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South African Institute for Distance Education

DETA

distance education and teachers' training in africa

CONFERENCE 2011

PROCEEDINGS

3–5 August 2011

Universidade Eduardo Mondlane,
Maputo, Mozambique

Editor: Dr Ruth Aluko
Assistant Editor: Dr Francisco Januario

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Proceedings of the 4th biennial International Conference on Distance Education and Teachers' Training in Africa (DETA) held at the Eduardo Mondlane University, Maputo, Mozambique.

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DETA CONFERENCE 2011 PROCEEDINGS

Foreword

The Distance Education and Teachers' Training in Africa (DETA) 2011 was hosted by the Eduardo Mondlane University, Maputo, Mozambique, from 3 to 5 August. It was the fourth of its kind. The biennial conference was born out of the necessity to create a unique platform for all faculties of education to share knowledge and deliberate on educational issues as they affect Africa. We understand our contextual landscape as it affects education better and expanding education and improving its quality is central to the continent development. African scholars always meet at international conferences, but at the inception of the DETA conference in 2005, there were few conferences to bring these scholars together. DETA's major objectives are to contribute to the debate on teacher training in Africa and to build capacity for the delivery of teacher training programmes in Africa. These objectives represent ways in which the conference can support NEPAD, various protocols on education and training in Africa, the Millennium Development Goals, and some of the recommendations of the All-Africa Education Ministers' Conference on Open Learning and Distance Education.

The conferences are co-hosted by the organisers and other educational institutions and organisations.

The theme of the 2011 conference was "Ensuring the highest possible quality of education in a changing Africa". Sub-themes included the following:

- Education in a changing Africa: how is Africa changing, and what are the implications for education?
- Teacher education in a changing Africa: what counts as quality teacher education in a changing Africa?
- The role of leadership, management and governance development in ensuring quality education in a changing Africa
- The role of open learning, distance education, ICT and open educational resources in ensuring quality teacher education in a changing Africa
- Learning from success – how can we generalise f*rom successful/innovative educational initiatives?*

More than 200 delegates from 14 African countries (Botswana, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Nigeria, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe) and three other countries (Canada, the United Kingdom and the United States of America) attended the conference. A total of 83 papers were read.

Nine contributions were finally accepted for inclusion in the proceedings. This is DETA's second volume of conference proceedings and it is by no means perfect.

However, the editorial team wishes to emphasise that academic robustness and merit were of paramount importance in the selection of contributions. DETA has a developmental dimension, and it hopes to put better and more voluminous proceedings before its readership in the future.

We appreciate the hard work and input of the authors, the editorial team (Dr Ruth Aluko and Dr Francisco Januario), Prof Johan Beckmann for his support, and the reviewers of the manuscripts, the speakers, the sponsors and the secretariats of the institutions that co-hosted the conference.

We wish you interesting reading and look forward to having your paper included in the next volume if you are a participant at the 2013 conference in Nairobi.

Johan Hendrikz
University of Pretoria
South Africa

Eugenia Cossa
Eduardo Mondlane University
Mozambique

Co-chairpersons

DETA 2011

CONTENTS OF THE PROCEEDINGS

This volume consists of nine contributions and the contributions are from the papers presented at the DETA 2011 conference.

In the first paper, citing the example of Ghana, **Dr Clara Akuamoah-Boateng and Dr Kankam Boadu** argue that that the goal of distance education can only be achieved if enrolled students finish on time. Thus, the paper examines tutors' and students' perception on the attrition rate of distance learners. Findings reveal that most of the significant causes are evolutionary issues that can be resolved as time goes on through improvement in technology, effective course design, better understanding of learner characteristics and appropriate learner support systems. The authors opine that the complexity of causes of attrition and measures to reduce it, only allow for few practical or readily applied solutions. Finally, they made some recommendations to curb high attrition rates among UCC distance learners.

