cognisance of (among others) the different languages and cultures in the class and prepare the message (lesson) accordingly (Pretorius, 1998). However, Trowbridge *et al.* (2000) stress that science teachers must maintain a balance among the unique perspectives of individuals, common values and ideals of society, and the defining characteristics of science. Hodson (1998) declares that in order to ensure universal critical scientific literacy, science education in schools ought to be interesting and exciting, real, relevant and useful, non-sexist and multicultural, personality relevant and humanised, value-laden and caring. Therefore, coding of the message means that the teacher should be aware of the diversity in his classroom, and should take care to accommodate it.

Creating a climate conducive to classroom communication (FACET 2)

The teacher's role (task) during instruction is to create a climate or environment which is conducive for effective communication and learning to take place. However, within the OBE classroom situation, the teacher needs to ensure that each learner participates actively in the class partly by creating an atmosphere that ensures learning. The teacher needs to take care of both the physical and psychological aspects that enhance participation in the classroom, for example, s/he needs to paste posters and other materials on the walls of the classroom. These should reflect the different cultures and races that are represented in the class or school (Pretorius, 1998).

Preparation of the learner (FACET 3)

Learners must be in a good position to receive the message in a positive way. Hodson (1998) advises that in addition to making learners feel comfortable within the classroom, teachers must also strive to make learners feel comfortable within science itself. The teacher ought to influence the attitude of the learners to receive science teaching positively. Hodson (1998) claims that in learning new, one moves away from the familiarity of and safety of the known into the uncertainty of the unknown; feelings of confusion, apprehension and loss of confidence are inevitable, even anxiety, frustration, distress and anger are possible. According to Pretorius (1998) within the OBE classroom situation the teacher needs to ensure that each learner prepare thoroughly for subsequent classes. That is, s/he gives them prior work to do, for instance, read/study and or prepare adequately before coming to class. As they do prior before coming to class. As they do prior preparation, they should know beforehand that each one will be given a time frame within which s/he can contributes by way of telling or discussing with other classmates what they have learnt from the studied piece of work. S/he must allow learners to ask as well as answer questions. S/he must be friendly and resourceful in facilitating learners' learning.

Transmitting the message (FACET 4)

This facet has to ensure clear understanding of a message by learners. There are a number of factors such as language, style of presentation of the message, the meaning and importance thereof. Hodson (1998) uses as an example learners who are more open to new ideas than others, whose reluctance stems from a deep-seated fear of uncertainty. This kind of learner is distrustful of new ideas unless they are presented with authority, and as a consequence, seeks certainty in knowledge and not ambiguity. Taking for example, learners will understand better when a message is spoken in a language they know very well, the selection and use of words is appropriate to their level and circumstances, is presented in a manner that conforms to the rules of communication in their cultures. However, it is imperative in the OBE system that teachers and learners pay special attention to interaction among learners of all cultures and languages. Science teachers are encouraged to acknowledge that for many learners, learning of science and mathematics involves feelings of severe anxiety and fear of failure (Myers *et al*, 1992). However, teachers must assure learners that they understand the problem and will work them to overcome it.

Receiving the message (FACET 5)

Almost all the learners' senses should be well engaged when receiving the message of the teacher. A message or presentation that appeals to (if and where possible) all the senses will have a lasting effect on the learners. Form the OBE perspective, the teacher has to prepare and deliver his/her class in a way that captures all the senses of children. That is, the teacher should allow learners to touch, feel, see, hear, smell, taste (depending on what is being presented) and experiences that affect their learning for life (Vreken, 1996).

Decoding the message (FACET 6)

Decoding entails the reworking of the message in the learner's thoughts (Vreken, 1996). Reworking of information by the learners ought to be facilitated and directed by the teacher. The OBE framework of teaching provides that learners go through exercises that can enhance their processing of the information (Rhodes, 2003). The teacher needs to give learners tasks, which would help them to adopt both the surface and deep approaches of information processing. This can be done within OBE by letting learners create relationships of the concepts in a specific learning area as well as among concepts in different learning areas. Learners may even be asked to draw concepts maps establishing linkages of different bodies or aspects of information. This will help learners in constructing their knowledge as well as be actively involved in learning and classroom communication. Decoding the science lessons for the learners would include a number of activities, some which are centred on communication, and others which are not. Trowbrigde *et al.* (2000) speak in terms of 'inquiry' which is the process by which scientists pose questions about the natural world and seek answers and deeper understanding, rather than knowing by authority or other processes.

Feedback (FACET 7)

According to Vreken (1996) feedback takes place in two ways i.e. internally and externally. Keeley (2010) asserts that the mere repetition of tasks by science learners, whether manual or intellectual is unlikely to lead to improved skills or keener insights. However, learning often takes place best when learners have opportunities to express ideas and get feedback from their peers. But for feedback to be most helpful to learners, it must consist of more than the provision of correct answers (Keeley, 2010). Feedback ought to be analytical, suggestive and to come at a time when learners are interested in it (Keeley, 2010). Again, there must be sufficient time given to learners in order to reflect on the feedback they receive, to make judgement and to try again (Keeley, 2010).

The nature and extent to which science learners participate in classroom communication

The learners in this study displayed a lack of appreciation for their teacher's questions. Learners also reported nervousness when speaking in the classroom, even if this happens sometimes, but the nervousness induces fear. The extent of learners' communication apprehension (CA) is not such that it would be irreparable, as the results indicated that mostly they do not resort to drastic actions, e.g. leaving the classroom and crying out loud. However, learners in this study seem to be reliant on the teacher to be

prompted to interact. They do not seem to be comfortable enough to initiate communication on their own. Thus, it is the finding of this study the nature of classroom interaction, while not in a desperate situation, can be improve and learners' apprehension relayed.

Factors which influence classroom participation

The classroom atmosphere according this study proved to be inhibiting for interaction especially as learners worry about the impression the teacher and other learners will have about them. Krashen (1982) recognised the affective classroom when he formulated the affective filter hypothesis. According to Krashen (1982), "the filter is that part of the internal processing system that subconsciously screens incoming language based on what psychologists call 'affect'…the learners' attitudes, needs, motives and emotional state. If learners feel threatened or uncomfortable, they will not feel free to interact. Hence the attitudes of the teacher can also have a contributing influence on learner participation in classroom communication. Le Roux (1996); Keeley (2010) put forward that if a learner who is afraid of how the teacher will react to his/her contributions to the discussion will not be prepared to take risks and therefore will not interact readily. It stands to reason that the affective classroom atmosphere will have a direct influence on the quality of interaction in the sense that a learner will not be eager to assume his/her role in a discussion if the classroom atmosphere is negative and debilitating. However, teachers have to cultivate an atmosphere in which learners will not be afraid to make mistakes in front of other learners. If they are made to speak out in class on regular basis, they will get used to making mistakes and accepting that as part of the learning process. In this manner, learners will accept that they might not always be correct in what they say, but might possibly gain their confidence from the practice of speaking in class.

Suggestions on how participation/classroom communication can be improved during science teaching and learning

Learners need to be involved in classroom communication in such a manner that their communications' skills are improved. This however, cannot be reached automatically by the teacher and/or learners. It has to be a consciously planned activity and hard work on the side of both parties (teachers and learners) (Sotto, 1994). The ways highlighted in this study are but only a few of the many ways. It is therefore, imperative for teachers to remain innovative in finding ways that apply better for classroom communication and science teaching and learning.

Group discussion: According to Robbinson *et al*., (2009), Keeley (2010) the collaborative nature of scientific and technological work should be reinforced by frequent group activity in the classroom. However, a group exists when two or more people have as one quality of their relationship some interdependence and have appreciation for accord. The nature of classroom group is influenced by the time learners spend with other (e.g. being together from previous grades) and the relationship that are formed as a result of that association. A bond of common interests and affection develops and responsibility, feedback and communication become more realistic. Group discussion and learning should become a norm in science because it brings so many opportunities in education e.g. they may assist learners to see that everyone can contribute to the attainment of common goals. These relationships affect learning motivation, and therefore, classroom communication.

Insist on clear expression: effective oral and written communication is so important in every facet of life that teachers of every subject and at every level should place a high priority on it for all learners (Keeley, 2010; Mcshane & Von Glow, 2010; Robbinson *et al*., 2009). However, science teachers are advised to emphasise clear expression, because the role of evidence and the unambiguous replication of evidence cannot be understood without some struggle to express one's own procedures, findings, and ideas rigorously and to decode the accounts of others.

Encourage healthy questioning: Sound teaching usually begins with questions and phenomena that are interesting and familiar to learners, not with abstractions or phenomena outside their range of perception, understanding, or knowledge (Vreken, 1996; Keeley, 2010). According to Vreken (1996), Keeley (2010) science, mathematics and engineering prosper because of the institutionalised scepticism of their practitioners. Their central tenet is that one's evidence, logic and claims will be questioned and one's experiments will be subjected to replication and this should be the normal practice for teachers to raise

such questions as: How do we know? What is the evidence? What is the argument that interprets the evidence? Are there alternative explanations or other ways of solving the problem that could be better? However, the aims should be to get learners into the habit of posing such questions and framing answers (Keeley, 2010).

Fear of other learners' reaction and lack of self-confidence: teachers should recognise that for many learners, the learning of mathematics and science involves feelings of severe anxiety and fear of failure (Keeley, 2010). However, teachers have to cultivate an atmosphere in which learners will not be afraid to make mistakes in front of other learners. They should assure that learners understand the problem and will work with them to overcome it. However, a flexible learning environment would far better encourage problem-based approach through flexible learning. Furthermore, teachers should make sure that learners have some sense of success in learning science and mathematics and they should deemphasise getting all the right answers as the main criterion of success (Keeley, 2010).

Shyness: some causes might be more deeply ingrained than others .e.g. shyness that has been caused by cultural values might be more ingrained and more difficult for the teacher to deal with. But teachers can try to draw a learner out by gradually increasing the level of his/her participation in the classroom. The learner will gradually get to a point where the teacher does not have to actively engage his/her participation, but where the learner will be a voluntary participant in the communicative activities of classroom learning.

5 RESEARCH METHODOLOGY

One method of research has been employed in this study, i.e quantitative approach. However, Strauss and Corbin (1998) define a quantitative method as associated significantly with the description and data collection procedure, research designs, and statistical procedures that enhance research and measurement in the social sciences to parallel closely the work of natural science research. A questionnaire was designed for (N= 20) Grade 8 science learners and teachers (N=12) using a stratified sampling method and learners were selected randomly. Twelve (N=12) schools took part in this research study

6 FINDINGS/ANALYSIS OF RESULTS

Findings are presented according to the aims which were set out at beginning of this study.

Learners in this study display a lack of appreciation for their teachers' question. The majority of learners (65.5%) do appreciate when teachers ask a lot of questions only "sometimes", while (29.4%) of learners indicate that they 'always". Only (5.5%) indicate that they "do not" appreciate lot of questions from their teachers. However, teacher questions are an integral part of teaching and learning process, but are more that a means of getting learners to participate in class. Questioning promotes learning through encouraging learner mental activity, e.g. critical thinking and analysis (Kyriacou, 1986). It might also be significant that only (5.5%) of learners do not appreciate teacher asking questions. This number is relatively small, and while it is not been taken as insignificant, it suggests that teachers are not totally amiss in their questioning behaviour. The responses to the question suggest that classroom communication is not as effective as it could be, but is also not failing totally although remedial steps could be beneficial. Learners also reported nervousness when speaking in the classroom, even if this happens sometime, but the nervousness induces fear to participate. (10.6%) claimed to "always" feel nervous when they speak while (26.8%) reflect that they never feel experience nervousness when they speak in the classroom. The majority of learners (60.0%) claimed that it is only "sometimes" that they feel nervous. Nervousness in the classroom speaking is an indicative of communication apprehension (Seiler *et al.*, 1984), and the implication of these results is that a degree of communication apprehension exists in these learners' classrooms.

Causes of learners' communication discomfort. There are several factors that can hinder learner communication in the classroom, e.g. other learners, the teacher and the learner him/herself. Simon (2000), research into attitudes towards science using a range of components in the measure of attitudes has included, amongst others, the perception of communication in class. This suggests that they are relatively comfortable with their teachers and find interaction and thus communication in class not

difficult. (25.5%) of learners experienced problems with their teachers' personality, while learners who claimed that it was a problem some of the time made up (25.1%) of the total. The implication of these results is that the teachers' personality does affect communication in the classroom. Teachers need to be made aware of what aspects of themselves could affect communication ability of their learners because they might not be aware of it. The traditional learner-learner relationship in which the teacher is the dominating authoritative figure, and how teachers play this role could, together with their personalities affect communication of learners. The personality factor focused on this study is shyness. Of the learners took part in the study, (57.9%) claimed that being shy does not impact negatively on their ability to communicate in the classroom, although (21.7%) responded in the affirmative, and (20.4%) of the learners responded that only sometimes does shyness affect their ability to communicate.

Classrooms are considered as social contexts where participants are in continual interaction (Le Roux, 2001). Therefore, creating a classroom atmosphere which is conducive to learning is largely the teacher's duty. The type of classroom climate generally considered to best facilitate learning is one that is purposeful, task-oriented, relaxed, warm and supportive as well as experiencing a sense of order (Kyriacou, 1991). In this study (56.6%) disclaimed that the classroom climate is not conducive, suggesting that they do not feel hindered from communication by the atmosphere in the classroom. According to Simon (2000), several studies have indicated the influence of classroom environment as a significant determinant of learners' attitudes toward science teaching.

A study Myers and Fouts (1992) found that most positive attitudes were associated with high level of involvement, personal support, strong positive relationships with classmates and the use of various teaching strategies and learning activities. The communication factor in all these activities is strong, leading to one to infer that good communication leads to a positive attitude about the subject, and that they are afraid of fellow learners' reaction when they make mistakes. Learners could be apprehensive about being made to feel unintelligent and ridiculous if they make mistakes in front of their peers. Fellow learners are therefore a contributory factor in classroom communication apprehension. According to Bentley and Watts (1992) group work is very important in the learning of science because of the extensive group work science involves. Learners need to be taught group communication skills and in order to understand scientific ideas they need to share these ideas (Bentley & Watts, 1992). (86.8%) were keen on participating in group discussions; (86.0%) of learners claimed not to experience tension and nervousness when taking part in group discussions/ work; (85.1%) of learners were in favour of group work; (69.4%) of the learners claimed to be calm and relaxed during group discussions; and (72.8%) of learners claimed not to be tense and nervous when taking part in group discussions. These results indicate that learners who took part in this study like and enjoy group classroom communication. According to Whitaker (1993) the importance of group work includes: creating a climate of emotional support i**n** which learners can work with a sense of security and self-confidence; facilitating the growth of understanding by offering the optimum opportunity for learners to talk reflectively with each other; promoting a spirit of co-operation and mutual respect.

Therefore, learners are in favour of group work suggests that learners experience relatively little communication apprehension during group work. Having a positive attitude towards science might lead learners to better classroom communication practices. Sotto (1994) claims that one of the constraints on participation in the classroom is the learners' concern about the reaction of other learners, sometimes more concerned than they are with the reaction of the teacher. In this study a high percentage of respondents (43.4%) claimed according to the social setting theory, classrooms are dynamic meetings for continual interaction between teachers and learners alike. Classroom communication is very crucial between teachers and learners as it may contribute to learners' academically, socially, as well as their emotional development. Through, this daily interaction learners are encouraged to experience a sense of self-worth, mutual rapport etc.

For effective participation to prevail during science teaching, a sustainable learning environment must be created; which includes the three domains that constitute the quality of classroom interaction, for example the emotional support; classroom organization and instructional support as this can afford learners opportunities to further develop their self-regulatory skills (Holliday, 1992).

7 CONCLUSION

According to this study, it is evident that classroom communication and the teaching and learning of science need an urgent attention in schools. Positive learning arises as the end results of interaction between teachers and learners through creating an encouraging learning environment. However, communication in the classroom during science teaching plays a crucial part. Dijkstra and Gutteling (2012) are of the view that participatory or engagement mechanisms could have an influence in breaking down barriers to learners' participation by increasing perceptions that they can participate meaningfully during science teaching and also in making decision concerning scientific issues. In the view of that, knowledge, skill and involvement also play an essential part in teaching science lessons. As a result, knowledge of science is not only perceived as abstract canon of facts; but as sets of understanding within varying practical and social contexts (Dijkstra & Gutteling, 2012). Science teachers must be technologically orientated as to gradually increase or improve their level of classroom communication in science classrooms. In addition, the teaching of science must not start at secondary schools as it was happen in the past. But it must start at primary level with competent and science specialised teachers. Proper foundation for science, mathematics and technology teaching must be activated at primary schools so as to elevate the dilemmas/problems of learner participation during science teaching.

RECOMMENDATIONS FOR FURTHER RESEARCH

In future research projects, the following aspects may be taken into consideration:

- Communicating Science Program must be implemented in order to improve the effectiveness of science communication within schools.
- The advancement of technology must be used to support learning and teaching of science especially in South African schools. However, it is essentially important to develop design principles and process that may guide the effective educational experiences.
- A Course Management System (CMS) must be used to enable teachers to easily post assignments, lesson plans, announcements and course documents.
- Interactive White Board (IWB) must also be introduced in all schools both disadvantaged (Black) and advantaged (White) starting from primary level.

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A Study on University Primary Student Teachers' Information and Communication Technology Use and Integration Practices during School Based Studies

[a]Tulonga T. Henoch*
Faculty of Education, University of Namibia, Namibia
[b]Sakaria M. Iipinge
Faculty of Education, University of Namibia, Namibia

[c]Elisabeth N. Ngololo
Multi-disciplinary Research Centre, University of Namibia, Namibia
[a]*Email:thenoch@unam.na*
[b]*Email: smiipinge@unam.na*
[c]*Email: engololo@unam.na*

Abstract : *The systematic use and integration of Information and Communication Technologies CTs in the classroom practice of pre-service student is very important for student teachers to become more proficient in using and integrating technology in their teaching. The Namibian Government has made some innovative attempts to increase the use of ICTs) by teachers in schools as well as teacher educators at higher institution of learning. Through the Tech/NA!, the ICT Implementation Plan of the Ministry of Education and the ICT policy for Education, the Ministry of Education introduced various programmes, for example, International Computer Driver's License (ICDL), in order to enhance and strengthen the skills of teacher educators so that they could effectively use and model ICTs in teaching and learning activities. Further, the Namibian Government has also acknowledged the fact that ICTs can play a significant role in driving the country's aspirations towards becoming a knowledge-based society by 2030. Using a mixed method approach of interviews, observations, and a questionnaire, this case study investigated the university primary student teachers' field experience of ICTs use and integration during school based studies. A total of 135 student teachers from 10 selected school, both rural and urban in Oshana educational region participated in this study. Findings strongly indicated that student teachers did not use ICT and the 2 & 3 dimensional teaching materials to fundamentally change their pedagogical practices, but instead were used to maintain the student teachers' traditional pedagogical practices. Based on the findings of this study, it is recommended that student teachers should be guided and trained on the difference between the usage of ICTs and the integration thereof. This could result in the migration from teacher to learner collaboration to a more active learner to learner collaboration. Although a limited study due to the small sample size, the results should be of interest to those teacher educators who are concerned with the curriculum development and implementation of teacher education.*

Keywords: *- Information and Communication Technology; Technology Pedagogical and Content Knowledge; Integrated Media and Technology Education; Learning Management Systems; Pre-service student teachers, School Based Studies; Micro-teaching*

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* Corresponding author.

E-mail address: *thenoch@unam.na*

1 Introduction and purpose

The ICT Policy for Education which came into being in 2005 has outlined five key distinct developmental areas for the use of ICT by teachers, which are: (1) Investigation and development of appropriate ICT solutions; (2) Deployment of ICT; (3) Maintenance and support of ICT; (4) ICT literacy; and (5) ICT integration. Generally, these key distinct developmental areas clearly designate the procedure in which

teachers need to use and integrate ICTs in the classroom. The pre-service student teachers, therefore, are exposed to a diversity of ICT equipment be it digital or non-digital teaching aids, learning tools and management systems as well as methodologies on how to use and integrate them in their lessons through some of the modules they take as part of their teacher training.

The overall research question for this thesis study was: "How can the use of ICT by pre-service student teachers be enhanced during School Based Studies (teaching practice)?" The sub-questions that assisted in providing answers to the overall research question were: (1) What type of ICT tools are mostly used by the student teachers during teaching practice?; (2) What are the student teachers perceptions on the ICTs use to improve their teaching during teaching practice?; (3) What learning strategies do student teachers use when integrating ICTs into their lessons based on competencies?; and (4) What challenges do the student teachers face and experience in using and integrating ICTs in teaching activities during school based studies?

In this paper, however, we only describe the type of ICT's used by students' teachers and how the student teachers integrate such ICT's in relation to the Technological Pedagogical and Content Knowledge (TPACK) framework. In other words, we only addressed the first sub-question which reads: What type of ICT tools are mostly used by the student teachers during teaching practice? The paper follows the following main headings: Introduction and purpose, problem statement, conceptual framework that informed the study, the methodology used, limitations, findings, discussion of the main findings and ends with conclusions and recommendations.

2. Problem Statement

As teacher educators at one of the higher institutions in Namibia, we observed that pre-service student teachers are exposed to a variety of ICT equipment, learning tools and management systems as well as methodologies on how to use and integrate them in their lessons through some of the modules they take as part of their course work. However, studies on technology usage and its integration into lessons at school level and higher education institutions found that there is often great failure in the usage and integration process (Bauer & Kenton, 2005). Bauer & Kenton, (2005) further indicate that although some teachers may have sufficient skills and innovation, they do not integrate technology efficiently and consistently as both a teaching tool and a learning tool for learners. This could be due to lack of training in the use of particular equipment, unavailability of various ICTs at school level, and poor selection of the equipment. This study, therefore, investigated how student teachers integrated ICTs into their pedagogical practices.

3. Conceptual framework

The Technological, Pedagogical Content Knowledge (TPACK) conceptual framework informed the design of this study and guided the analysis of the findings. The TPACK conceptual framework was developed by Mishra, Koehler and Kereluik (2006). The framework is based on Schulman's (1986) original idea of Pedagogical and Content Knowledge (PCK). The overall principle of this framework is that technology integration during teaching requires teachers to have an understanding of the content they want to teach and the pedagogy that is synchronised with the content of the subject to be taught, and that includes the technology that will support learners' learning process in a classroom situation. According to Mishra, Koehler and Kereluik (2009), the TPACK framework involves the interplay of six components: technological knowledge (TK); pedagogical knowledge (PK); content knowledge (CK); technological content knowledge (TCK); technological pedagogical knowledge (TPK); and pedagogical content knowledge (PCK). We will now discuss these components briefly.

Component 1: Technological knowledge (TK)

Technological knowledge is related to the ability of the teacher to use hardware and software to solve learning problems (Mishra, Koehler and Kereluik, 2009). Technological knowledge is related to the ability of a teacher to use hardware and software to solve learning problems, as well as troubleshooting ICT problems, awareness of new technologies and the knowledge of emerging technologies. This means that

teachers should have knowledge of various technologies, starting from lower technologies, such as Overhead projectors, audio recorders, cassette players, etc., to more complex digital technologies, such as digital video, interactive white board, laptops, mobile devices and smart phones, iPods, tablets, etc.

Component 2: Content knowledge (CK)
This is the knowledge of the actual subject matter that is to be learned or taught (Mishra Koehler & Kereluik, 2009). Content knowledge includes knowledge that teachers possess on the primary subject content they teach, which may include concepts, theories and conceptual framework.

Component 3: Pedagogical knowledge (PK)
This knowledge describes the knowledge of the teachers on the processes and practices of teaching. This may include how teachers plan their lesson and conduct assessment. Mishra Koehler and Kereluik (2009) emphasise that teachers should demonstrate knowledge about techniques or methods in the classroom, determine the nature of learners' needs, and understand strategies on how to assess learners' performance.

Component 4: Pedagogical content knowledge (PCK)
This knowledge is about how to make subject content understandable to learners. By having this knowledge, teachers can determine what makes subject content difficult or easy to learn. Mishra Koehler and Kereluik (2009) describe PCK as the transformation of subject matter, which occurs when a teacher interprets the subject matter, finding various ways of presenting the content and adapting and altering the instructional material to alternative ideas and learners' previous knowledge. This knowledge is about how to make subject content understandable to learners. By having this knowledge, student teachers can then determine what makes subject content difficult or easy to learn. Therefore, PCK can be described as the transformation of subject matter, which occurs when a teacher interprets the subject matter, finding various ways of presenting the content and adapting and altering the instructional material to alternative ideas and learners' previous knowledge. During this study, pedagogical content knowledge (PCK) dominated the role in which student teachers planned and conducted their teaching.

Component 5: Technological pedagogical knowledge (TPK)

This knowledge is about the teachers' cognisance that teaching and learning can change when particular technologies are used in a specific way. A teacher should know where and how a particular technology can be used to change teaching in a given subject matter (Mishra, Koehler and Kereluik, 2006). TPK requires teachers to reject the use of the ICT tools in a fix way all the time, but wants teachers to develop skills that look beyond most common use of the available technology and to reconfigure such technologies to create creative lesson plans and instructional methods in the classroom. Therefore, this knowledge is about the teachers' cognisance that teaching and learning can change when particular technologies are used in a specific way. A teacher should know where and how a particular technology can be used to change teaching in a given subject matter. An example of TPK may include the use of digital or cell phone cameras to involve learners in the process of interacting with pictures during learning, or online collaboration tools to facilitate social learning for geographically separated learners.

Component 6: Technological content knowledge (TCK)
This is the knowledge of how technology can create some new representations for specific content. TCK is the type of knowledge that refers to how technology may be used to provide new ways of teaching content. This is the knowledge of how technology can create some new representations for specific content. An example of TCK is using digital animation to enable learners to conceptualise how events are taking place, such as osmosis, diffusion, soil erosion, transpiration, etc.
The combination of all these components forms the TPACK framework, which can be viewed as the interaction of CK, PK and TK when using technology for teaching and learning as shown in Figure 1.

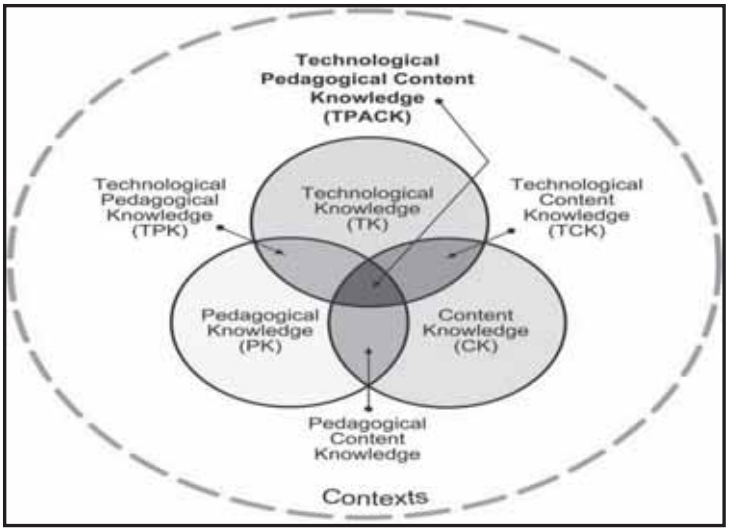

Figure 1: TPACK framework (Mishra, Koehler & Kereluik, 2009)

4 Methodology

We found an exploratory sequential design to be the most suitable for this research study. A mixed method study was chosen which is based on the QUAL-Quan mode, with the qualitative method, being dominant (De Vos, Strydom, Fouch and Delport, 2005). In qualitative method, we used observations and interviews while in quantitative method we used questionnaires. A total of 135 third year student teachers at one selected university campuses doing school based studies or as commonly known teaching practice at 10 schools in Oshana region participated in this study. Five of the schools were located outside Oshakati and Ongwediva towns; thereby regarded to be under the rural population category. The remaining five urban schools were located within Oshakati and Ongwediva towns. Oshakati and Ongwediva are two major towns found in the northern part of Namibia.

Seeing that the pre-service students are majoring in various specialisations (e.g. Pre-primary, Languages, Social Studies, Mathematics and Science), a proportional, stratified sampling method was used in order for all specific groups to be represented equally. We selected a proportional stratified sampling strategy because we observed that the lower primary pre-service students had a smaller representation compared to the upper primary students as students tend to be enrolled more for the upper primary phase. In total, the sample for the study was then sub-divided into 40% for lower primary, which represented 28 students, and 60% for upper primary, which represented 107 students.

A total of 30 different lessons were observed and 7 focus group interviews were conducted, comprised of 15 members in each group during the qualitative phase. During the quantitative phase, we used an open and close ended questionnaire to obtain the quantitative data. The closed questionnaire consisted of a 4-point Likert rating scale to measure aspects such as the level of (1) ICT skills, (2) types of ICT tools used and (3) frequency of usage, and (4) level of pedagogy and (5) content knowledge on selecting ICTs. The open-ended questions in the questionnaire covered issues related to (1) perceptions, (2) teaching strategies of ICT integration and (3) factors hindering the effective use and integration of ICTs.

Since the study was exploring the use and integration process of ICTs by Primary student teachers, the approach of data interpretation was inductive – this is the process of moving from specific observation to broader generalizations (Gay, Mills and Airasian, 2009). Data analysis was done as the data were collected. Data from classroom observations were analyzed by observing the frequencies in which the student teacher used a specific ICT device and the level of integration between teacher and learners when using ICTs. The data from interviews were transcribed and read through several times to look for

patterns and emerging themes. This process assisted the classification of data into specific categories. Data from the closed responses in the questionnaire were analyzed by using the method of central tendency to determine the frequencies of the pedagogical and content knowledge, ICT usage, level of skills and type of ICT tools used often, while the closed responses were analyzed using the same method as that of interviews.

As part of research ethics, we made sure that we maintained confidentiality to our study participants, schools where students were practicing and the institution of higher learning where students were being trained. Hence, no real names were revealed, we referred to schools with alphabetical letters or participants with pseudonyms.

Limitations of the study

This study was limited to 10 schools where students were doing their SBS in the Oshana Region. Therefore, findings cannot be generalized to other schools and regions because of selection of participants and schools. The findings do present, however, a better overall understanding and description of the type of ICT's used and integrated by student teachers and, as such, background can be used for further studies. Although a limited study owing to the small sample size, the results should be of interest to those teacher educators who are concerned with the curriculum development and implementation of teacher education.

5 Findings

The findings of this study are presented in the following sequence: Section 5.1: ICT use and integration and Section 5.2: ICT use and integration as related to the TPACK framework.

5.1 Section 1: ICT use and integration

The majority of student teachers observed opted for 2- and 3-dimensional teaching materials due to the fact that they were readily available and easy to prepare. Student teachers indicated that the use of posters, flip charts, textbooks, models and the chalkboards were more convenient for teaching, based on the environment they found themselves. **Figure 1** indicated that student teachers still use conventional tools available in the classrooms such as the chalkboard, models, posters, textbooks and PowerPoint etc. The students' teachers claimed that sophisticated ICTs were not always available.

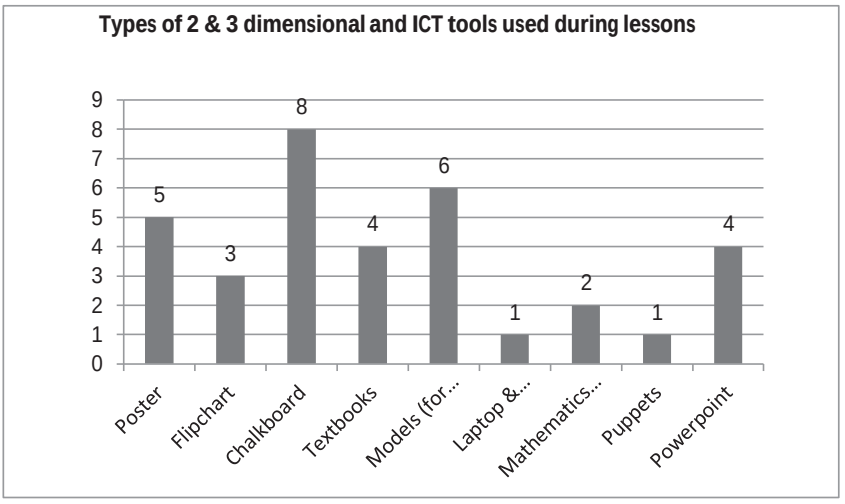

Figure1: Types of 2 & 3 dimensional teaching aids and ICT tools used by student teachers during lessons

The lower primary phase student teachers were observed to demonstrate superior ability to prepare these 2- and 3-dimensional materials because the lower primary student teachers practiced making their own teaching materials more often during their practical classroom training at the campus.

On the preparation of teaching materials there is still a lot to be done. The student teachers observed during the study generally had poor quality self-made teaching materials, such as posters and flash cards.

During observations, checklist data were also collected to establish what these tools were being used for. Figure 2 below shows the purpose for which the student teachers used the selected tools during lessons. The main purpose for which the participating student teachers used any selected ICT tools was to demonstrate the lesson objectives 14 (46.7%) in line with their lesson plan. Some students, about 7 (23.3%), wanted to use the selected tools only for lesson reinforcement towards the end of their lessons. Only 2 (6.7%) of the student teachers used the tools for assessment, while 3 (10%) used the selected tools for lesson introduction and teaching activities.

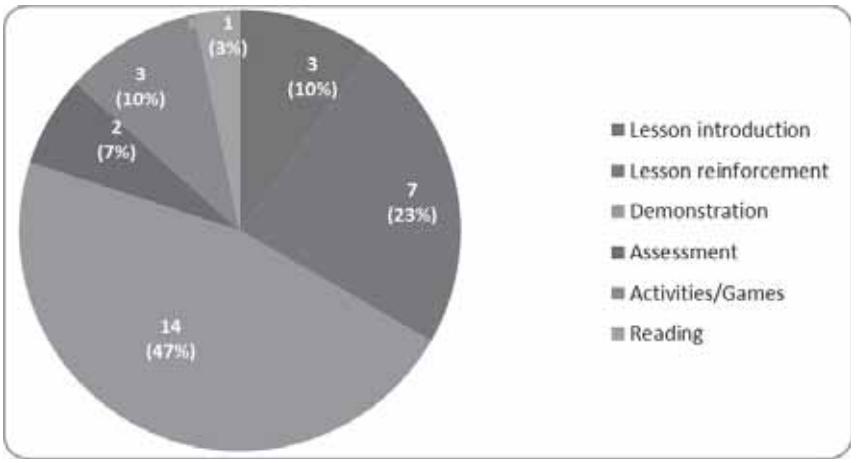

Figure 6: Purpose for which tools were used by the student teachers during lessons

5.2 Section 2: *ICT use and integration as related to the TPACK Framework*

The TPACK framework provides an interlink process, which allows all skills of a student teacher to be used at the same time when using and integrating ICTs during teaching. This framework requires student teachers to possess a strong understanding in areas such as subject knowledge and matter, pedagogical approach, content, and knowledge of learners' needs. This study primarily focused on student teachers ability to use and integrate ICTs by way of linking them to technological knowledge (TK), pedagogical content knowledge (PCK), technological content knowledge (TCK), and technological pedagogy knowledge (TPK).

5.2.1 Technological knowledge (TK)

Data obtained during the quantitative phase of the study indicated that; (44%) of the student teachers reported that they had the ability to choose and apply basic technical skills and demonstrate fluency in using the selected ICT tool to present a lesson. About (15%) reported that they could troubleshoot simple ICT problems on their own without technical assistance. Another (29%) indicated that they were aware of new technologies used in education and wanted to learn about them, and (12%) revealed that they had an updated knowledge of emerging technologies.

During interviews, one student teacher (at School B in an urban area) said:
"Sir, some teachers use smart boards, educational software, touch screens, wireless keyboards, etc. these days for Maths, Science, Geography and English in some schools, and such equipment should also come to our areas as it will encourage me to use it more often" Student Teacher 11, 23 May, 2014).

5.2.2 Technological content knowledge (PCK)

Data gained during the quantitative phase of the study indicated that; (57%) of the student teachers demonstrated the ability to use appropriate teaching methods. This is consistent with the data obtained through the questionnaires. The remaining (43%) indicated that they lacked the necessary teaching methods when using ICTs. Many of the participants observed implemented the PCK method during teaching and, by so doing; they created a link between subject matter knowledge and pedagogical content knowledge, with no reference to ICT use and integration. A high use of PCK use in the classroom translates that no learner-centred approach is being implemented in the classroom.

5.2.3 Technological content knowledge (TCK)

With regard to whether the student teachers' could use the chosen technology during their lessons, the results from the questionnaire shows that about (71%) of the student teachers agreed and (15%) strongly agreed that they could. However, data collected during observations showed that most student teachers relied on posters, chalkboard and use of models as the only form of ICT tools to enhance learners' content knowledge.