Prof Martin Dwomoh-Tweneboah discusses effective assessment and evaluation strategies for Distance Education. In his contribution, the author argues that very little has been written and discussed about the effectiveness of distance learning and the effective ways of assessing and evaluating distance education programmes. Therefore, his paper explores various programme evaluation strategies and assessment tools and practices for distance education. Dwomoh-Twenebohan's conclusion is that these not only help determine what and how students have learned, they also help in improving the quality of the programme. However, he cautions that the methods and data collected may vary, depending on each context.

Dr Sharon Mampane examines how the facilitators of Distance Education in an Advanced Certificate in Education programme are trained and supported to improve their work. The author's argument for the analysis is two-fold. The first is to investigate whether facilitators are adequately trained, quality assured and supported so that their students can be able to study independently. The second is whether the training, quality assurance and support of facilitators contribute to improving their facilitation skills. Mampane employs a theoretical framework based on the principles of human learning and concludes that there are no standardised support mechanisms for the facilitators which results in some facilitators being better prepared than others. She hoped the findings would contribute to the development of standardised training and support strategies to assist both the trainers and the trainees.

In her paper, **Dr Teresa Ogina** emphasises the need for distance education providers to enhance distance students' learning experience through effective support structures. She draws on theoretical insights from Transactional Distance Theory (TDT), focusing on learning support in terms of dialogue in the learning facilitation process; the structure of the programmes; and learner autonomy. Ogina concludes that though student-participants in the study found the support sessions valuable, there is the need for the continuous development of learning-support facilitators, learning materials and administrative support structures to enhance the quality of the support system in order to reduce transactional distance.

In their contribution, **Dr Alice Olagunju and Omolola Oloyede** attempt to examine the effect of outdoor activities as well as the influence of gender on secondary school students' environmental attitude to Biology. This was necessary due to the need to encourage students to develop a positive attitude towards the environment. Using a quasi - experimental design, findings reveal that there was a significant effect of outdoor activities on students' environmental attitude and a significant influence of gender on the attitude of students to the environment. Outdoor activities were observed to have brought about significant attitudinal change in the students. Therefore, the authors recommend outdoor activities for the teaching and learning of environmental education in Biology for both sexes.

Dr Margaret Funke Omidire uses a qualitative study to employ curriculum-based dynamic assessment (CDA) as a means of reducing the inequity in the assessment of learners using a language in which they lack proficiency in mainstream education. Although the results suggest a generally positive influence of CDA, to varying degrees, the participants' low level of additional language (AL) acquisition, which was not helped by some of the teacher-participants' inability to be models of language, was almost crippling to the entire study. The question of the adequacy of teacher training and continuous professional development for teachers came to the fore, indicating a profound need to expand teacher education and in-service training through distance education.

Dr Samuel Oyoo cites a famous literature playwright who asked the intriguing question: *"What kind of science can a child learn in the absence, for example, of basic language competence and an attendant inability to handle concepts?"* Though it appears that Africa is perhaps the only continent in the world where most formal/ school education is conducted in instructional languages that are foreign to most

learners and their teachers, achievement of general proficiency in the instructional language is a necessary first step if any learning is to be expected in that language. Through sustained literature reviews of cross-national research on language in science education over the last 40 years, he argues for an appropriate perspective on the use of (the foreign) language by science teachers during teaching and suggest approaches to assist in this area of need.

Prof Yvonne Reed attempts to fill the gap in teacher education pedagogy literature on the topic of the need for teacher educators to take a critical look at how they mediate knowledge and skills to pre-service and in-service teacher education students. Using examples from a critical pedagogic analysis of selected South African teacher education materials, she argues that when teacher educators design materials for teacher education at a distance, they should consider not only the pedagogies that they wish to describe and discuss *in* the materials but also the pedagogies *of* the materials because both contribute to the constitution of particular subject positions for readers (as students and as teachers). Her take-home message for distance teacher education material designers is the need to select and mediate knowledge in a way that encourages teachers to be not just consumers but also producers of knowledge.