This was also emphasised during the interviews where one student teacher (from School J in a rural area) said:

> *"I only use the available teaching aids such as a poster or flipchart, as that is what is available at school. They [posters and flipcharts] make my work much easier to prepare, but I would prefer to use the chalkboard as the last tool" (Student Teacher 6, 23 May, 2014).*

About (14%) of the student teachers reported that they did not know how to select ICT tools that could enhance teaching. This was emphasised by one student teacher (from School D in an urban area) who said during the interviews:

> *"I am not always so sure which ICT tool will suit my lesson as some can confuse learners and myself as to what to do with it, I will go [opt] for something different from ICT, such as simple group work or class activity"(Student Teacher 05, 23 May, 2014).*

5.2.4 Technological pedagogy knowledge (TPK).

Data obtained from the questionnaires on TPK indicated that (65%) of the student teachers responded that they did think critically when selecting an ICT but find some difficulties when integrating a specific ICT tool for teaching. The remaining (35%) of the student teachers believed that they had a problem regarding how they could cogently integrate a particular ICT into the lessons.

However, for student teachers to effectively use and integrate ICTs, they should be able to confidently identify and switch between pedagogies, integrate them, and display the knowledge by demonstrating these skills. Even though during this study, the student teachers demonstrated certain skills in selecting the ICT tools to use during teaching, many still found it challenging to use appropriate pedagogies when using the selected ICT tools during lessons. The level and use of technological pedagogical knowledge (TPK) still needs to be improved.

6 Discussions

The study found 2- and 3-dimensional teaching aids to be commonly used and integrated into teaching and learning activities. The reasons for this trend indicated that these types of tools were readily available at schools and were easy to prepare and to use in the classroom. However, the 2- and 3-dimensional teaching aids identified were mostly used for instruction and demonstration on certain topic themes and

concepts. This finding, on the other hand, is generally in confirmation with Iipinge (2010) who explored the integration of information communication technologies in the preparation of teachers at the colleges of education in Namibia.
Student teachers were the main users of ICT tools and the findings of this study showed that the student teachers lacked skills in the integration of ICTs during teaching. This resulted in student teachers implementing more teachers to learner collaboration, and less learner to learner collaboration in the classroom. This finding is in agreement with Palak and Walls' (2009) research that found teachers to use technology to mainly support their teaching strategies and hardly encourage student-centred activities.

Although students were made aware of the available ICTs for teaching during training, only very few student teachers appeared to have gained the practical experience and knowledge on how and when to use such ICTs during teaching. This could be linked to Angeli's (2005) research that found out that pre-service teacher education does not adequately prepare future teachers to teach with technology but instead prepare student teachers more on how to teach technology rather than using it technology in the classroom. The study also identified that insufficient time, as well as limited number of ICTs available at the university, which could be used for practicals, also reduced their chances of gaining enough confidence in using various ICT tools during lessons. However, Kilic (2010) stressed that when pre-service teachers get involved in practical work such as microteaching, lesson design, hand's on activities, and asking questions in the classroom, the pre-service students should be required to acquire skills to choose appropriate technologies to support certain learning activities and to overcome difficulties. The study also established that the student teachers had a positive attitude towards the use of ICTs in their studies; this despite the fact that confidence and competence seemed to be a limiting factor for students as they lacked the practical experience on using these ICTs. Findings of this study are generally in line with previous studies that have indicated that teachers need to have the right attitudes toward using technologies in the classroom because is the major factor in determining successful ICT integration (Tabata, and Johnsrud, 2008; Choy, Wong and Gao, 2009; Kadel, 2005). A study conducted by Sime and Priestley (2001) also concluded that "even when resources were limited and access to computer suites was problematic …, that the individual teachers' attitude was the vital factor in determining ICT use" (p.37). Galanouli and McNair (2002) also reached the same conclusion that, "although lack of equipment was considered an important factor …., it was clear that teachers' attitudes play the most crucial role" (p.404).

The study also revealed that the TPACK framework components were hardly met as a set standard for student teachers training and during school based studies. The TPACK set standards serve as a guiding tool for student teachers to implement various pedagogical skills when using ICTs in the classroom. The study generally found that student teachers focused more on the component of pedagogical content knowledge (PCK) during school based studies. Niess, M. L., Ronau, R. N., Shafer, K. G., Driskell, S. O., Harper S. R., Johnston, C., Browning, C., Özgün-Koca, S. A., & Kersaint, G. (2009) recommended that to integrate ICT, there should be a mutual attraction between the TK and PCK components which is linked institutional support to make use of ICT during teaching. The component of PCK designates that student teachers master the content of their subject specialisations and essentially instruct learners to remember and understand such concepts in class. It was also observed that even if student teachers used any form of ICTs, the PCK approach remained dominant.

During the time of collecting data from interviews, the study identified that student teachers were opting for the PCK method of instruction and illustrating more as it is positively linked to time, completion of number of lessons, class size, learners' poor background knowledge on subject topics and inappropriate ICTs available to stimulate lessons. The study therefore established that the technological pedagogical knowledge TPK of the student teachers had not improved to an extent that they possessed the ability and skills to use ICTs effectively as a form of integration during teaching. And this is not good because what teachers need to be successful with ICT integration according to some literature is a comprehensive pedagogical approach (Steketee, 2005) and Reynolds (2001) goes further to strongly advice that ICT integration into teaching and learning should be an integral part of pedagogical practice.

Therefore, identifying and describing various ICTs to student teachers during training is not adequate, and should rather be enhanced through practice on ICT use and integration. The study also focused on

possible factors that could prevent student teachers from using and integrating ICTs during their teaching practice. The findings from the observations, interviews and questionnaire showed student teachers experiencing multiple challenges that served as preventative dynamics for students not to successfully use and integrate ICTs in their lessons.

The extrinsic limiting factors that were identified in this study were associated with lack of infrastructure such as electricity, computers and classroom size, lack of skills on setting up technical ICT tools, unavailability of ICT tools and resources at schools, and un-conduciveness of classroom. Buabeng-Andoh (2012) warned that when such limiting factors are identified, teachers develop a negative attitude towards technology, and, in case they are provided with good facilities at a later stage, it might not influenced them to make use of technology in their teaching. It is also not surprising that student teachers identified these limiting factors as similar issues were also mentioned in previous studies conducted in Namibia and elsewhere (Iipinge, 2010; Kozma et al. (2004); Pelgrum, 2001; Vanatta, 2000).

7 Conclusion and recommendations

Based on the study findings, it can be concluded that the use and integration of ICTs in teaching is a complex process and not always seen as being effective and successful. As a result, it still requires strong motivation and indulgence by the student teachers to recognise how ICTs can play a positive role in their subject specialisation. A conclusion can be made that students need to be exposed and trained on various methods of using and integrating ICT's. The use of ICTs allows learners to become active learners, as student teachers can make their lessons exploratory.

It is therefore recommended that student teachers need support, exposure, and more practical training to be provided to the student teachers to gain the confidence and competence to use and integrate ICTs in teaching. During training and SBS evaluation a stronger emphasis should be put on the use and integration of ICTs during student teachers' classroom teaching as well as presentations and micro-teaching. Additionally, training and stringent assessment on how best to produce quality work using the identified commonly used ICTs during teaching, such as posters, flip charts, models, transparencies, etc. should take place.

Another area that needs serious focus is the teaching pedagogies, which should be expanded for student teachers' to gain the ability to accommodate that of using ICTs that will allow student teachers to make their lessons more exploratory for learners and not just basically covering the subject content. Furthermore, student teachers should be guided and trained on the difference between the usage of ICTs and the integration thereof. This would result in the migration from teacher to learner collaboration to a more active learner to learner collaboration.

Overall, student teachers should be exposed and allowed to prepare teaching materials using ICTs more frequently before they conduct their school based studies, by storing such media in a file or media room to enable them to borrow such material when conducting their teaching practice. Finally, mentor teachers and university tutors should put in place regular control measures and encourage the use of ICTs in lessons more frequently, thus allowing the student teachers to prepare in advance for such lessons.

Finally, student teachers should be guided and trained properly on the difference between the usage of ICTs and the integration thereof. This could result in the migration from teacher to learner collaboration to a more active learner to learner collaboration. And to finally understand why TPK is unclear for many student teachers, a deeper analysis of the constraints and the ability to afford the needed technologies and their disciplinary contexts within which they function should be studied further.

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The efficacy of implementing character education programmes that can sustain learners' behaviour in secondary schools

Lepholletse, AMM
drammlepholletse@gmail.com

Van Wyk, MM
Department of Curriculum and Instructional Studies

College of Education

University of South Africa

vwykmm@unisa.ac.za

Abstract: *The purpose of this article was to determine the efficacy of implementing character education programmes that can sustain the behaviour of secondary school learners. It points out programmes that are suitable to apply when dealing with character education so as to reinforce this domain. A confirmation sample consisted of teachers and learners from disadvantaged and multi-racial schools. A total of 740 grades(s) eight and eleven learners and two hundred and six teachers took part in this study. Dilemmas affecting schools were considerable by collecting data from all 13 participated schools. Findings have been discussed and recommendations have been made.*

Key words*: teacher, learner, secondary school, character education, programmes, behaviour.*

1 Introduction

As a result of the contemporary rampant atmosphere in South African schools, this country is faced with several challenges based on our educational system. Certainly, as civic people have a good time for individual, schools reside to be neutral on values, and darkness become apparent on the moral future. This crisis boils down to teachers and learners who do not respect each other and the absence of work ethics (De Klerk & Rens, 2003b). However, moral decay takes its toll amongst teachers and learners in South African schools. Learners and teachers crimes in some of the Provinces are increasingly heartless and this occurred because of their behaviour that nurture on the twisted values of satanic preferences. However, lack of effective moral leadership within schools does exist. More importantly, schools must be considered as places where good deal of learners' social and academic behaviour is modified. Whether character education will take hold in our schools remains to be catch sight of and for the education system to reach a successful decline of behaviour problems that occurred (Lickona & Davidson, 2005). Therefore, the key formative institutions may also try to give assistance in order to shape the values of learners. Research indicates that teachers are aware of some of the principles related to character education whilst others are less concerned and to their understanding of their role. Practicing character education during interaction with learners, calls for creativity and flexibility on the side of every teacher. These findings have some implications for the involvement of teachers in character education.

2 Problem statement

The cultivation for character among youth and learners is a moral urgency if we nurture the future of learners and the society as a whole and a formalised character education initially focused upon the teaching of moral virtues (Smith, 2013; Edington, 2002; Gilead, 2011). However, these programmes to a greater extent are rooted during the academic curricula in an interdisciplinary manner (Smith, 2013). Therefore, character education seeks to strengthen the transfer of values by means of the curriculum and moral climate within the school (Edington, 2001; Veugelers, 2000). According to Bangeni (2000); Halstead and Taylor (2000); Avenarus (2002) every interaction whether part of the academic curriculum or the human curriculum of attitudes, roles, relationships and rules, has the possibility to influence

consciously learner's values. However, the purpose of character education is to develop character through all five layers of human personality namely, intellectual, physical, psyche, emotional, and spiritual (Abdool, 2005; Taplin, 2000; Carr, 2000). Importantly, two questions of particular interest was asked by (Rens, 2005; Abdool, 2005). Firstly: "What is character education? Edington (2002) accentuates that nature of character education itself as skewed yet also quotes Lickona (1991) "Character education is perceived as the deliberate effort to cultivate virtue" secondly: "Whose values and how can we make all ingredients of school life work together for the moral growth of our learners? However, similar study was conducted at Malaysia addressing the same concern about character education curriculum in schools. They address two fundamental questions: Does character education focus on the development of virtuous traits and habits? What exactly do children learn in order to be active citizens? (Lee Lee & Lee Manning, 2013). According to Waghid (2001); De Klerk and Rens (2003b); Rhodes (2004) there is a manifesto on values, education and democracy that was established by the South African National Education Department where the government clearly indicates which values are crucial and should be implemented within schools and higher institutions of learning in this country. Subsequently, education is not meant to guide empty lives, it is meant to value other crucial aspects and to make the best of life (Higgs, 2002). Again, the answer to the second question gives direction to the government to consider improving character education programmes in schools as part of the formal school curriculum.

3 Theoretical framework

Various philosophers have placed huge efforts and responsibility to current moral decay that occurs in many schools globally. However, these challenges concern schools which did not play their roles as well as the behaviour of teachers and learners in schools. According to Moloi (2002), De Klerk and Rens (2003b) the culture of teaching and learning in South Africa has broken down, specifically in secondary schools. These contemporary dilemmas in our school community are significant that grown up convictions of individual responsibility are no longer sufficient for the immeasurable roles of social reconstruction (Lickona & Davidson, 2005). However, in order to create and give our learners a peaceful environment, insightful educators must be responsible for promoting the ultimate ethical values and demonstrating good behaviour (Lickona & Davidson, 2005). Basically, finding solutions to these problems will not be very easy because these deep seated problems of learners and teachers in schools require the concerted effort of the group. Faced with moral issues like these, one has to turn to the educational system for help and the only way to get such help will be through designing and implementing and evaluating character education programmes suitable for building the character of young generation and teachers within the school. Such character programmes which have been cited by many scholars as efficient and effective tool for teaching and learning (Cairns *et al.*, 2001; Arweck & Nesbitt, 2004). However, Milson and Mehlig (2002) make a remarkable statement when they contend that the effectiveness of any character education program rests on the effective implementation of the program. According to Frydaki and Mamoura (2008); Smith (2013) teachers in America have advocated for a return to a curriculum explicitly including moral or character education and assumed that the return of character education in schools may however, help learners to develop a storehouse of moral examples to guide them.

Research question

What is the efficacy of implementing character education programmes that can sustain the behaviour of learners in secondary schools?

Research objective

To determine the efficacy of implementing character education programmes that can sustain the behaviour of learners in secondary schools.

Different character education programmes to sustain the behaviour of learners in schools

Schools need to look at themselves through a moral lens and reflect on how everything that goes on in school affects the values and character of learners (Lickona & Davidson, 2005; Smith, 2013). Therefore, character means striving for excellence and striving for ethical behaviour, as a cornerstone of success in

school life (Lickona & Davidson, 2005; Higgs, 2002) hence education on the other hand, is viewed as a mechanism and a process of transmitting culture and values (Llale, 2003). Both these concepts are intertwined and inseparable in nature. Teachers who act as role models influence values as well as transmitting them in their regular teaching activities (Abdool, 2005; Fallona, 2000). This kind of role modelling occurs in both implicit and explicit manner which has the potential to be either positive or negative upon the value development process of learners. However there are various programmes that are crucial and that may become efficient and effective for character building amongst learners in schools. They are identified as follows:

Living values program

It is an educational program which takes 'a holistic view of the person' and recognises that an 'individual is comprised the physical, intellectual, emotional, and spiritual dimensions. Its purpose is to encourage teachers and care givers to look at education as providing learners with a philosophy of living, thereby facilitating their overall growth, development, and choices so that they integrate themselves in the community with respect, confidence, and purpose.(Arweck & Nesbitt.2004; Abdool.2005)

Character counts coalition

The purpose of this program is to fight physical violence, injustice and dishonesty in order to prepare a healthy generation for the future.(Arweck &Nesbitt.2004)

Canadian Olympic Values Education Program

It is integrated with the daily life experiences of learners. It also based on pleasure, justice, personal development, leadership, peace, and excellence. It is also based on values such as pleasure, justice, respect, personal development, leadership, peace, and excellence. (Arweck &Nesbitt.2004)

National Association of Elementary School Principal Values Program

Abdool (2005:68), Lickona and Davidson (2005) posit that the organisation for the National association of elementary schools' principals in America is based on a program called "Champion your school's values through values education activities". However, this program emphasizes the following values: responsibility, respectable behaviour, honesty, good citizenship.

National character education centre

According to the report mentioned by Abdool (2005) it is found that the National character education centre (NCEC) is an organisation in America that focuses on respect and responsibility as their two important values. Evidently, it was found that 700 schools in North America were taking part in this program. However, in South African schools this program (NCEC) does not exist. What the department of education did, they only introduced Life orientation (LO) as a learning area/subject. What is needed is to implement the above mentioned organisation in every Province in South African Schools.

Centre for the fourth and fifth R's

The program refers to the deliberate effort by the schools, families and communities to help young people to comprehend, care about and act upon core ethical values (Abdool, 2005). However, the centre also provides three reasons why all schools should be engaged in character education. Firstly, learner's need good character to be fully human, they need strength of mind, heart and will-qualities such as good judgement, honesty, empathy, caring, persistence, self-discipline and moral courage to be capable of work and love which are the two hallmarks of human maturity. Secondly, schools are considered to be better places, certainly more conducive to teaching and learning, when they are civil and caring human communities that promulgate, teach, celebrate and hold learners and staff accountable for the values on which good character is based. Thirdly, it is essential to the task of building a moral society.

However, it is extensively acknowledged that the development of character behaviours in learners essentially embraces a considerable focus equally for moral and cognitive development. On the other hand, Lickona and Davidson (2005) perceive character as a pathway to both excellence and ethics. This implies, however, that "high intelligence" is a prerequisite for, or a guarantee of, morality (Green, 2004). Because of the deteriorating social fabric, schools need to take into consideration an adequate speculation of what good character is the one which confer schools an apparent idea of their goals. Character must be broadly conceived to encompass the cognitive, affective and behavioural aspects of morality (Abdool, 2005; Green, 2004). However, Green (2004) makes a remarkable by defining the development of moral intelligence as the "gradually developing capacity to reflect upon what is right and wrong with all the emotional and intellectual resources of the human mind." Moral education that is merely intellectual misses the crucial side of character, which serves as the bridge between judgement and action (Lickona & Davidson, 2005; Abdool, 2005). Intellect and character are not same concepts schools have to develop ethical thinkers. According to Green (2004) the nurturance of this process in schools depends, inter alia, upon teachers' personal values and understandings of their professional role. Education is concerned with the development of virtues of the mind, and it has a formative outcome for learners as it affects character, ascertains their intellectual, social, moral, physical, spiritual and emotional development and plays an eminent part in shaping their lives (Fallona, 2000; Wolhuter & Steyn, 2003).