Freda Wolfenden cites the case of Malawi in her paper. She contributes to current debates on how to address the gap in qualified female teacher recruitment and retention in rural areas. There is ample evidence that gender parity in primary and secondary education is yet to be achieved in many countries in Sub-Saharan Africa. She suggests that one solution to break the cycle of low female achievement in rural areas is through the use of distance education to prepare local women to become teachers within their own communities. Finally, she highlights areas for further study.

THE REVIEW PROCESS

In March 2011, DETA sent out a call for papers for the conference to be held in Mozambique in August 2011. Conference speakers were requested to submit papers for possible inclusion in the second conference proceedings to be published, if they so wished and they were given guidelines on the submission. A total of 34 drafts, which covered the conference subthemes, were submitted. The drafts were subjected to double blind reviews. Of these 34 drafts, 12 were provisionally accepted and returned to the authors for improvements. Eventually nine drafts were selected for inclusion in this proceedings document.

Academic sturdiness was the primary criterion used in selecting contributions, but DETA also proudly espouses a developmental dimension in the African research and publication context. Though readers may find one or two papers not directly related to teacher education, they have been included to show examples of well written papers. We are confident that the proceedings will comply with the standards of academically acceptable conference proceedings worldwide.

The editorial team wishes to thank the following peer reviewers for reviewing the drafts and providing the authors with valuable comments:

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REDUCING DISTANCE LEARNERS' ATTRITION RATE AT THE UNIVERSITY OF CAPE COAST: TUTORS'/STUDENTS' PERCEPTION

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ABSTRACT

The goal of distance education in Ghana is to make quality education, especially at the tertiary level, more accessible and relevant to meeting the human resource needs of the country. This is to improve performance as well as the quality of the lives of Ghanaians. This dream can only be realised if students enrolled in the programmes graduate on schedule. Currently, the number of students enrolled in the distance education programme at the University of Cape Coast (UCC) is over 24 000. However, for various reasons, not every student that enrols in the programme graduates on schedule. This paper examines tutors' and students' perceptions of the attrition rate of distance learners. The survey research method was used to gather data and an analysis was done using frequency count, simple percentages, mean and standard deviation. Factors identified as causes of attrition and measures to reduce the problem were significant, as perceived by tutors and learners. However, this paper concludes that the complexity of the causes of attrition and measures to reduce it, allow for few practical solutions. Most of the significant causes were evolutionary issues that can be resolved as time goes on through improvements in technology, effective course design, better understanding of learner characteristics and appropriate learner support systems. Some recommendations were made as interim measures to help reduce the high attrition rate among distance learners at the University of Cape Coast (UCC).

INTRODUCTION

Distance education, as an alternative to face-to-face instruction, has witnessed steady growth in higher education since its beginning in the mid-1800s. This growth is demonstrated by the fact that, in 1990, nearly 30% of all adult students in the United States were receiving education in some distance format (Roberts, 2006). The influx of adults taking distance education courses has occurred in part because of the proliferating demand for skills by our technological society and the complexity of modern life. Before the distance education programme of the University of Cape Coast in 2001, the university had a total enrolment of 3 584 students on its conventional programmes. In 2010, the distance education programme alone had a total enrolment of about 24 000 students pursuing diploma and degree programmes in basic education, commerce and management studies (Akuamoah-Boateng et al., 2010).

Society demands lifelong learning, and employment and family responsibilities require adults to seek forms of education other than traditional face-to-face instruction (Moxley, 2006). Distance education provides adults with the opportunity for formal education while allowing for flexible scheduling. However, it appears the emergence of distance education at the University of Cape Coast is accompanied by a problem of high attrition rates.

In an attempt to find reasons for some students' non-completion of distance learning programmes and evidence for the high attrition rate, numerous studies have centred on the application of a variety of traditionally based theoretical models on the distance education setting (Tinto, 1982). However, there has not been any empirical study on reducing the attrition rate based on tutors'/students' perspectives at the University of Cape Coast. Therefore, there is a critical need to examine these perceptions. This is necessary to give members of the Faculty of Education and counsellors the opportunity to interact with students who are possible non-completers. It will also help them to make careful placement decisions and enhance review techniques, particularly in the courses, and to further assist students to prolong their academic careers.

Statement of the problem

Higher education has an important role to play in national development, in keeping academic pursuits, and in augmenting knowledge (Benakani, 2009). Distance education students are perceived to have higher attrition rates than conventional students (Phipps & Merisotis, 1999), although there has been much debate over the causes of attrition.

The distance education programme at the University of Cape Coast has provided access to higher education for many people in Ghana. In 2001, before the advent of distance education, the University of Cape Coast had a total enrolment of about 3 584 students in its conventional programmes. The distance education programme alone has increased its enrolment tremendously from 10 543 in 2001 to 54 707 in 2010 (Akuamoah-Boateng et al., 2010).

However, evidence from the Assessment Unit of the Centre for Continuing Education (UCC) indicates that not all students who enrol in the programmes are able to graduate on time, and others do not graduate at all due to several reasons. In 2001, 143 out of 860 basic education students could not graduate. In 2002, 263 out of 2 868 students could not graduate and in 2003 and 2004, 459 out of 3 161 students could not graduate. This trend suggests that there appears to be some problems associated with the completion rates of students in the distance mode of education at the University of Cape Coast. Although not all students are able to graduate on schedule, there has not been any known empirical research conducted on the causes of and measures to reduce attrition rates in the distance education programme at the University of Cape Coast.

Research questions

The study was guided by the following research questions:

- What are the demographic characteristics of distance learners?
- What factors do distance learners perceive as causes of attrition in their programmes?
- How do course tutors view distance learners' high attrition rate?
- What practical measures could be put in place to reduce the attrition rate of distance learners at the University of Cape Coast?

REVIEW OF LITERATURE

A review of literature offers an overview of other research studies related to this study as predictors of distance learners' attrition. Distance learning is an excellent method of reaching the adult learner. The competing priorities of work, home and school calls for a higher degree of flexibility in distance learning programmes. The structure of distance learning programmes gives the adult learner the greatest possible control over time, place and pace of study. However, the distance mode of learning is not without problems (Carr, 2000). Most distance programmes are affected by higher attrition rates. Dagger and Wade (2004) argue that, with the growth of distance education over the years, there has been an exceedingly high attrition rate of learners in most distance learning institutions worldwide. Distance learners' attrition and completion rate in any distance learning institution should get continuous attention from researchers and service providers.

The success of such programmes depends largely on extensive research that will provide information that may help in developing better and appropriate student support services to improve the effectiveness and efficacy of programme delivery and success (Thompson, 1999). Huang (2004) concurs when he notes that the issue of attrition in distance learning programmes is important in assessing the relative effectiveness of the cost of distance learning, compared to traditional classroom-based learning. He further argues that attrition should be monitored, as it affects educational planning and the value of investment in distance learning, educational institutions, corporations, and government agencies. Another reason given by Huang (2004) is that research findings on distance learners' attrition will help in determining the approaches to increase access, learning outcomes and the perceived value and credibility of distance learning programmes and qualifications.

Lowe (2005), recognising the complexity of attrition issues in distance learning, claims the problem reflects partly on the inability of distance learning institutions to provide learners with adequate relational and academic support services. He further argues that distance learning institutions have the higher ethical obligation of addressing attrition problems. However, there appears to be no empirical data on distance learners' current attrition rates at the University of Cape Coast.