The John Heenan model for values education-Cornerstone Values

The model concentrates on building character through cornerstone-values. However, this is a method for character education but not a programme. It has been applied in American schools to measure its effectiveness towards learners. What this model does is not meant to conducting lessons, or moralising children, but to create a school as well as a home and community where values can be easily communicated (Abdool, 2005). However, building character through Cornerstone values is a New Zealand grown method for character education. According to Heenan (2000) this method is rooted in the research of C.S. Lewis for the first time implemented at Waihopai School. Invercargill. The teaching content is intentionally limited to eight Cornerstone values, the law of consequences as well as the rationale and decision-making (Heenan, 2000). Heenan (2000) recognises that the Cornerstone-Values as communicated through relationships. Therefore, this approach is not an addition to the curriculum, it rather apply all aspects of the school curriculum, the culture and management to promote character. This approach seems to have a positive impact on everything takes place in the school, from the principal' office, to every staff meetings, school functions, and the school's playgrounds (Abdool, 2005). It also acknowledges the cognitive, emotional and behavioural (Lickona & Davidson, 2005). These three key features are inextricably linked to character and also found within the eight Cornerstone-Values. However, good character is the application of eight Cornerstone-Values and falls within the construction and operation of the curriculum. Abdool (2005) discusses the eight Cornerstone-Values as follows:

Honesty and truthfulness: To be honest and to love is original and true while to be dishonest being fraudulent and unreal, they determine what type of a person you are.

Kind-heartedness and goodwill: To be kind-heartedness means to look after the welfare of others. It is a practical way of helping others to make their lives easier.

Consideration: Consideration is equal to kind-heartedness, it goes further to reach out those you do not personally know, especially those who live in far-off places. It includes values such as, let the next person feel as important as you would like to feel; think about how your words could affect others etc.

Caring: Term caring denotes helping others to carry the load regarding their emotions, pain, oppression, forgiveness and physical circumstances. It is a feeling of support for oneself and concern for others, and it embodies the sentiment for humanity and the disposition of benevolence.

Obedience: To be obedient means to subject self to righteous power that leads to social coherence and an ordered community. Obedience reflects positive characteristics while disobedient leads to negativity.

Responsibility: Responsibility refers to as a willingness to account for your actions and to supply answers to the behaviour you exhibited. Responsibility also includes think before you act, be self-disciplined, consider the consequences etc.

Respect: Respect and responsibility are two related concepts. Respect is a form of responsibility and an essential aspect of responsible person. It is promoted by politeness, dealing peacefully with anger, insults and disagreement. Be friendliness and by being considerate and caring towards others.

Conscientiousness: this term refers to be loyal towards people appointed over you as well as towards subordinate to you to whom you have a commitment.

Therefore, if schools want to take full advantage of their moral authority, and make a lasting difference in learners' character and engage and develop all three key elements of character (knowing, feeling and action), they need a comprehensive, holistic approach so as to admit values and character education aims (Abdool, 2005; Lickona & Davidson, 2005).

4 Research Methodology

This study employed a quantitative research approach which is associated significantly with the description and data collection process, research design and statistical procedures that enhance research and measurement in the social science to parallel closely the work of natural science research (Maree, 2011). The sample of the study consists of learners (N=736) and teachers (N=206) from 13 Secondary Schools.

Two questionnaires were constructed for both teachers and learners in the participatory schools. These questionnaires consisted of two sections. In the first section A both learners and teachers were asked to furnish their biographical information and the second part was questions about the professional character of teachers and the promising practices (divided into five principles) to further character education.

The main purpose was to determine the extent to which certain practices are implemented in the classroom and also to get a clear picture of what is happening in the classroom regarding character education.

In Section B questions were asked to rate on a scale of 1-3 and 1-5. After rating each item participants (learners) were asked to state which measures does teachers take in the classroom to create a caring climate and collective responsibility for each other.

Ethical consideration

The conduct of research requires not only expertise and diligence, but also honesty and integrity (Burns & Grove, 2005). However, permission to conduct this study was given and confidentiality was also maintained throughout the project and no information was made available to unauthorised person. Teachers and learners were not compelled to take part in this research and questionnaires were filled in anonymously.

5 Data analysis

A computer-aided statistical analysis was employed. The results of the research were processed using the SAS Programmed (SAS Institute, 1985). The initial step in the analysis was to compute the descriptive data for each sample group of the target population.

Principle. 1: Professional character of teachers

Table. 1.1: Encouraging learners to give their opinion or discuss their problems.

	Learners		Teachers		
	Freq	%	Freq	%	
1	64	8.70	-	-	1
2	238	32.34	14	6.80	2

3	202	27.45	79	38.35	3
4	207	28.13	110	53.40	4
5	25	3.40	3	1.46	5
Total	736	100	206	100	

Table 1.1 learners' results (32.34%) indicate that teachers "sometimes" encourage learners to give their opinions while (28.13) contend that they are "always" encouraged to give their opinions. However, the enjoyment of giving opinions or discussing problems with learners in the classroom signifies a favourable climate for communication and interaction (Bangeni, 2000). On the other hand, Lickona and Davidson (2005) purport that classroom discussion typically identify the rewards of honesty i.e honesty always brings peace of mind; builds character and reputation as well as strengthens the relationships and builds self-respect.

Table. 1. 2: Display trustworthiness and fairness toward learners.

	Learners		Teachers		
	Freq	%	Freq	%	
1	143	19.43	1	0.49	1
2	242	32.88	3	1.46	2
3	155	21.06	53	25.85	3
4	168	22.83	143	69.76	4
5	28	3.80	5	2.44	5
Total	736	100	205	100	

Table 1.2, reflects that 32.9% of learners show teachers as "sometimes" displaying trustworthiness and fairness, while 22.83% of them claim as "always" displaying trustworthiness and fairness. On the whole, trustworthiness involves honesty, loyalty and having the courage to do the right things. Trust is the key concept that unlocks the door to healthy human relations. However, for teachers to get access to the hearts and mind of learners, they must strive to win learners' trust (Lickona & Davidson, 2005). In addition to that, teachers who display honesty, fairness, care, respect, responsibility, citizenship and trustworthiness are regarded by learners as the one who cares for their well being, and s/he must be able to cultivate an appreciation of transcendent values such as truth.

Principle.2: Personal responsibilities for sustainable developments.

Table. 2.1: Helping learners to formulate a philosophy of life.

	Learners		Teachers		
	Freq	%	Freq	%	
1	121	16.68	14	7.00	1
2	179	24.52	49	24.50	2
3	209	28.63	87	43.50	3
4	162	22.19	46	23.00	4
5	59	8.08	4	2.00	5
Total	730	100	200	100	

Table 2.1, indicates that 22.2% of learners feel that teachers "always" help them to formulate a philosophy of life. 23% of teachers as well affirm that they do help every learner to formulate a philosophy of life. Thus, philosophy refers to the underlying belief system, the principle that guide our action and it also assists to strengthen learners' reasoning and moral judgement, teach them the discussion techniques, conceptual analysis, formulation of definitions, and the use of examples (Halstead & Taylor, 2000; Smith, 2013).

Principle. 3: Collective responsibilities

Table. 3.1: Written code of conduct for the classroom.

	Learners		Teachers		
	Freq	%	Freq	%	
Yes	299	41.99	108	55.10	1
No	313	43.96	78	39.40	2
Unsure	100	14.04	10	5.10	3
Total	712	100	196	100	

Table 3.1, the reflection is that 41.99% of learners agreed that they have a written code of conduct in their classrooms, while the majority disagree with the statement 43.96%. However, 55.10% of teachers claim that they do have a written code of conduct in their classrooms. As a results, clear rules, supportive environment, and satisfaction resulting from complying with the norms of the environment shape behaviour (Abdool, 2005). Teachers must take turns and share what rules are important to learners to sustain a suitable learning environment.

Principle.4: Dealing with difficult issues

Table. 4.1: Conducting personal issues with learners concerning their moral behaviour.

	Learners		Teachers		
	Freq	%	Freq	%	
1	121	16.8	11	5.67	1
2	244	33.94	51	26.29	2
3	192	26.70	75	38.66	3
4	125	17.39	55	28.35	4
5	37	5.15	2	1.03	5
Total	719	100	194	100	

Table 4.1, reflects 17.4% of learners who felt that teachers "always" conduct personal issues with them concerning their moral behaviour. According to (Lickona & Davidson, 2005), teachers must foster ongoing personal reflection as essential for assessment, goal-setting and continuing growth. However, the main goal of education in every society is to promote good character traits, to assist learners to make good decisions and promote justice (Smith, 2013).

Table. 4.2: Encouraging learners to debate moral issues e.g. drinking problems, drugs, crime etc

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	Learners		Teachers		
	Freq	%	Freq	%	
1	163	22.64	21	10.77	1
2	211	29.31	36	20.00	2
3	153	21.25	74	37.95	3
4	145	20.14	58	29.74	4
5	48	6.67	3	1.54	5
Total	720	100	192	100	

Table 4.2, report that 20.14% of learners revealed that teachers "always" encourage them to debate about moral issues in the classroom, while 29.74% of teachers agreed with what learners said. 50% of learners mentioned that teachers "seldom/never" encourage any debate in the classroom concerning moral issues. In view of that moral dilemma debate promote the development of moral reasoning, it engages learners to consider or debate different ways to solve difficult complex moral problem and it also encourages moral reflection (Lickona & Davidson, 2005). For that reason, Abdool (2005); Smith (2013) asserts that opportunities to discuss moral issues, to share and understand different opinions, supportive classroom and school environment, are more likely to stimulate growth in ethical thinking and behaviour.

Table. 4.3: Appointing study group to look into moral issues and come up with possible solutions.

	Learners		Teachers		
	Freq	%	Freq	%	
1	229	31.85	68	34.87	1
2	205	28.51	62	31.79	2
3	133	18.50	41	21.03	3
4	110	15.30	20	10.26	4
5	42	5.84	4	2.05	5
Total	719	100	195	100	

Table 4.3 , reflects that only 15.30% of learners and 10.3% of teachers claiming that appointing a study group to look into moral issues and come up with possible solution is "always" encouraged in the classroom. However, appointing a study group to look into moral issues and come up with possible solution is something very important because every school can benefit from thoughtful discussion within all groups of the community and is also an effort made to reach out to every learner (Lickona & Davidson, 2005).

Principle.5: A shared vision

Table. 5.1: Written agreement with learners' parents to further learners' academic excellence.

	Learners		Teachers		
	Freq	%	Freq	%	
Yes	305	41.95	45	22.28	1
No	263	36.18	143	70.79	2
Unsure	159	21.87	14	6.93	3
Total	727	100	202	100	

Table 5.1, indicates that the majority (41.95%) of learners agreed that teachers have a written agreement with their parents in which they (parents) promise from their side to help in furthering learners academic excellence and ethic behaviour, whereas 70.8% of teachers disagree with this statement. For that reason, schools are advised to be in a position to take proactive steps to forge a character compact with parents, and by making such an explicit compact with parents, this will in turn, create a common language (i.e a language of character) (Lickona & Davidson, 2005; Milson & Mehlig, 2001).

Table. 5.2: Use of certain traditions to further learners' academic excellence and character.

	Learners		Teachers		
	Freq	%	Freq	%	
Yes	189	26.21	74	37.56	1
No	338	46.88	90	45.69	2
Unsure	194	26.91	33	16.75	3
Total	721	100	197	100	

Table 5.2, the information given, reflects a relatively small number of learners 26.21% and 37.1% teachers indicate that the use of certain traditions to further their academic excellence are in place, though the majority of the respondents 46.1% of learners and 45.7% of teachers disagree. 26.91% of teachers revealed that they are "unsure" about the statement. However, rituals or traditions are effective in creating group identity because they are repeated, tangible expressions of the group's communal life. School's traditions are powerful carriers of school's culture and identity (Lickona & Davidson, 2005; Smith, 2013).

Table. 5.3: Creating classroom "motto"

	Learners		Teachers		
	Freq	%	Freq	%	
Yes	141	20.38	108	54.55	1
No	441	63.73	75	37.88	2
Unsure	110	15.90	15	7.58	3
Total	692	100	198	100	

Table 5.3, reflects that 20.4% of learners indicate that their classrooms have a "motto", while 54.6% give a supportive statement as well. However, 63.73% claimed that there are no "motto" available in their classrooms and the minority 15.90% reflects unsure. Therefore, the implementation of classroom "motto" can complement or serve as the cornerstone and constitute the kind of character that teachers expect from their learners to display or exemplify as a result of their experience (Lickona & Davidson, 2005; Smith, 2013).

6 Conclusion

According to the information discussed above, it is evident that the implementation of character education programmes in all South African schools is imperative. However, the society and the schools may work collectively to nurture the moral development of every child through the implementation of character programmes and as well consider the fact that character develops within a social environment and this development can only exists where the influence is positive or negative. Thus, a positive moral leadership and cohesive moral culture are essential cornerstones for modelling the behaviour of young generation or learners. Therefore, everything that operates at home and in schools formally or informally forms part of moral and character learning. The implementation of character education programmes may be considered as a social activity in the process of changing learners into a purposeful responsible adults and active citizens. These programmes are also concerned with the transfer of knowledge but equally, if not more important about the transference of values. As a result, education is about the individual teachers shaping, transforming, enriching, and disciplining young people holistically. Teachers may regard themselves as decisive elements who according to their personal approach/styles create the climate and have a tremendous power to make learners' lives cheerful or cheerless. Eventually, values are entrenched and personified in everything we do as part of the warp and wept of our community's whole form of life (Asmal, 2001).

7. Recommendations

The following suggestions are formulated to ehance the efficacy of implementing character education programmes that can sustain learners' behaviour in secondary schools:

- Involvement of parents and the community is crucial in teaching character education because lack of discipline/character development is nurtured at home and within the society.
- Every teacher must receive training for character education without any limitation. In addition, the literature based program must infuse in schools in order to teach moral dilemmas and to scrutinise character traits.
- Efforts made by learners should publicise so as to instil positive attitudes and good behaviour on part of other learners.
- A school wide program should be designed in order to uphold a culture of integrity through core values, instruction, school environment and curriculum.
- Universities and teacher training colleges may be in position to accept this challenge of teaching pre-service teachers how to put into practice character education programmes in their teaching practice.

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An evaluation study of student teachers' preparedness and attitudes towards "Thuto" electronic teaching and learning device – a case study of the National University of Lesotho.

Malimpho Seotsanyana
Faculty of Education
The National University of Lesotho

me.seotsanyana@nul.ls

Abstract: *The ICT- based education seems to take a huge stride in universities in the 21st Century. The culture of teaching and learning has shifted from traditional context classrooms where a teacher was a prominent figure with knowledge, to an electronically guided classroom interaction with less teacher- based lessons. The National University of Lesotho (NUL), like other universities of the world, has introduced an ICT device, "Thuto". This is used specifically to improve classroom teaching and learning. Thuto is accessible to every staff member and student of the university. With Thuto in place, it is expected that communication should be spearheaded within all University structures. This article presents a research study relating the preparedness and attitudes of student- teachers towards a wider use of Thuto. A sample of one hundred student teachers was selected to respond to a two part questionnaire. The questionnaire with a 5 point likert scale of strongly agrees as 5, and strongly disagrees as 0 was designed to seek information on student teachers' preparedness for and attitudes towards Thuto. A frequency count with percentages analysis was employed to show the results of the study. Research results have confirmed that a few student teachers use the device. These are the students with computer skills and interest. The student teachers with deficiencies in computer skills seem reluctant to get immersed in the use of Thuto. The conclusion is that Thuto is still not a popular device with student teachers who have less computer skills. This being the case, they do not benefit from the device. As a result, there is a need to hold induction lessons with students to increase their potential if Thuto is expected to achieve the stated objective.*

Key words: *Information Communication Technology, "Thuto", The National University of Lesotho, student teachers, preparedness, attitudes, and education.*

1 Introduction

The evaluation research on student-teachers' preparedness and attitudes towards "Thuto", an instructional and electronic device used at the National University of Lesotho (NUL), is a way of an inquiry on whether the intended outcome of integrating Thuto into the education system has been achieved or not. Understanding students' preparedness and attitudes towards using the digital device is essential because it ascertains how effective the Thuto deliveries are. Moreover, the research study is intended to determine whether Thuto is important in empowering students, promoting pedagogical change in the classroom and encouraging developments of ICT skills for the 21st century. H**owev**er, it is important to note that the details about Thuto as a teaching and learning device will be explained in the forthcoming sections.

Thuto "electronic and instructional device in the context of the National University of Lesotho.
A short history about the National University of Lesotho and the use of computers dates as far back as 1978 with one computer that was specifically used for student records (the information is from the office of the Head of Computer Service Unit of the University). The computer usage spread further in the mid 1980's. Before then, the NUL relied on traditional based pedagogy as the type of teaching and learning where a teacher was the most prominent figure in the classroom. In the absence of a teacher, learning became impossible and impractical. The chalkboard, books (library) and paper were important aspects of teaching and learning. Such student-teacher interactions continued until the introduction of computers.

Post mid 1980's, NUL changed its vision from a traditional mode to a more practical approach of introducing computers to support teaching and learning. Computers were introduced with an

understanding that work would be faster, simpler and easier. ICT laboratories were prepared where students could go and check on the internet, read, and type assignments. The University prepared training workshops for faculties so that staff could prepare students to become independent learners using computers.

More information on the use of computers at the NUL was sourced from the University Librarian in an interview (13th February, 2015). According to the Librarian, improvement on the use of computers was observed in the early 1990's. There was a Dutch funded project that introduced automated computer system. However, it acted as a sporadic division of knowledge only meant to automated offices. The Institute of Southern African Studies (ISAS) was the first to get automated system. The system was externally funded and operated by external experts.

The NUL took a further stride, in the introduction of computers. In 2000, a web-site was created. However, it had limitations, and was not meant for interaction in the classroom. It acted as an information site where the University community was updated about the events on campus, announcements and personal emails. It never really interacted with classroom teaching and learning. However, in 2014, the NUL designed and developed a website with an intranet system that bore "Thuto". Thuto is a word generally used in the local community. Its understanding is that a person builds up a knowledge base and is ultimately referred to as educated. That is how the electronic device got its name. It is considered as an educating device. Therefore, introduction of Thuto, was to "replace the old web-site since 2000" Sejanamane (2014: unnumbered), and is expected to contribute significantly in educating members of the university community.

Thuto is a two-faced digital icon. Firstly, it enhances internal communication among different units of the university. Secondly, it is an internal, collaborative and interactive tool that connects teaching and learning in the classroom. It is a connecting device among the University community. The intention is to improve teaching and learning. It connects students, lecturers and administration. According to the Sejanamane (2014: unnumbered) the main objective of Thuto is to:

Deepen the learning process of our students. They should no longer be dependent on classroom teaching... ensure that educational resources the world over are accessible to our students.

According to the Librarian, ISAS was furnished with four computers. One computer was used for documentation and the other three were engaged in research. The automated system got extended to other University offices such as University finances, library and students' records. Through the creation of the Computer Service Unit automation spread to the entire University community for usage.

This means that Thuto contributes to an effective change and a device in the teaching and learning in the University. It is also an effective tool in the administration activities. It is therefore expected to be used in every classroom and should become part of the course delivery in the University. NUL is expected to ensure its efficiency and effective integration and application. It should change the student-teacher interaction. Through Thuto, lecturers can give assignments, tests, quiz, make announcements, as well as teach. Similarly, students can interact with the teachers and other students without making personal interactions. The speech of the Minister of Education and Training on the launch of the intranet system elaborated further on the importance of Thuto as follows:

It is designed to meet the expectations of students, members of staff, general public. It endeavours to provide information on staff, students, research activities teaching and learning, community engagement initiatives and virtually captures all activities that University engages in on a daily basis (*Mosothoane, 2014:4).*

As it seems, Thuto is an important tool that disseminates information to university community and other stakeholders beyond the University campus. It has all the means to empower and communicate with educators. Lastly it improves teaching and learning to promote a better student achievement. Thuto, like other ICT programmes was introduced to all faculties and the Faculty of Education where student teachers are studying.

2 Review of Literature and Conceptual Framework

Frazer (1999) indicates the vital importance of universities in engaging in self evaluation. He regards self-evaluation as a device that detects the strengths and weaknesses of a programme in question, and whether a programme has achieved the stated outcomes or not**.** There is need to consider the importance of views and attitudes of respondents with respect to a new programme (Frazer, 1992). This research on Thuto, instructional and electronic device has the following three way objectives: (1) to determine the views of student teachers on their preparedness and attitudes in relation to the integration of Thuto into their studies; (2) to detect Thuto's effectiveness in its operations; and (3) to identify weaknesses that could be corrected, if the device is expected to be a useful teaching and learning tool.

Studies on student teachers' preparedness and attitudes on the use of ICT in teaching and learning have been conducted worldwide as indicated in the writings of Khine 2001; Selywn, 2007; Teo 2008; Kumar and Kumar 2010; Yusuf and Balogun, 2011 and Tondeur, 2012 just to mention a few. Khine's (2001) in his study in Brunei Darussalam found a relationship between attitudes and computer use. He found out that there exists a serious relationship between computer use and attitudes in institutions for pre-service teachers. He indicated that where there is a success with computer usage, student teachers have computer skills developed. In the case where skills are unavailable, computer use becomes a barrier to learning.

Similarly, Teo (2008) in the study of pre-service teachers' attitudes towards computer use in Singapore found that preparedness and attitude play a vital role in ICT in teaching and learning. In his survey, results indicated that more positive attitudes towards computer use were often associated with high level of computer experience. In another study in a Nigerian university, it was found that "gaining an appreciation and competence in the use of ICT provides a useful insight into the future of technology integration, acceptance and usage in teaching and learning in teacher education institutions" (Yusuf and Balogun, 2011:21). The research results in these studies could be useful to realise the importance of preparedness, attitudes and computer use in teacher education. Positive attitudes seem to yield successful results as far as computer use is concerned.

Hales and Fura (2013:99) have pointed out the manner in which computers have captured the world learning and teaching. Specifically they say:

the traditional context of learning is experiencing a radical change. Teaching and learning are no longer restricted to traditional classrooms. Teaching with the use of computer and computer applications is becoming ever more popular. Electronic learning (e-learning) referring to the use of electronic devices for learning ... has become one of the most significant developments in the information system industry.

In regard to the excerpt above, it seems that over the last decade, teaching and learning in institutions of higher learning has moved to take its rightful position in academic settings. There is a significant shift from traditional restrictions of teaching and learning to well furnished and electronic devices.
Britland (2013) has also recognised the shift and benefits of computers in teaching and learning. He has stipulated four benefits of the use of computers in teaching and learning. These are: (1) computers prepare students for the 21st century skills which they need in today's workplace; (2) computers encourage independent learning; (3) students take ownership of their own learning rather than being taught; and (4) students can learn independently and in their own way. In their research, in a Nigerian university, Yusuf and Balogun (2011:18) have also identified the benefits of computer education that it "facilitates students' learning, improves teaching and enhances institutional administration." It is quite clear that technology devices in teaching and learning play an important role for all students to become information literate as well as lifelong learners (Yusuf and Balogun, 2011)

But what is significant for the success in the use of computers is that student teachers should be fully prepared and develop positive attitudes. This type of preparation is addressed by Robbin (1998) and Kirchner and Woparies (2003). In their understanding, teachers need to be skilled in the use of ICT and also to be able to evaluate strategies that could be acquired for the appropriate application of ICT in diverse curriculum issues. They further share the view that teacher education should focus on the need for student teachers to have ICT skills for their own use in the preparation of materials for teaching and learning activities. In their view, it seems evident that skill development and knowledge of ICT is deemed

to be an important aspect of preparation so that its use could enhance the quality of teaching and learning.

The effect of the absence of ICT skills in student-teachers is observed by Lee (1997). He found out that a great number of pre-service teachers are not well equipped with basic computer operational skills. As a result, they are not able to integrate ICT into the school curriculum. Kumar and Kumar (2003) share similar two views that (1) lack of training and experience is one main reason why teachers do not use technology in their teaching; and (2) lack of confidence leads to teachers' reluctance to use computers. As a result, they develop negative attitudes.

Successful outcomes in the use of ICT as it seems, is a question of preparation and skill development and acquisition. This is confirmed by Kadel (2005) in Yusuf and Balogun (2011: 19) as he indicates that thorough teacher preparation leads to activating teachers' competence and develops positive attitudes. Kadel further elaborates that attitudes being one's positive and negative judgement about a concrete subject need to meet with positive attitudes for a programme to reach expected outcomes. With these results, preparedness and attitudes cannot be ignored. This statement leads to hypothesis that these two factors are critical contributing factors to the success and use of computers in education. Lee, (1997), recommends that there is need to take care of students' preparedness and attitudes because they are major contributing predictors of computers.

Thus, the study conducted at the National University of Lesotho with the fourth year student teachers in the Faculty of Education, explores students' preparedness and attitudes. This study may be of great importance because it may furnish the University with information on the use of computers. It may further allow room for improvement and even develop strategies that could allow better reflection and hence develop appropriate policies.

Although research has been conducted worldwide on the use of computers, students' preparedness, perceptions, and attitudes, no research study has been done at the National University of Lesotho to expose ways in which student teachers use computers, their preparedness and attitudes. It is against this background that the present study evaluates Thuto's success and effectiveness in enhancing teaching and learning in teacher education.

The Context and design of the study

This study is an evaluation of Thuto in relation to student teachers' preparedness and attitudes. This is to find out its effective integration and application by seeking information from student teachers. The main question to be answered in this study is: what do student teachers say about their preparedness and attitudes on the use of Thuto? Four research questions were addressed. These are:

(1) What are the overall student-teachers' opinions towards their preparedness to use Thuto?
(2) What are the student-teachers' attitudes towards Thuto integration?
(3) What are the weaknesses and strengths of using Thuto as a teaching and learning device?
(4) What measures could be taken to solve the existing weaknesses?

With the responses from the listed research questions, it would be possible to indicate whether NUL has successfully infused the use of Thuto into University courses in order to support teaching and learning

Significance of the study

A major goal of this study is to provide information for University policy makers, for future decision-making for Thuto integration and usage.

3 Methodology

Research design

This is an attitudinal survey that adopted a quantitative paradigm using descriptive statistical analysis. The intention was to seek information by understanding the direct experiences of student teachers. Under this quantitative approach, the descriptive survey method was used to investigate Thuto usage in the undergraduate teacher preparation courses. According to Macmillan and Schumacher (2010: 217), descriptive surveys "are used to summarise the current or post status of something … describes achievements, attitudes, behaviour or other traits of a group of subjects." Hence this research posed

questions to participants and summarized their responses with frequency counts. A qualitative aspect was also employed where participants were asked to respond to open – ended questions. The open – ended questions requested their opinions on the use of Thuto. Such opinions were analysed through the use of paragraphs and text excepts.

Population and sample

The target population for this study consisted of all the 369 undergraduate student-teachers in the (Bachelor of Education) fourth year of study that were exposed to the use of the digital device in the academic year 2014/2015. From this population 60 student-teachers were purposively drawn from the language and Social Education Department because they had two of their courses that frequently required them to use the device. The participants were students in the teacher education programme. For a period of six months, they were taught, given announcements, quizzes, assignments through Thuto and their responses were also read and marked through the device. That is, the manner in which instruction was presented to the group was one that contributed to this selection. But, the sampled group were not gender, age and sex stratified. What was important was to get the selected group's perspectives on the Thuto programme.

Instrumentation

The 60 purposively selected subjects were subjected to a three part survey that was developed to seek their views about Thuto. Part A included ten questions that focused on the student-teachers preparedness. Part B also contained ten items that sought student-teachers' attitudes towards Thuto. The two parts were designed on a four point likert type scale of strongly agree as (4) and strongly disagree as (1). Finally, part C of the questionnaire consisted of two open ended questions that solicited the participants' broad open-ended comments on the strengths and weaknesses of the device and how its weaknesses could be rectified to make the icon a complete and useful tool for teaching and learning.

The conduct of the study

The questionnaire was administered directly to the student teachers in their classroom. They were expected to read, understand the questions and respond immediately. They were given equal time of one hour to rate the tasked items, as well as write lengthily on the strengths and weaknesses of the device. The researcher was available to clarify the purpose of the study. On completion, the questionnaire papers were handed back to the researcher.

4 Data Analysis

The attitude survey contained a total of 20 items. These items were rated under four Likert type scale of strongly agree, agree, disagree, and strongly disagree. There were also open ended questions that requested students of their open ended comments on the nature of the device. The first ten of the twenty items sought the respondents' perceptions on their preparedness on the use of Thuto, while the last ten required them to state their device related behaviour.

In analysing the data, particular attention was paid to two concepts: preparedness and attitudes. To be able to draw conclusions on the effective use of Thuto and to necessitate the actual calculations of the rated items, frequency distribution with percentages of the items in part one and two of the questionnaire were employed. With regard to the open ended questions, categories and patterns were formed from data. That is, similar issues were grouped together to explain further the investigation in question. Descriptive account of the open ended questions seemed necessary as it allowed the report to convey a full understanding of the student teachers' comments on the nature of the device. Explanations through paragraphs and verbatim excerpts from the participants' comments were included to support their ideas.

Data Presentation and Analysis

The purpose of this section of the study is to analyse, interpret, and draw conclusions on the data in relation to student- teachers' perceptions about Thuto. Specifically, the data analysis provides an insight into the research questions as follows: what are the overall student teachers' opinions towards their preparedness to use Thuto? What are the student teachers' attitudes towards Thuto integration? what are the strengths and weaknesses of using Thuto as a teaching and learning device? and what measures could

be taken to solve any existing weaknesses? The section is divided into three parts based on the research questions that questioned the preparedness and attitudes towards Thuto. Table 1 below indicates the response options of the following research question: What are the student teachers' opinions on their preparedness to use Thuto?

Table 1: The student-teachers' opinions on their preparedness to use "Thuto"Category Selection

	Categories	Strongly agree	Agree	disagree	Strongly disagree	Total sample
1.	I was made aware of the new electronic, instructional device called Thuto	30(50.0%)	18(30%)	5(8.33%)	7(11.6%)	60(100.0%)
2.	I understand the main objective of Thuto integration to teaching and learning.	5(8.33%)	12(20%)	20(33.3%)	23(38.3%)	60(100%)
3.	I was well prepared to use Thuto and I have acquired computer skills.	3(5%)	9(15%)	16(26.6%)	32(53.3%)	60(100%)
4.	I have understood all lessons given on Thuto	8(13.3%)	9(15%)	13(21.6%)	30(50.0%)	60(100%)
5.	I frequently use Thuto to interact with my lecturers	1(1.6%)	4(6.6%)	9(15%)	46(76.6%)	60(100%)
6.	Thuto is a well managed programme	3(5%)	13(21.6%)	22(36.6%)	22(36.6%)	60(100%)
7.	I am always inducted into using Thuto to increase my knowledge and competence.	3(5%)	8(13.3%)	16(26.6%)	33(55%)	60(100%)
8.	Thuto helps me develop a positive attitude toward learning	5(8.33%)	8(13.3%)	5(8.33%)	42(70%)	60(100%)
9.	I prefer to submit my work using Thuto	7(11.6%)	20(33.3%)	12(20%)	21(35%)	60(100%)
10.	I support the use of Thuto	9(15%)	16(26.6%)	20(33.3%)	15(25%)	60(100%)

From the analysis of Table 1 on student teachers' preparedness to use Thuto, three important issues emerge: firstly, student teachers' opinions on the issue of preparedness varied. Secondly, in few cases student teachers perceived the use of Thuto positively. Thirdly, most of the student teachers commented negatively about the use of the device. For instance, it is only in category 1 that most student teachers agreed and strongly agreed about their exposure to the use of Thuto. The response options revealed that Thuto received a positive rating of (48) on subgroups agree and strongly agree, and (12) on subgroups of disagree and strongly disagree.

The ratings of 9 other categories, as indicated in Table 1, show a distinct difference between the two subgroups. The sub group which agrees and strongly agrees has scores lower than those of the group which disagree and strongly disagree. That is, from category 2 to category 10 Thuto is perceived to have several constraints that impact negatively on student teachers. It seems that some problems exist regarding the use of Thuto. All ratings are skewed to the negative perceptions denoting disagree and strongly disagree. This is evidenced in the addition of numbers where the first number denotes positive of agrees and strongly agrees and the second number means the negative of disagree and strongly disagree as follows: categories; 2= 17: 43; 3= 12: 48; 4 = 17:43; 5 = 5:55; 6 = 16:44; 7 = 11:49; 8 = 13:47; 9 = 27:33; 10 = 25:35 refer to table 1 above.

There is a little difference of opinion in categories 9 and 10. Some student teachers 27 (44.9%) in category 9 positively preferred to submit their work using Thuto and 33 (55%) did not want to use Thuto. This is a difference of 6. Similarly in category 10, 25 (41.6%) student teachers supported the use of Thuto, yet 35 (58.3%) did not do so. Looking at these categories, there seems to be a discrepancy, which calls for concern to student teachers' rating. The question to be attended to is how most of the student

teachers can say that they know about Thuto and later indicate that they do not actually use Thuto. It means that there is no constant and collaborative effort taken by the university to expose student teachers to Thuto on regular basis. Probably, the NUL needs to change to better strategies that could help modify and refine the programme in order to introduce it vigorously in order to produce highly effective and competent graduates in ICT use. NUL has to take into consideration the suggestion of Lee (1997) and Kadel (2005) that an institution should arrange for effective preparation in the use of computers and it is only the success in computer skills knowledge and acquisition that can lead to competence, computer liking and positive attitudes.

The questionnaire further sought students' attitudes towards the device. Specifically, they were expected to provide information to the second research question: What are the student teachers' attitudes towards the use of Thuto? Their attitudinal responses are portrayed in Table 2.

Table 2: Student-teachers' attitudes towards the use of "Thuto"
Category Selection

	Categories	Strongly agree	Agree	Disagree	Strongly disagree	Total sample
1.	Thuto facilitates ICT skill development	27(45%)	22(36.6%)	5(8.33%)	6(10%)	60(100%)
2.	Thuto makes me fully participate in my work	8(13.3%)	12(20%)	17(23.3%)	23(38.3%)	60(100%)
3.	Allows lecturers to give quick feedback	9(15%)	9(15%)	9(15%)	37(61.6%)	60(100%)
4.	Thuto has relevant content matter	24(40%)	18(30%)	10(16.6%)	8(13.3%)	60(100%)
5.	I understand everything about Thuto, to an extent that I can answer most of the test questions using Thuto	6(10%)	8(13.3%)	10(16.6%)	36(60%)	60(100%)
6.	Thuto gives me what is relevant to my study	8(13.3%)	15(25%)	13(21.6%)	24(40%)	60(100%)
7.	Keeps us well informed about developments taking place in our classroom and university at large	36(60%)	14(23.3%)	6(10%)	4(6.6%)	60(100%)
8.	I have learnt a lot from the lessons given on Thuto	9(15%)	18(30%)	18(30%)	15(25%)	60(100%)
9.	Is appropriate for teachers	11(18.3%)	23(38.3%)	11(18.3%)	15(25%)	60(100%)
10.	Helps me to plan my studies for the future	8(13.3%)	8(13.3%)	20(33.3%)	24(40%)	60(100%)

The analysis of responses to research question in relation to attitudes identifies four achievements of Thuto. The categories; facilitating skill development, relevant teaching content matter, informing about developments in the classroom and university at large and appropriateness for teachers, received relatively positive ratings in terms of agree (33%) and strongly agree (50%) respectively (cf. Table 2). These ratings suggest that Thuto is capable of influencing more than half of the student teachers positively in these categories.

However, the remaining six categories; making students participate fully, allowing quick feedback from the lecturer, understanding Thuto to the fullest, relevance to one's study, learning a lot from Thuto, planning for future studies received negative responses of disagree (33%) and strongly disagree (, 46%) respectively (cf. Table 2). From the student teachers' views, constraints exist that hinder the full use of the device. If half of the student teachers cannot interact with the use of Thuto on the 6 items, it means that the integration of Thuto has not yet achieved its objective of promoting confidence for student teachers. Alternatively, there could be a genuine gap in the preparation of student teachers. The importance of positive attitude in the use of ICT in education is emphasised by Teo (2008) who

established that more positive attitudes towards the use of computers yield a high level of computer experience. The author also established that student teachers should be given strategies that can help them acquire and instil high levels of computer skills for an appropriate attitude and performance.
The student teachers were further subjected to open ended questions from which they were requested to elaborate on the strengths and weaknesses in order to answer the research question: What are the strengths and weaknesses of using Thuto as a teaching and learning device? The following is a list of such strengths and weaknesses in rank order:

Table 3: The summary of the strengths and weaknesses of students' use of Thuto.