Characteristics of distance learners

To understand the attrition rate in the context of distance learning, it is essential to understand the characteristics of adult learners. Adults' motivations for learning have been identified by Knowles et al. (1998) as follows:

- The need to know: Adults need to know why they need to learn something before learning it.
- The learner's self-concept: Adults should have a sense of responsibility for their own decisions and for their own lives. Once they have arrived at that self-concept, they develop a deep psychological need to be seen and treated by others as being capable of self-direction.
- The role of the learner's experience: Adults come into educational activity with both a greater volume and a different quality of experience than the youth. These experiences lead to diverse audiences in any adult group setting.
- Readiness to learn: Adult learners become ready to learn those things they need to know and should be able to do in order to cope effectively with their real-life situations.
- Orientation to learning: Adult learners are life-centred in their orientation to learning. They are motivated to devote energy to learning something to the extent that they perceive it will help them perform their tasks or deal with problems they experience in their life situations.
- Motivation: While adults are responsive to some external motivators (better jobs, promotions and higher salaries) the most potential motivations are internal pressures (the desire for increased job satisfaction, self-esteem, quality of life). Motivation may be blocked by an adult's negative self-concept as a student, time constraints and programmes that violate the principles of adult learning (Knowles et al., 1998:55–61).
- According to Garrison (1987), knowledge of distance education learners' background profiles will help to better understand how to design and deliver distance education programmes.

Causes of distance learners' attrition

Research has shown that attrition cannot and should not be attributed to one factor, as the reasons for withdrawal are complex and interrelated (Bernard & Amundsen, 1989; Morgan & Tam, 1999). Barriers to learning and participation can be classified

under three headings as situational, institutional and dispositional (Cross, 1981). Situational barriers include poor learning environment, lack of time due to work or home responsibilities, and geographic location.

Institutional barriers include the following:

- Costs and problems with institutional procedures
- Course scheduling
- Course availability and tutorial assistance

Dispositional barriers include the following:

- Lack of a clear goal
- Stress of multiple roles
- Time management
- Learning style differences
- Psychological reasons
- Social and economic factors

Students' chances of successfully completing distance learning programmes also depend on specific student characteristics that have been identified as indicators for potential success. These indicators include the following (Keegan, 1986):

- Being a self-starter
- Having self-discipline
- Being knowledgeable of the technology requirement of specific formats
- Being able to meet other students in a virtual environment

Factors such as age, marital status, educational level and gender, which are particular to an individual context, have been identified as determinants of attrition among distance learners (Morgan & Tam, 1999). Other factors that have been investigated as determinants of attrition include the number of courses and sources of financial aid (Parker, 1999). Another important variable for students' progress is the impact of the part-time status of most adult learners in distance education. Generally speaking, part-time students have higher attrition rates than full-time students. As students are the ones who study, their entry qualifications will certainly affect their study outcomes. Research results have shown that the background characteristics

of students are significant factors affecting their completion rates in in studies (Rovai, 2003).

Phythia and Clement (1980) report job and domestic pressure, and course content being too hard or long as the three main reasons for dropouts from third year-level Mathematics courses at open university. Rekkedal (1983) reported a number of reasons for learners dropping out of the NKL school in Norway, such as a lack of time, job commitments, changed career plans, economic reasons, illness, unsatisfactory living or study conditions, and personal reasons.

Oztok and Brett (2011) stress that dropping out is a phenomenon caused by learners' characteristics (educational background, personality, motivation and aptitude among others) and life circumstances (occupation, relationship with family and peer group, and health among others).

Research conducted by Thompson (1997) showed that the majority of students reported that work, family, and study commitments were the main reasons for their withdrawal. Some other researchers reported psychological reasons for dropping out, such as feelings of inadequacy, distress, and examination anxiety (Fan & Chan, 1997). Difficult course content and learning environments have also been identified as important reasons for attrition (Chyung, et al.,1998). It is clear from the literature that many issues account for the causes of high attrition rates.

METHODOLOGY

The study adopted a descriptive survey design, using a simple random sampling technique through a computer lottery method. A sample of 360 students was selected from a population of 1 985 final-year education students who have not been able to graduate. These students were contacted through their cellphone numbers and were asked to meet at their various study centres to respond to the questionnaire. A 100 basic education course tutors were randomly selected out of the course tutor population of 1 300 in the ten regions of Ghana.

Data was gathered at all the regional study centres located at Ashanti, Brong Ahafo, Central, Eastern, Upper West, Northern, Upper East and Volta Regions of Ghana. Each of the ten regions had a Regional Resident Tutor, coordinators and course tutors. The study centre coordinators were briefed about the essence of the study and they were given the instruments to administer to the students at

the centres. Final-year students were selected because they have been in the programme long enough to have experienced some of the causes of attrition in the programme. Two sets of questionnaires, one for the course tutors and one for students, were designed to elicit relevant information for the study. In total, 75 (75%) course tutors and 285 (79%) students returned copies of the questionnaire. The gathered data was analysed using Statistical Package for the Social Sciences (SPSS) in accordance with the research questions. The investigators concentrated on the distance learners who actually dropped out of their programmes and those who have problems with some of their courses.

Presentation of results and discussion of research findings

Demographic characteristics of students

The demographic characteristics of students were sought in order to determine whether they had any influence on attrition. The information obtained is shown in Table 1.

Table 1: Demographic profile of students

Variables	Subscales	Number (N)	Percentage (%)
Sex	Male	185	64.9
	Female	100	35.1
Age	Below 18	-	-
	18–22	-	-
	23–27	135	47.4
	Above 27	150	52.6
Programme of study	Psychology of Education	140	49.1
	Post Diploma in Education	85	29.8
	Diploma in Education	60	21.1
Employment status	Employed	265	93
	Unemployed	20	7
Marital status	Married	85	29.8
	Single	200	70.2
	Divorced/separated		
	Widow/widower		

Table 1 represents the demographic characteristics of the respondents of the study. In terms of gender distribution, 185 (64.9%) were male, while 100 (35.1%) were female. This implies that males exceed females in terms of pursuing distance education programmes at the University. Also, it can be seen that the majority, 150 (52.6%), of the respondents were above the age of 27, while 135 (47.4%) were between the ages of 23 and 27. Furthermore, it can observed that the majority, 265 (93%), were employed, while 20 (7%) were unemployed. In terms of marital status, 85 (29.8%) were married, while 200 (70.2%) were single. This seems to suggest that, although the distance education programme is for all groups of people, most of the enrolled students are not married. The implications of this are discussed later in the paper.

Demographic characteristics of tutors

The demographic characteristics of course tutors were sought in order to determine the characteristics of tutors responding to the attrition rate. The gathered information is shown in Table 2.

Table 2: Demographic profile of tutors

Variables	Subscales	Number (N)	Percentage (%)
Sex	Male	52	69.3
	Female	23	30.7
Age	Below 30	4	5.3
	31–35	14	18.6
	36–40	20	26.7
	41–45	24	32
	46–50	8	10.7
	Above 50	5	6.7
Academic qualification	First degree	40	53.3
	Master's degree	18	24
	PhD	2	2.7
	Others	15	20
Teaching experience	1–5 years	34	45.3
	6–10 years	12	16
	11–15 years	15	20
	16–20 years	8	10.7
	Above 20 years	6	8

Table 2 represents the demographic characteristics of the tutors of the distance education programme used for the study. In terms of gender distribution, it can be observed from Table 2 that, out of the 75 tutors used for the study, 52 (69.3%) were male, while 23 (30.7%) were female. This implies that most of the tutors teaching in the distance education programme are male. Also, it could be seen that the majority, 24 (32%), of the respondents was between the ages of 41 and 45, while 20 (26.7%) were between 36 and 40. However, the table also indicates that only four respondents (5.3%) were below the age of 30.

It could further be observed from Table 2 that 40 (53.3%) of the respondents were first-degree holders in various fields of study, 18 (24%) had master's degrees and two (2.7%) hold PhDs. Also, 15 (20%) indicated that they had other forms of academic qualification such as diplomas in education and other professional qualifications. In terms of teaching experience, it could be observed that the majority, 34 (45.3%), of the tutors has taught for 1 to 5 years, followed by 15 (20%) who have taught for 11 to 15 years. However, there were 6 (8%) who had over 20 years of teaching experience. This is an indication that all tutors for the distance education programme have some level of teaching experience. This means that their professional competency levels are very high and they are well grounded in the pedagogical aspects of the teaching profession.