Strengths	Weaknesses
• Easy transfer of information from teacher to students and students to teacher • Provision of ICT skills • Communication about the matters affecting students. • Makes work easier and faster • Makes it possible to work outside classroom stations. • Quite flexible to use. • Saving time and making important information accessible. • May be used to write examinations; students will not copy	• Irregular internet and internet coverage • Implementation problems such as full preparation before use. • Programmed through internet which seems, at times unreliable. should be separated from internet • Lack of induction workshops • Lecturers are not in full operation with it; introduced over a short period of time.

The student teachers were asked to relate Thuto's strengths and weaknesses according to Table 3. They have realized positive benefits of Thuto, although certain aspects of it make it inadequate. The overall positive remarks made about the device indicate that students are reasonably aware of its intentions. There are eight indicators of strengths and six of weaknesses. The following is a list of positive remarks, ranked according to frequency (the highest scored is the first one and the lowest scored is the last one): Information transfer, ICT skills acquisition, communicator, easy to operate, used outside the classroom station, flexibility to use, time saver, and contributor to examinations (see table 3). Almost all the students commented positively on the strengths of Thuto.

Below are the selected excerpts that indicate how they explain the benefits of Thuto:
It is an easy transfer of information and messages amongst us and our lecturers in our registered courses. If we want to consult with our lecturers, we just send messages and we get the responses.

Another view on transfer of information and messages is:
Thuto helps us to communicate with our lecturers about matters affecting us. It saves time and makes important information accessible to all students.

The following comments are further representatives of the student teachers' perceptions on each of the positive aspects:

Thuto is very important to be used in learning because learners gain ICT skills. Thuto introduces us to the use of technology in education.

It is quite flexible to use, you can submit your work quickly and it can be processed quickly. It is an effective way that can be used to write examinations.

Although Thuto has been commented for positive outcomes, there are also weaknesses observable by student teachers (see table 3 above). The weaknesses are deduced from their comments on: irregular internet supply, implementation problems, lack of induction workshops for students and lecturers and reluctance of lecturers to use it. It is in this respect that the student teachers made the following remarks:

Thuto is programmed through internet which is not always available within the campus. The system controlling internet should always be effective.

Orientation should be made before using Thuto for students and lecturers. There should be workshops held for students in order to get clear information on Thuto. This will help students get interested in it.

It should be well implemented by those who know better about it, not lecturers, but those who formulated it so that it is well infused within the learners.

These excepts indicate the problems that are encountered with the use of Thuto. Comparing the strengths and weaknesses, one concludes that, despite its shortcomings, Thuto seems to have a great potential in preparing students for the ICT world. This overall positive picture about it depends on what activities and strategies the NUL will ensure that it contributes to the student-teachers' needs, and that corrective measures are a priority to a large extent.

The participants were also requested to suggest ways of improving the use of Thuto. They responded to the question that reads; what measures could be taken to solve any existing weaknesses?
Below is the list that summurises their recommendations in order of importance:

- Clear orientation on Thuto
- Availability and accessibility of internet
- Enhancing connectivity on campus
- A workshop should be held for students and lecturers in order to get clear information on Thuto.
- Thuto should be separated from the internet.

5 Discussion

The analysis of the study gives the insights into the status of Thuto. Conflicting views were expressed by participants. On one hand, the analysis indicates that the device has a number of positive aspects. Emanating from the findings of this study, four benefits emerged in support of Thuto; (i) it allows easy communication with the lecturers (ii) it enables students to work faster, (iii) it develops ICT skills for students and (iv) its content is useful and relevant to students. These positive outcomes are realized in the area of preparedness and attitudes. The respondents acknowledged that they are aware of Thuto integration into teaching and learning.

On the other hand, the study shows that there are limitations that require close attention if the device is expected to fulfil the intended objectives for which it was introduced. The limitations that warrant greater attention are as follows: Irregularities of internet connectivity and availability, lack of orientation and frequent induction workshops that are intended for students and lecturers, and lecturers' reluctance to use Thuto.

On the basis of the evidence garnered in this study, Thuto has benefits as well as short comings. It seems that the obstacles bedevilling the use of Thuto circulate around orientation, induction and internet connectivity. The argument is that Thuto was not implemented in an appropriate manner to make every student exposed to how it works. The preparation as it seems was limited to a few students which did not make the rest of them feel confident and interested to use Thuto. This short – comings suggest the need for an exploration of various approaches that could be employed to induct students and staff in order to promote quality teaching and learning.

6 Conclusion

It is evident from the participants' views are that Thuto has strengths and weaknesses. Regarding strengths, the recommendation is to reinforce things that are working. The student teachers are aware of the importance and use of Thuto, they are further aware that it is useful for communication between them and their lecturers, and through the use of Thuto, they have a feeling that they can easily acquire and improve their ICT skills. These three issues if well embraced can lead to the success of the device.

But in relation to its weaknesses, steps have to be taken to correct the anomalies. The implementation of student teachers' recommendations is of importance because it may reduce some of these weaknesses, and contribute significantly to the overall quality of Thuto. Secondly, there is need to embark on the monitoring and evaluation systems to record the operations of the device and to make it a better tool that could function efficiently and effectively in order to achieve the intended outcome.
Thuto has the potential to build up the aspirations and desires of the student teachers. The problems associated with Thuto will not meet their needs; instead it will diminish their understanding of the use of technology in education. The institution will have failed to change its products and make them strong enough to handle technology in this contemporary world.

7 Recommendations

From the data analysis, discussion and conclusion, four issues on the recommendations emerge. First, the National University of Lesotho should develop a working model that allows students and lecturers attain a high level understanding of the device. Second, A common strategy should be adopted that could assist in the preparation stage, in order to establish students and lecturers attain skills in the use of computers. An engagement in monitoring and evaluation systems would be useful since progress in the use of the device could be mapped. Thus, the institution would be in a position to follow the activities of the device and raise the university community's positive attitudes. Finally, in order the curb the problem of internet unavailability, the level of internet connectivity and accessibility should be raised to accommodate constant use of the device for all university registered students.

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An Interview

An interview with the University Librarian on the 13th February, 2015 at 2:15 pm.

Mentoring And The Development Of New Business Lecturers In South African Tvet Colleges

Dr Andre Van Der Bijl
Faculty Of Education
Cape Peninsula University Of Technology
Cape Town
South Africa

And

Assoc. Prof Liezel Frick
Faculty Of Education
Stellenbosch University
Stellenbosch
South Africa

A characteristic of South African Technical and Vocational (TVET) colleges is that more than half the teaching staff employed do not meet the State's professional qualification requirements, which is a four-year post-school qualification. The employment of lecturers without the required qualification necessitates that lecturers' professional capacities are developed by means of informal learning processes, one of which could be described as mentoring. This paper uses a combination of forms of discourse analysis used to map the initial skills development process of business lecturers at TVET colleges. It provides a discussion of forms of mentoring involved in the initial development of TVET lecturers and the application thereof as seen from the perspective of new business lecturers. This paper contributes towards an understanding of challenges involved in applying a critical methodological paradigm. It also contributes towards understanding initial staff development by challenging the neo-liberal notion of mentoring in which the point of power is located in the mentor.

KEYWORDS

Vocational education and training
Teacher development
VET and development
Mentoring

Introduction

A characteristic phenomenon of South African Technical and Vocational (TVET) colleges is that more than half the staff employed do not meet the state's professional qualification requirements (Republic of South Africa 2008, 9-10). The state requires that business lecturers have a four-year post-school qualification, which includes an accredited teacher's qualification that provides pedagogic knowledge to complement content knowledge gained as part of an undergraduate qualification. Employment practices in TVET colleges have,

however, resulted in colleges appointing new staff without the required qualifications. The employment of lecturers[1] without the required pedagogic knowledge and associated skills necessitates that lecturers' capabilities are developed by means of informal learning processes. One form of informal learning could be described as mentoring.

This article discusses initial mentoring of business lecturers employed at TVET colleges in South Africa by focussing first on challenges related to the use of mentoring as a concept, and then by providing an analysis of how they perceived themselves to be mentored. This article contributes towards understanding initial staff development by challenging the neo-liberal notion of mentoring in which the point of power is located in the mentor, as a representative of management of the organisation to which new staff is being introduced (Kobeleva and Strongman 2010, 8), and one in which the state- or employer-appointed mentor acts as, dominates the relationship, to paraphrase Mooney Simmie (2012), acting as a "pied piper".

Technical and vocational education in South Africa

The environment in which South African TVET institutions operate is not unlike the one described by Lucas and Unwin (2009, 426) as a situation facing what in the United Kingdom are called further education (FE) institutions. Vocational education in South Africa, like FE institutions in the United Kingdom, have been subject to haphazard growth, relative neglect as compared to schools, marginalization of vocational and technical education, increased state regulation, and a view that subject expertise alone is an adequate base for teaching. The Green Paper on Post-school Education (Republic of South Africa 2012, 19) noted that the "biggest problem" facing colleges is the "weakness and small size of the [TVET] college sector". The Green Paper went on to explicate that the state considers improving the co-ordination of funding to be the "key to building and expanding the college sector". The subsequent White Paper (Republic of South Africa 2014, 5) noted that the "highest priority is to strengthen and expand public TVET colleges and turn them into attractive institutions of choice for school leavers".

The state has recognised staff qualifications as a problem with the unqualified component of lecturing staff in the sector estimated by the state to be between 44% and 64 % (Republic of South Africa 2008, 9-10). Currently, TVET in South Africa consists mainly of public and private colleges which operate in terms of the Further Education and Training Act (Republic of South Africa 2006). College lecturers are required to have the same professional qualification as school teachers. In the case of business lecturers a professional qualification involves either a Bachelor of Education majoring in Business Studies, or a Business degree, followed by a Postgraduate Certificate In Education (Republic of South Africa 2000).

The state has drafted a new qualifications framework for school teachers and college lecturers (Republic of South Africa 2011; 2013), which is set for implementation from 2016. Whether the new qualification framework for college lecturers is implemented or not, numerous college lecturers have entered, and are likely to continue entering this sector without an official teaching qualification. For professionally un- and under-qualified lecturing staff in the sector, informal learning is commonly used to develop teaching competency. These new

[1] The official title nomenclature of teaching staff at TVET colleges in South Africa is *lecturer*, differentiating them from that of *teacher*, which is reserved for school teachers only.

lecturers rely largely on informal learning from mentoring and coaching by supervisors, peers or themselves to develop their competence as professional educators.

Mentoring

Mentoring, as a form of initial staff development is not limited to the country's TVET sector. It is a key feature of the county's post-apartheid education and training framework. This term has been well documented in a variety of forms of professional development literature (Nel, Van Dyk, Haasbroek, Schultz, Sono and Werner 2001; Education, Training and Development Practices Sector Education and Training Authority 2002; Geber and Greyling 2005; Nel, Van Dyk, Haasbroek, Schultz, Sono and Werner 2006; Nel, Werner, Haasbroek, Poisat, Sono and Schultz 2008; Nel, Werner, Poisat, Sono, du Plessis, Ngalo, Van Hoek and Botha 2011). Mentoring has its roots in Greek mythology (Healy 1989, 32). *Mentor* is a character in Homer's *Odyssey* (Rieu 1948; Church 1957) and has its pedagogic roots in Hawkesworth's (1797; 1825; 1848) 18th century text, which was used to train the *Dauphin* of France. Despite these historical and illustrative meanings of the word, and indications of its usage in the 1960s (Renton, 2009, 38), its wide-scale usage dates back to the mid-1990s. During the 1990s "mentoring" became a professional development tool in a number of professions that have complex, hierarchical environments, complicated entry mechanisms, and profession-specific vocabularies and language usage. Professions that started using mentoring include education, medicine and law enforcement (Healy 1989, 33; Bleach, 1999, 5).

In addition to being described as a grand paradigm (Loots 2007, 26), mentoring has, according to Renton (2009, 39) "gained almost mythical status". It has been described as an elusive concept that, despite being the subject of what Roberts (2000, 147; 162) termed a "plethora of articles and research", still lacks consensus on what precisely it constitutes. Publications on mentoring, Loots (2007, 26) argues, provide either a non-definitive picture of mentoring, that is supportive, interventionist and developmental, or extensive literature reviews in which disciplines and definitions sometimes "stretch the meaning beyond boundaries". How mentoring is defined and used, in the words of Darwin (2000, 199), "appears to depend on one's [particular] point of view".

A broad analysis of mentoring, as illustrated in Table 1, indicates that mentoring is considered by some to be linked to a certain type of personality, while others describe mentoring as a developmental process. Some view mentoring as a process that occurs between individuals, while others perceive it to be an interaction between entire groups. Mentoring is thought by some to be a path to competency development or a route for social transformation by others. More recently it has been argued that mentoring can be used as a tool for continued social domination.

Table 1: A conceptual understanding of mentoring

Understanding of mentoring	Broad description	Associated authors
Mentoring as a mythological character	Mentoring is linked to a specific kind of personality	Homer (in Rieu 1948; Rieu 2003) Hawkesworth (1797; 1825; 1848)
Mentoring as a person	Mentoring is linked to the inputs of qualified or experienced person	Du Bois and Karcher (2005); Loots (2007); Anderson 2009; Zanetti (2009).
Mentoring as form of workplace learning	Mentoring is a skills development methodology	Nel *et al.* (2001; 2006; 2008; 2011); Meyer and Fourie (2006); Steinman, (2006); Stout Rostron (2009a); Herhodt (2011)
Mentoring as form of professional development	Mentoring is a methodology that develops professional identity	Healy (1989); McKenna and Beech (1995); Bleach (1999)
Mentoring as developmental relations	Mentoring is a developmental relation between two classes of people	Robinson (1984); Healy (1989); McIntyre, Hagger and Wilkin (1994); Husbands (in Brooks and Sikes 1997); Bleach (1999); Darwin (2000); Van Louw and Waghid (2008)
Mentoring as a form of subordination	Mentoring is a form of subjugating new professionals into an ideology of work	Kobeleva and Strongman (2010); Mooney Simmie and Moles (2011); Mooney Simmie (2012)

The breadth of meanings attached to mentoring, while making it difficult to define, is also what renders it so useful as a term to describe the development of educator competencies through a combination of formal and informal means. Using a term that both eludes definition and depends on its user's point of view requires that it be deconstructed or, at least, viewed with suspicion, as is done in this paper.

Methodology

Eighteen people were involved in data collection. Fifteen interviewees were business lecturers, from three TVET colleges, who were not professionally qualified when they were we employed. The three human resource managers of the three colleges were also interviewed, largely as triangulation mechanism. Each person was asked six broad questions related to people who mentored them and mentoring processes that they may or may not have been exposed to. Lectures were asked to relate the questions to their own experiences and human resource managers to institutional polices.

Data was analysed by means of critical and linguistic discourse analysis associated with the work of Fairclough (1989; 2001; 2010) and then classified within a framework designed by Keevy (2005) and base on the work of M. Foucault. By combining Fairclough's (1989;

2001; 2003; 2010) forms of discourse analysis with Keevy's (2005) Foucault-infused social discourse analysis, the semiotic expression of the internal dynamics of mentoring could be determined through the semiotic expression of each lecturer's (mentee) expression on how they were mentored.

Entry into TVET colleges

During analysis of interviews, it became clear that there was no clear boxing of the process of analysis. Semiotic expressions, surfaces of emergence, archaeology and genealogy were not separate steps that followed one another; they were dimensions of a single body of content. As a result, surface emergences were identified from semiotic expressions, after which they were grouped and classified, resulting in the determination of a genealogy through the determination of grids of specification.

Interviewees who took part in the study are, to varying degrees, practising professionals who took individually-oriented decisions to move into vocational education. As a result, each individual has a unique selection of development needs that requires individual development focus. All interviewees were acutely aware of their own development needs and utilised opportunities to satisfy the needs they identified. All interviewees entered the vocational education sector either after graduation, employment in business or both. Some saw vocational education as an initial career choice while others saw it as a mid-career move. Most had family who worked in other education sectors, resulting in a number suggesting that teaching was "in their blood". None of the interviews, however, had the same entry route. Graduates came from different degree programmes. Those who had not gone to university were employed in a variety of business fields including insurance, research and a variety of specialist fields in catering and tourism.

Each college had an institutional induction and orientation programme. While the process differed among departments within institutions, each new lecturer was allocated a senior member of staff to oversee them and assist as and when required. The dynamics of each department determined the extent to which other experienced members of staff provided additional assistance. Some lecturers worked within departments where all were business specialists while others were assigned to departments where they were the only business specialist responsible for a subject on another programme. As a result of differences in background and the dynamics of the post filled by each new lecturer had a different set of knowledge and skills, as well as a different application within the broad business academic discipline. Each person, therefore, had a different story of how they developed their set of teaching knowledge and skills.

Development of skills required to operate as a college lecturer did not follow any predictable or set pattern. Each person's development process was different yet two general patterns appeared. Some tended to learn with, and from, collegial interaction while others developed from working alone. Some worked alone by choice. Others did so as a result of college or department interpersonal dynamics. Likewise some worked in groups out of their own choice, while others enjoyed collaborative work through shortage of space.

A number of surface emergences appeared. Some were common to all while others were department or business sector within which the lecturers operated. The first, which permeated form all interviews, was the realisation that they needed to survive in the vocational education environment. While all were positive towards inputs from the

institution, managers and peers, success, all realised, depended on the extent to which a new lecturer could maintain him/herself in the classroom. Many interviewees used the phrase "sink or swim" in expressing their individual story. Associated with survival were two further realisations. One was the need to develop healthy and constructive collegial relationships while the other was taking ownership of choices they made. All perceived themselves to be specialists with specialist knowledge and, once appointed, a member of a team of specialists. All had and interest in transferring knowledge and a desire to add value to the institution at which they were employed and the students they worked with. All identified career prospects in the term oriented and stratified vocational education sector. Those who had degrees with theoretical majors like Management and Information Technology, perceived vocational education to be one of the potential career options. Those who had customer-centred careers in Catering and Tourism perceived a move into vocational education as a chance for stable employment, employment that had regular working hours and the promise of improved income.

Surface emergences that stood out as contrasts was the individual differences and differences that could be attributed to the sector from which each new lecturer came. The sectors from which the new lecturers came or for which they were educated influenced their approach to work and the students they worked with. Those with theoretical backgrounds tended to see themselves as knowledge disseminators with hierarchical relations with students. Those who came from consumer-oriented industries had a strong customer focus. One lecturer, an IT specialist, went into detail to describe how she learnt from students while a tourism specialist indicated that she saw her students as customers who had to leave hear class having learnt something.

Level and type of qualification did not appear to be a differentiating factor. The national curricula provide a substantial amount of detail on content and didactic requirements and departmental support mechanisms were sufficient for all to perceive curricula as an adaptation of existing knowledge.

A strong contrast drawn by a number of lecturers was between those who moved into vocational education from the business sector, what was colloquially called *industry*, and those who moved from general education. The two groups of vocational educators had deferent orientations and placed differing levels of importance to elements of the work to be done.

Mentoring by individual choice and an amalgam of forms

As none of the interviewees had been subjected to a formal mentoring programme, acquisition of information from their involvement in informal mentoring was the main purpose of the interviews. Interviewees were specifically informed of this and the questions were framed around the concept of institutional mentoring, peer mentoring and self-mentoring.

The mentoring practice at the colleges from where interviewees were drawn is a particular amalgam of three mentoring profiles. The first mentoring profile is performance by line managers, who are expected to mentor new staff. Line managers are involved in mentoring new staff in the traditional one-on-one mentoring in which the mentor figure (line manager) guides the protégé (new lecturer) through the lecturer integration process.

All colleges had sound induction systems in place, which served to introduce new staff to their new employment environment and the managers with whom they were to work. As expected, some new lecturers found the induction process valuable while other did not. Irrespective of the perceived value of induction process, out of it potential mentors were identified or rejected.

> *when I came here they made us feel welcome. Everybody came together ... all the management staff came together, the CEO came to speak us, that made us feel very welcome … that made me feel very welcome.*

An alternative mentoring profile is one in which peer mentoring dominates. Where offices are shared, friendships are often created or where experienced staff shared information and monitored its assimilation, peer mentoring of a sort took place. Most interviewees indicated that they had made collegial friendships and learnt from colleagues. Some learnt from the people with whom they shared offices.

One interviewee attributed his initial success in two colleges in his identification of mentors. He note the value of the line manager/mentor relationship with a new lecturer as follows:

> *We [him and his line manager] worked very closely together for three years and I would come up with ideas and he would run after that idea and make it extremely big and then he and I would tailor-make it for our institution. And he would take me on workshops; he would organize for me to go to attend speaking arrangements. So he really helped me to develop my educational profile.*

In contrast to this experience a lack of line-management/mentoring was a key factor contributing to new staff discomfort. In some cases line managers were antagonistic towards new lecturers, employed by higher level management decision, which resulted in a redirection of mentoring choice. Lecturers tended to form communities of practice, some by identifying helpful colleagues, others by working with other new lecturers. One lecturer described what collaboration with another lecturer as follows:

> *He was a friend when I joined; he was a friend so I wasn't shy to ask questions or anything like that. So he helped a lot because he was in the system for much longer than me and X [another colleague] assisted us, so it was easy to go ask questions because it was just the four of us. We grew since 2009 but at the time ... the marketing groups were also small ... We work in a team*

The third mentoring profile, and one dominating the development of skills at colleges from which interviewees were drawn, is not supervisor or peer mentoring, but self-mentoring.
Glenn (2003:22) describes self-mentoring as an intra-personal activity, an autodidactic didactic process, if a person's ability to judge and correct one's own actions are stimulated.

Self-mentoring or self-driven mentoring appears to suit all the lecturers interviewed: it complements the environment into which they are entering and the dynamic nature of their work entry process. All noted their specific competency development needs as driver. One lecturer used the term "hard" repeatedly to describe the first few months of his tenure.

Another used the "sink or swim" repeatedly to describe the first few months of employment. All indicated the need to navigate structures and bureaucracies.

One interviewee summarised the need for self-mentoring by indicating that she did "a lot of things on my own". Her development was, in her own words: "a combination, it's things I pick up from my employers, it's things I pick up from my colleagues and also my own, it's what I pick up myself as I go along".. Another described himself as working like a "little honey bee … I go from department to department and person to person and I get everything. I draw on little honeybee and I come up with new ideas". The navigation of structures and people that occupied positions within those structures, in particular, required self-mentoring.

Each interviewee has his/her own story. The interviewee who likened himself to a honey bee encapsulated the need for self-mentoring when he cited interpersonal politics, which he called 'office politics", as an issue to navigate. "It was so easy to get caught up in the office politics. The one person said this and the other person said that, and it was at a time like playing survivor. Who are you allying yourself with now? Who's your allies now in this education situation?...once I went through that, things changed for me dramatically but it did make an impact on my motivation. It made an impact on my dynamics, my momentum. There were times I was not in the mood to come into college because of the personal vendettas". Like the other interviewees he continued to work, and manged to "swim".

It is not possible to determine whether or not, or how, new lecturers interviewed would have learnt differently if formally recognised mentors had been assigned to them or if they had been exposed to a prescribed mentoring programme. What could be determined from this group of interviewees, however, are patterns of mentoring which formed without the assignment of mentors or the existence of mentoring programmes. A further point that emerges from this group of interviewees is how mentees learn and who they learn from. For TVET lecturers mentoring is a demonstrably personal learning process. The lecturers, mentees in their development process, chose who to learn from; they filtered and interpreted inputs from others and then decided what to learn from the inputs.

Conclusion

This paper confirms two key elements of staring a teaching career in TVET. The firs is that it is a highly individualised process. There is not single form of entry, ranging from a career choice when graduating to entry at any time within a career in a related industry. The second key element involves mentoring choices made by individuals as they enter the TVET teaching profession. Choices relate to who they select as mentoring figures and what assistance they want from these people.

New TVET lecturing staff clearly perceive themselves as being mentored and all interviewed identified mentors of some or other sort in their initial orientation and development. In contrast to the view that mentoring is a programme the perceived mentoring as a process within which they could choose how and by whom it be mentored. The implication for management at TVET colleges is therefore not to identify how to prepare mentoring programmes but to provide the environment in which new lecturers can be allowed to identify what mentoring is required, who is to provide it and then to manage the process collegially.

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Using a reliability factorial analysis design to measure teachers' attitudes toward economics education in Free State secondary schools

Micheal M Van Wyk
Department of Curriculum and instructional studies
College of education
University of South Africa
vwykmm@unisa.ac.za

Abstract: Economics teachers in the Further Education and Training (FET) phase currently find themselves in a transitional phase between the traditional teaching approach and the National Curriculum and Assessment Policy Statement (CAPS) based on a problem-based learning approach. The purpose of this paper is to measure teachers' perception of economics education by using an exploratory factor analysis in a South African context. It makes use of an exploratory, descriptive, contextual research design, implementing the quantitative research method. A closed structured forty-five item questionnaire, the *Attitude Toward Economics Education* (ATEE scale) was constructed to survey teachers' perceptions (n=319) of the economics subject in relation to some demographic information. Factor analysis was applied to the 45-item ATEE questionnaire and six factors extracted as the latent variables for forty five items, with one item dropped due to low factor loadings. Reliability analysis shows that the internal consistency of factors was between acceptable ($\alpha = 0.786$) and excellent ($\alpha = 0.881$). The six underlying factors were related to the following themes: value of economic education; difficulty of economics as a subject; knowledge and skills for the enhancement of economic literacy; enjoyment of economics; academic application; and facilitation during workshop sessions. The instrument can therefore be used for further research to determine the effects of other variables – including learning styles, teaching styles, retention, assessment and absenteeism – that may have direct effects on the performance of economics teachers in South African schools.

Key words: National Curriculum and Assessment Policy Statement, economics education, Attitude Toward Economics Education (ATEE scale), exploratory factor analysis

INTRODUCTION

The purpose of this paper is to measure training teachers' perceptions of economics education by using an exploratory factor analysis in a South African context. From an educational economist point of view, knowledge is power. This suggests that economic education is, or should be, important to (future) citizens' ability to participate in society, and in that sense, to manage their everyday life. However, we note that an education in economics is about much more than improving the general understanding of the basic principles of supply and demand and the workings of the national and global economies. A basic knowledge of economics will also help consumers, business, trade unions and voters to make informed decisions on "bread and butter" issues relating to their own activities in the economy. Economics involves the study of how people make choices with scare resources. Giving learners access to an understanding of how markets work will help them to make efficient choices in managing

their own scarce resources, such as time and money. Along the way, they also learn about decision- and choice-making processes that can be applied to other aspects of their lives.

A literature review on the subject reveals that there is widespread agreement that it is vital to highlight the importance of a sound economic education system for growth and development from a global and a local-national perspective. A number of research studies have been conducted on economics students' attitudes regarding economic education internationally, but so far as could be ascertained, no studies have been conducted on South African student economics teachers' values as these relate to economics education.

Recent studies have focused on entrepreneurship at schools (North 2002), cooperative learning as a teaching strategy for economic education (van Wyk 2007) and the impact of student team achievement divisions (STAD) as cooperative learning technique in economic literacy (van Wyk 2010). In that context, this study sets out to investigate South African student teachers' perceptions of economics education.

LITERATURE REVIEW

In 2009, Pravin Gordhan, the South African ex-finance minister told the country that the global economic crisis of 2008 had seriously affected the economy, along with many others around the world. The ex-finance minister said that "The global crisis continues to weigh heavily on economies around the world," he said. He further indicated that the South African "budget deficits have soared to unprecedented heights as tax revenue has fallen sharply and employment is falling in almost every country" (p.12). However, the global downturn has been worse than expected and South Africa is now in recession, the first in over 17 years. Gordhan (2009) said that there are indications that the South African economy might have reached the bottom of this sharp downturn, but the road to recovery will be slow and gradual" (p.2). Gordhan also suggested that a contributing factor to the country's crisis was a general lack of financial and economic literacy. It would appear that not enough had been done in the areas of financial education and economic literacy in South Africa in the twenty-odd years since the advent of democracy. Despite this, Gordhan added that he believed that the country could overcome the challenge.

In 2013, Ebrahim Patel, minister of economic development painted a glooming picture of the South African economy: "The full impact on South Africa was reflected in the economic data from May," he said. "Economic growth slowed down dramatically and the manufacturing sector shrank by 20%. Job losses in one area affected other sectors and credit became more difficult to obtain. The current account (Balance of Payments) deficit pressures continued. There were 179 000 job losses in the first three months and another 267 000 jobs were lost in the second three months of the year. There was a decline in Gross Domestic Product… and in manufacturing but there were major contractions in other sectors such as mining" (Patel, 2013:4).

Moreover, North (2002) agreed with the sentiments of two ministers that the South African economy was a cause for concern because the poor were likely to suffer most. The country's citizens were already confronted by problems such as crime, corruption, mismanagement and unemployment. In a newspaper article, the unemployment problem in South Africa was a cause of anxiety not only for the government and other role players in the private sector because of the impact it would have on the younger generation. This author has suggested that more than eight million people would be unemployed in South Africa by 2010 (*Mail & Guardian, 2010*). Furthermore, Van Schoor (2000) paints a gloomy picture of the state of economics education in South Africa. South African schools, he says, "are brilliant at educating children for the 1950s". To remedy this situation, an approach would be to increase

efforts on the part of private-public initiatives in South African schools to provide young people with a thorough grounding in the basic elements of economics. An example of an effective private-public initiative is the Banking Association of South Africa (BASA) and the South African Savings Institute (SASI) "*Teach Children to Save Initiative*" pilot project. The project was launched on 25 July 2009 in an effort to improve financial awareness among the country's young people. The programme was derived from a similar project launched in the USA in 1997 and sponsored by the American Bankers Association Education Foundation (ABAEF). According to the BASA, the purpose of the pilot project was to lay the groundwork for an ongoing annual event that would highlight the important role that bankers and financial sector professionals could play in educating the country's young people in basic economic ideas, and in particular on the importance of starting to save earlier in their lives. Currently, the national education department, expanded the "*Teach Children to Save Initiative*" project targeting students in grades four to seven at primary school. The initiative aims to promote financial literacy, foster a culture of saving, promote volunteerism, create awareness about the value of money and the importance of savings and assist students to appreciate that being able to choose empowers them. Further vigorous effects by private-public initiatives aimed at improving mathematics literacy and economic and entrepreneurial knowledge as pathways to empowerment are to be encouraged.

The National Curriculum and Assessment Policy Statement (NCAPS) policy states that the purpose of economics as a subject is to equip learners with the knowledge, skills, values and attitudes that will enable them to participate in, contribute to, adapt to and survive in a complex economic society. That is, grounding in economics will enable them to demonstrate a critical awareness of the benefits of responsible and sensitive resource utilization (DoE 2003; van Wyk 2007). Economics studies the activities of production, consumption and exchange viewed from macroeconomic and micro-economic perspectives. These activities are informed by individual and societal preferences. In an historical context, they focus successively on the primary, secondary and tertiary sectors. Contemporary priorities include the issues of poverty, redistribution of income and wealth, growth and development, globalisation, respect for the environment and human rights (DoE 2003).

A study was conducted (van Wyk 2007) and it revealed that Economic education is more taken as an elective by students in grades 10 to 12. The study also indicates that the current teaching strategies implemented by economic teachers are outdated and do not pertain to the ways in which learners best comprehend to economics content (van Wyk 2007). To ensure that the outcomes of economics teaching are achieved, teachers of the subject are required to consider different teaching strategies and methods. A large variety of teaching strategies, methods and techniques are available, which can be utilised to immense benefit in the teaching and learning situation (Anderson, Benjamin and Fuss 1995; Shen and Shen 1993) but this study focuses on teachers' perceptions of economics teaching in South African high schools.

PROBLEM STATEMENT

Economics teachers in the Further Education and Training (FET) phase currently find themselves in a transition between a traditional teaching approach and the problem-based learning approach outlined in the National Curriculum and Assessment Policy Statement (CAPS). It appears from interviews during study that economics teachers in the Free State department of basic education are not ready for this change of approach, because they have not been adequately trained in the NCAPS principles in economics and are therefore still following the teacher-centred approach as they were previously trained to do. (van Wyk

2007). Furthermore, South Africa requires well-trained graduates in the economic and management sciences, because knowledge and skills in these areas are prerequisites for economic growth and sustainable development. One of the current problems with Economics education in South Africa involves the strategies that teachers use to teach the subject. The majority of teachers are stuck on outdated traditional methods that were in practice for years. The 'chalk and talk' method, a traditional method of education in which the teacher addresses the students and uses the blackboard or a "power point presentation" to provide examples or illustrations to learners, are mostly commonly used. Research studies have highlighted the ineffectiveness of the lecture, text book and direct instruction methods (van Wyk 2007; Becker 2000). These methods results in students experiencing economics classes as boring. If teachers used more effective methods in teaching economics, their students would be able to better comprehend the information and would thereby be empowered to be effective citizens.

The purpose of this study is to investigate Economics teachers' attitudes toward economics education. To achieve this, an instrument was designed to measure subject teachers' perceptions of economics education, using an exploratory factor analysis and reliability analysis. This statistical method identifies group of variables called factors or latent variables that can measure the underlying dimensions of attitudes on a particular subject, in this case Economics education.

RESEARCH METHODOLOGY

Research paradigm and design: This paper used a post-positivist research paradigm. An exploratory, descriptive, contextual research design was designed to collect data for the purpose of this study. It implements the quantitative research method through the use of a closed structured forty-five item questionnaire**.** The rationale for using the Attitude Toward Economics Education scale (ATEE scale) because it proved to be an effective instrument for measuring and investigating changes in economic attitudes and values of student teachers at the Free State department of basic education (see table 2 for reliability scores). A number of matters require some discussion before a factor analysis can be conducted. The first concerns methodological issues, in particular the number of variables to be included in the instrument for the study and the size of the sample to be used. At least four measured variables for each common factor were expected to emerge from the data analysis (Fabrigar, Wegener, MacCallum and Strahan 1999). Further, there is considerable debate in the literature as to what constitutes an adequate sample size. Gorsuch (1983) suggests a case ratio of 1:5 with a total sample size of at least 100.

Sample for the study: The sample size of this study was one hundred and nineteen economics teachers who teach the subject in grades 10 to 12 (n=319). MacCallum, Widaman, Zhang and Hong (1999) argue that a sample size of 100 can produce an accurate estimate of population parameters if the communalities of the measured variables are high and if four variables represent each common factor. Another methodological issue concerns the choice of an exploratory or confirmatory factor analysis. An exploratory approach is aimed at determining which constructs underlie the variables in the questionnaire, and if so, how many. It is used when there is insufficient evidence available to predict a set of constructs in advance. Finally we note that Hastings, Horne and Mitchell (2004) say that an exploratory factor analysis is more familiar to researchers, and is consequently more easily understood.

Data collection and analysis; The Attitude Toward Economics Education (ATEE scale) was constructed on the basis of preliminary readings of previous studies. It took the form of a 45-item questionnaire, the purpose of which was to collect data on teachers' perceptions of economics as a teaching subject in school, as well as some demographic information. Items

that were a combination of positive and negative statements were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). During data entry into the statistical software, negative statements were reversed into positive statements. A higher score for each item would therefore imply a more positive attitude to economics as a teaching subject in schools. The Statistical Package for Social Sciences (SPSS), Version 18.0 was used to run the factor and reliability analysis, as well as the statistics.

Ethical considerations: Consent was obtained from the Free State Department of Basic Education, school principals and FET economics teachers before the study was begun. An official FSDBE letter explaining the purpose of the study was attached to the questionnaire. The letter also highlighted the confidentiality of any results deriving from each teacher's participation. Each participant signed a consent letter.

Rationale for using the exploratory factor analysis (EFA) technique

The purpose of using EFA was to identify and interpret underlying and common factors in respondents' responses to questions concerning their perceptions of economics as a teaching subject. Gorsuch (1997) says that EFA helps to explain variations in the observed variables in terms of underlying latent factors. The first step is to perform a factor analysis is to determine whether it is actually necessary to perform a factor analysis on the data. This is done by testing the adequacy with which the data can be sampled. The measuring of sampling adequacy involves determining the suitability of individual variables for use in the factor analysis and was evaluated using the Kaiser-Meyer-Olkin coefficients of sampling adequacy (KMO) (Kaiser, 1974; Berghau, 2005; Cohen, Manion and Morrison 2009, Leedy and Ormod 2001).

RESULTS

Biographical data revealed that three hundred and nineteen (n=319) teachers of economics who teach the subject in grades 10 to 12 were purposively selected as the stratified sample for the research. Some 65% of the sample were black teachers while 35% were white. Some 61.0% of the teachers were female (n=180) and 39.0% male (n=139).

Means and Standard Deviations of Scores: The mean and the standard deviation for the 45-items are shown in Table 1. The three items with the lowest score were Item 7, "My level of calculations used is appropriate to draw and analysis data (2.07)", item 4, "There are not many topics to be learnt (2.19)" and item 10, "I like economics since it is an easy subject (2.07)". The highest mean score was associated with Item 23, "Economics will be utilised in my professional teaching career (4.98)". The result implies that students have a rather positive perception of the usefulness of the subject of economics to their future professional teaching career. The student economics teachers sampled were able to see the relevance of economics to their field of study even though none were from the economics and management faculty. Nevertheless, a main concern was that they had known little or nothing about economics before taking the subject, and many felt that it was difficult and required them to learn a lot of new material.

Table 1: Means and Standard Deviations of Scores on the ATEE-scale

Statement regarding attitude toward economics education	M	SD
1. Economics as a subject is not difficult	3.09	1.189
2. There are not many graphs to be learnt	3.00	1.334
3. The graphs help me to understand better real world issues	4.55	0.911
4. There are not many topics to be learnt in this module	2.19	1.328
5. Easy to understand economic concepts & theory	3.37	0.681
6. My level of economics used is appropriate to apply to my teaching practice	4.00	1.451
7. My level of calculations used is appropriate to draw and analysis data	2.03	0.781
8. I understand economic formulas and can apply it	3.55	0.671
9. Most students will find economic subject easy	3.11	0.881
10. I like economics since it is an easy subject	2.07	1.322
11. Economic subjects are very interesting and enjoyable	4.78	1.361
12. I am capable of understanding this subject	3.89	0.783
13. I can pass economics even though there were many cases of failure	3.56	0.671
14. I feel comfortable with economics subject	4.33	0.823
15. I adore economics subject because it challenges my thinking skills	4.71	0.928
16. I do not feel nervous or frustrated during tests or exams	3.55	1.051
17. I have basic knowledge in economics prior to taking this subject	3.04	1.261
18. I have a strong mathematical background	3.59	1.122
19. I am good with the English/Afrikaans language	4.33	0.781
20. Knowledge about economics from other sources helps my understanding	4.00	0.923
21. Knowledge of economy will help me get suitable job in the future	4.56	0.891

22. Economics subject is relevant to me	4.69	0.871
23. Economics will be utilised in my professional teaching career	**4.98**	1.211
24. Economics will be very useful in my future career	3.76	1.011
25. Economics will be very useful in my everyday life	3.23	1.122
26. I will be using economics throughout my life	4.44	1.441
27. Economics makes me think about contemporary issues	3.79	0.675
28. I enjoy reading articles on economic topics	3.29	1.022
29. I usually prepare before coming to tutorials	3.03	0.881
30. I generally do the set reading before tutorials	3.55	0.971
31. I usually set out to thoroughly understand most topics	3.81	1.581
32. I really enjoy the theoretical content of economics	3.07	1.322
33. I get a lot of satisfaction from studying economics	3.78	1.361
34. My tutor was good at explaining things	3.19	0.783
35. My tutor made it clear where the subject is going	3.06	0.671
36. My tutor gave me helpful feedback on my progress	3.33	0.823
37. My tutor tried hard to make the subject interesting	3.71	1.428
38. I value what other students have to say in class***	3.05	1.351
39. I worked consistently throughout semester	3.14	1.061
40. I am better at solving economics problems	3.59	1.122
41. It was easy to know what was expected of me	3.33	0.781
42. I have learned to think more critically	3.00	0.723
43. I am better at solving economics problems	2.56	0.891
44. I am better at working collaboratively	3.69	0.771
45. I have learned to discuss economic concepts	2.03	0.681

Mean*: 5 = Strongly agree 4 = Agree 3 = Uncertain 2 = Disagree 1 = Strongly disagree

Measuring sampling adequacy

A KMO-value which is greater than 0.5, indicates that the variable is significant at that level. The KMO-values relating to the importance of teaching principles for Economics that were

included in the factor analysis which are presented in Table 1 (this KMO value scale was used: 0.90 to 1.00 = marvellous or 0.80 to 0.89 = meritorious or 0.70 to 0.79 = middling or 0.60 to 0.69 = mediocre or 0.50 to 0.59 = miserable and 0.000 to .0.49 = don't factor). Factor analysis was applied to a 45-item ATEE-scale. The Kaiser-Meyer-Olkin (KMO) coefficients of sampling adequacy indicate that factor analysis is appropriate for ATEE-scale data. According to Kaiser (1974), a KMO coefficient of .70 or higher is adequate for the application of factor analysis, and a coefficient of .80 or larger is good to excellent. The measure of sampling adequacy using Kaiser-Meyer-Olkin (KMO) was 0.846, which is greater than the recommended minimum of 0.50. KMO values between 0.80 and 0.90 are considered to be good to excellent (Hutcheson and Sofroniou 1999). The correlation matrix is not an identity matrix since the Bartlett's Test of Sphericity is statistically significant (Chi-Square = 3126.777, df =325, p< 0.000). These tests imply that factor analysis was appropriate.

The measure of sampling adequacy for individual variables from the Anti-Image Correlation ranged from 0.692 for item 9 to 0.915 for item 12. All the values are well above the bare minimum level of 0.5. Factors were extracted using the principal axis factoring method. An orthogonal rotation using Varimax with Kaiser Normalisation was applied to the initial factors, since there is no theoretical basis that the factors were correlated. The fit of the model is considered good since the reproduced correlations indicate that only 55 (16%) residuals are greater than 0.05. The Anderson-Rubin method was applied to calculate factor scores so that no multi-colinearity exists (that is, the factors were uncorrelated with each other). Seven interpretable factors were obtained from the analysis using Kaiser's criterion of retaining factors with eigenvalues greater than one.

Table 2: Rotated Factor Matrix & Reliability Analysis of the ATEE-scale

Primary Factors	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**
Factor 1: *Value of economics* as subject (α = 0.871)						
21. Knowledge of Economics will help me get suitable job in the future	0.785					
25. Economics will be very useful in my everyday life	0.731					
23. Economics will be utilized in my professional teaching career						
24. Economics will be very useful in my future career	0.710					
22. Economics subject is relevant to me	0.591					
3. The graphs help me to understand better						
26. I will be using economics throughout my life	0.589					
	0.53					

10. I like economics since it is an easy subject	2 0.486 0.469					
Factor 2 : *Difficulty of economics subject* (α = 0.861) 15. I adore economics as a subject 17. I had basic knowledge of economics prior to taking this subject 8. I understand economic formulas 9. Most students will find economic subjects easy 1. Economic subjects are not difficult 5. Easy to understand economic concepts & theory 2. There are not many graphs to be learnt		0.691 0.631 0.576 0.530 0.491 0.482 0.476				
Factor 3: *Knowledge and skills required* (α = 0.855) 6. Level of English used is appropriate 19. I am good with the English/Afrikaans language 7. I will surely apply economic concepts in my praxis 12. I am capable of understanding this subject 13. I can pass economics even though there were many cases of failure 18. I have a strong mathematical background 27. Economics makes me think about contemporary issues			0.779 0.633 0.552 0.512 0.487 0.475 0.465			

Factor 4: *Enjoyment of learning economics* (α = 0.736) 16. I do not feel nervous or frustrated during tests or exams. 14. I feel comfortable with economics subject 11. Economic subjects are very interesting and enjoyable 4. There are not many topics to be learnt 28. I enjoy reading articles on economic topics				0.725 0.569 0.482 0.468 0.460		
Factor 5: *Academic Application of subject* (α = 0.816) 29. I usually prepare before coming to tutorials 30. I generally do the set reading before tutorials 31. I usually set out to thoroughly understand most topics 32. I really enjoy the theoretical content of economics 33. I get a lot of satisfaction from studying economics					0.775 0.741 0.719 0.591 0.589	
Factor 6: *Facilitation during workshops sessions* (α = 0.755) 34. Facilitator was good at explaining things 35. Facilitator made it clear where the CAPS subject is going 36. Facilitator gave me helpful feedback on						0.799 0.76

my progress						1
37. Facilitator tried hard to make the subject interesting						0.610
41. It was easy to know what was expected of me						0.591
						0.569

The rotated factor matrix, a matrix of the factor loadings for each variable onto each factor, is shown in Table 2. Loadings of less than 0.399 are not shown in the rotated factor matrix since they do not represent substantive values (Steven, 1992). The four interpretable factors accounted for 35.9%, 6.04%, 4.69% and 3.62% of the variance in the data for a total of 50.25% (before rotation) and 15.09%, 13.84%, 12.84% and 8.49% respectively (after rotation).

Factor 1 is labelled "Value of economics as a subject" with loadings from 0.469 to 0.785. It includes items such as "Knowledge of economy will help me get suitable job in the future (0.711)", "Economics will be very useful in my everyday life (0.705)" and "Economics will be utilized in my professional teaching career (0.656). This factor, which has the highest percentage of explained variance, implies that non-business students regard knowledge of economics as essential in their future career and everyday life even though they were majoring in a range of subjects, including wood technology or office management.

Factor 2 is labelled "Difficulty of economics as a subject" with loadings from 0.476 to 0.691. It includes items such as "I adore economics as a subject. (0.693)", "I understand economic formulas (0.557)" and "Most students will find economic subjects easy (0.530)".

Factor 3 is labelled "Knowledge and skills required in economics subject" with factor loadings ranging from 0.465 to 0.779. Among the items included are "Level of English used is appropriate (0.767), "I am good with the English language (0.609)" and "Level of Mathematics used is appropriate (0.569).

Factor 4 is labelled "Enjoyment of learning economics" with factor loadings from 0.460 to 0.725. Items included are "I do not feel nervous or frustrated during tests or exams (0.725)", "I feel comfortable with economics subject (0.569)" and "Economic subjects are very interesting and enjoyable (0.468)".

There were four items loaded on two factors. "The graphs help me to understand better" and "I like economics since it is an easy subject" were loaded on both Factor 1 and 3. "Easy to understand economic concepts & theory" and "I will surely apply economic concepts in my praxis" were loaded on both Factor 2 and 3. Item 20 is dropped from the list due to low factor loading.

Factor 5 is labelled "Academic application" with factor loadings 0.775 to .0.589. Items included "29. I usually prepare before coming to tutorials", "30 I generally do the set reading before tutorials", "31. I usually set out to thoroughly understand most topics", "32. I really enjoy the theoretical content of economics", "33. I get a lot of satisfaction from studying economics".

Factor 6 is labelled as "Facilitation during workshops sessions" with factor loadings 0.799 to 0.569. Items included are "Facilitator was good at explaining things (0.799)"; and "It was easy to know what was expected of me (0.569).

A reliability analysis was carried out on the six extracted factors based on the data presented in table 2. Reliability, which describes the internal consistency of a set of items, was measured by Cronbach's Alpha and item-total correlations. In general, reliabilities of less than .60 are considered to be poor, those in the 0.70 range are acceptable, and those over 0.80 are good (Sekaran 2003; Cohen, Manion and Morrison 2009). The reliability analysis results are shown in Table 2.

Table 3: Means and Standard Deviations of the Factors of ATEE-scale

Four factors exacted	Mean Scores	Std Deviation
Value of economics as a subject	4.558	0.641
Difficulty of economics as a subject	2.587	0.729
Knowledge and skills required	4.333	0.788
Enjoyment of learning economics	4.234	0.895
Academic application of the subject	3.561	0.667
Facilitation during workshops sessions	4.110	0.778

(A higher score of the mean indicates a more positive attitude)

Referring to Table 3, the students sampled tended to agree or were positive regarding the value of economics to their future career and everyday life (given the mean of Factor 1 = 4.558 which is better to 3 (neutral) on the 5-point Likert scale). The same observation applies to knowledge and skills; here students tended to agree on the perception that they must possess the economics knowledge and skills required in order to be able to teach them.
Nevertheless, the teachers sampled tend to agree that economics subjects can be somewhat difficult especially for those students who did have a sufficient knowledge in economics content, but many agreed that they enjoyed teaching the subject. These results indicate that teachers sampled were positive about economics as a teaching subject. An independent sample t-test was performed on the mean score for each of the seven factors to compare the attitudes of male and female students, and those who had passed or failed the subject.

Independent sample t-test was performed on the mean score for each of the four factors to compare the attitudes towards economics education between gender. Table 4 shows the comparison between male and female economics teachers.

Table 4: Comparison of Male and Female Economics teachers

Six factors exacted	Mean (Male)	Mean (Female)	t-value	p-value
Value of economics as a subject	4.122	4.412	-0.355	0.022
Difficulty of economics as a subject	4.216	3.365	-0.124	0.023
Knowledge and skills required	4.673	4.503	0.112	0.081
Enjoyment of learning economics	4.264	4.534	-0.744	0.349
Academic application of the subject	4.112	3.771	0.211	0.766
Facilitation during workshops sessions	3.891	4.221	0.311	0.045

Since the p-value for four of the six factors is greater than 0.05, there is evidence that there is a difference in the perception of male and female economics teachers toward economics education. Male teachers show a better attitude toward Economics with regard to the *Difficulty of economics as a subject* and *Knowledge and skills required* (mean = 4.216 and 4.216) than female teachers. On the other hand, female teachers are more positive regarding the *Value of economics as a subject*, *Enjoyment of learning economics* and *Facilitation during workshops sessions* (mean = 4.412; 4.503 and 4.221) toward the subject than male teachers.

DISCUSSION OF FINDINGS

Factor analysis was applied to the 45-items ATEE questionnaire. Six factors were extracted as the latent variables for forty five items with one item dropped due to low factor loadings. Reliability analysis shows that the internal consistency of the six factors was excellent (α = 0.881) as acceptable for the study. The six underlying factors are related to a number of themes: the value of economic education, the difficulty of the economics, the knowledge and skills necessary for the enhancement of economic literacy, the enjoyment of economics, academic application, and facilitation during workshops sessions.

Factor 1 represents students' perception of the value of economics education (that is, their degree of satisfaction in learning the subject) and it usefulness to them. Factor 2 represents the sampled students' perception of the difficulty of the subject matter. Factor 3, knowledge and skills, represents the sampled students' perception of the basic knowledge and skills required to excel in economics education. Factor 4, enjoyment represents the sampled students' perception of the extent to which they enjoyed learning economics. Factor 5 refers to the level of preparation and application of academic knowledge in class. Factor 6 represents performance, and indicates the extent to which the sampled student teachers worked together to achieve specific outcomes for the Training of Teachers project.

The EFA was selected because it does not impose a specific pattern on the collected data in an a priori manner and provides an opportunity to substantially identify a factor's inclusion.

The internal consistencies of the constructs for each underlying variable were found to be good, as indicated by the Cronbach's Alpha value, which ranged from excellence to acceptable. The findings of the study indicate that sampled teachers attitudes toward the subject covered by the four underlying variables.

There was a significant difference in the attitudes of students who performed well and those who did not (van Wyk 2013). Student teachers who performed well in the subject had a more positive attitude than those who did not, with reference to all four underlying variables.

In a study by Phipps and Clark (1993) on Attitudes toward Economics with first year students, indicated that males enjoy economics relatively more than females, but males did not significantly differ from females as regards the perceived difficulty or usefulness of economics. The findings of this survey are therefore inconsistent with those of the Phipps and Clark (1993) study. Moreover, Yu, Lam and Lo (2005) conducted a study on gender differences in comprehension of Economics, found that female students enjoyed involvement in learning economics more than male teachers at high schools. Similar studies were conducted by Chizmar, McCarney, Halisky and Racich (1985) at ten primary schools and van Wyk (2013) at University of South Africa on economics achievement and basic skills development on the transfer of cognitive and social skills among Post Graduate Certificate of Education (PGCE) student teachers. The finding of latter study indicates that learning economics content can improve a student's ability in social studies skills.

EFA was warranted for the purposes of this study; no previous research had examined the factor structure to measure teachers' perceptions of economics education by using exploratory factor analysis and reliability analysis. The purpose of using EFA was to identify and interpret underlying and common factors in respondents' responses to questions concerning their perceptions of economics as a teaching subject.

CONCLUSIONS

The results of this study are encouraging and suggest that the EFA is a valid and reliable measure of teachers' attitude toward economics as a subject in Free State secondary schools. This study confirms earlier work by Phipps and Clark (1993) and van Wyk (2012) on attitudes toward economics with first year university students. This study revealed that the six underlying factors are related to a number of themes namely the value of economic education, the difficulty of the economics, the knowledge and skills necessary for the enhancement of economic literacy, the enjoyment of economics, academic application, and facilitation during workshops sessions. These factors clearly impact teachers' perception of economics education in the Free State Department of Basic Education. Furthermore, an exploratory factor analysis was computed and six factors were extracted from the data. Additionally, the reliability analysis shows that the internal consistency of the seven factors was excellent ($\alpha = 0.881$) as acceptable for the study. The Kaiser-Meyer-Olkin (KMO) coefficients of sampling adequacy indicate that factor analysis is appropriate for ATEE-scale. Finally, there were differences between male and female teachers toward economics education in this study. It can be concluded that the ATEE scale is highly reliable for the purpose of conducting this research. Further analysis should be undertaken to determine the factors that contribute to subject difficulty. These include topics that require a lot of calculations, or assignments that require academic writing skills and a general knowledge of national and global economics issues. The 45-item ATEE scale was validated and the instrument can be used for further research to determine the effects of other variables (such as race), learning styles, teaching styles, retention, assessment and absenteeism, all of which

may have a direct effect on the performance of teachers of economics subjects in South African schools. However, it is difficult to demonstrate a generalisable effect on teacher attitudes from a small sample and short period of training, such as that reported in this research study. It would be interesting to assess the effects of the cognitive and social skills development involved in learning the subject, especially as regards calculations, communication, data interpretation and the presentation of academic writing, while more attention needs to be paid to weak students. Other strategies may include exposing students to the application of economics in the real world, such as role playing and simulated economics games. The specific objective is to make student teachers aware of the usefulness of the subject they are studying. Real world data, simulated economics games, economic cartoons, economic quizzes and case studies should be integrated in the teaching content.

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NOTES TO CONTRIBUTORS

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Authors should adhere to the following guidelines:

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• All copy – including quotations, indented matter, footnotes, and references – should be typed double-spaced, using 12-point font and using **Garamond** as font.

• Submitted manuscripts submit in Microsoft Word format. It is imperative that authors remove from their submissions any information that will identify them or their affiliation to peer reviewers, both in the body of the manuscript and the reference list.

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P.O Box 10147
Moreleta Plaza
Pretoria
0167
+27(0)835445217 (office)
vanwykm4@gmail.com
vwykmm@unisa.ac.za