Causes of distance learners' attrition

The study sought to determine the causes of distance learners' attrition. A total of 19 items in the instrument sampled students' views on the causes of attrition. The information obtained is shown in Table 3. Mean ranges: Agree (A) – 3; Undecided (U) – 2; and Disagree (D) – 3. Mean of means = 2.53; Mean of standard deviation = 0.76.

Table 3: Students' views on causes of distance learners' attrition

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
1	Academic achievement before entry predicts attrition.	175(61.4)	55(19.3)	55(19.3)	2.62	.80
2	Whether the initial course is the first preference of students also has a significant impact on course attrition.	170(59.6)	80(28.1)	35(12.3)	2.47	.70

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
3	Student aspirations in undertaking particular courses and the degree of 'fit' between such aspirations and the courses' outcomes influence attrition rate.	220(77.2)	55(19.3)	10(3.5)	2.74	.51
4	The quality of teaching and the teaching staff influence attrition rate.	195(68.4)	45(15.8)	45(15.8)	2.83	.75
5	The economic position of the students themselves has also been linked to their risk of leaving study.	180(63.2)	30(10.5)	75(26.3)	2.77	.87
6	Distance education may cause a sense of isolation that weakens motivation, which is an important reason for student attrition.	110(38.6)	40(14)	135(47.4)	1.91	.92
7	A social environment where the student experiences security, takes responsibility and is inspired, produces positive learning effects and also reduces student attrition.	160(56.1)	65(22.8)	60(21.1)	2.35	.81
8	The student's ability to cooperate in a learning community is crucially important for the decision to drop out or complete studies.	185(64.9)	65(22.8)	35(12.3)	2.88	.70
9	The student's previous education, study experience and motivation are all important factors influencing attrition.	185(64.9)	50(17.5)	50(17.5)	2.47	.78

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
10	Distance education students who have their own families are somewhat more likely to drop out.	115(40.4)	40(14)	130(45.6)	1.95	.93
11	Motivation and support from family and friends are factors that increase the likelihood that a student will complete the course.	235(82.5)	30(10.5)	20(7)	2.75	.57
12	Communication, especially with the teacher, is an important ingredient in supported distance education.	220(77.2)	35(12.3)	30(10.5)	2.67	.66
13	There are great deficiencies in the communication between teacher and student, which should have a greater emphasis on the role of the teacher as a facilitator of dialogue and active participation.	165(57.9)	30(10.5)	90(31.6)	2.96	.91
14	Other reasons for dropping out are simultaneous work and studies or parallel studies.	205(71.9)	45(15.8)	35(12.3)	2.60	.70
15	Conflict between studies and other commitments in the family, social or working life is one of the important reasons for attrition.	215(75.4)	15(5.3)	55(19.3)	2.56	.80
16	Psychological factors, such as feelings of inadequacy, distress, lack of confidence and examination anxiety, cause students to drop out.	200(70.2)	45(15.8)	40(14)	2.56	.73
17	Lengthy and difficult course content causes attrition.	205(71.9)	35(12.3)	45(15.8)	2.86	.75

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
18	A loss of interest leads to students dropping out.	170(59.6)	65(22.8)	50(17.5)	2.72	.77
19	Course content not being relevant to students' present careers may also contribute to attrition.	45(15.8)	40(14)	200(70.2)	1.46	.75

The results presented in Table 3 shows a mean of means and mean of standard deviations as M = 2.53, SD = 0.76. According to the scale used for the analysis, these figures indicate that the students generally agreed that the 19 factors listed were possible causes of distance education students' attrition. It means that a lot needs to be done if the administrators of the distance education programme want to reduce the level of attrition. This is because the nature of the given responses indicate that a lot of factors determine whether a distance learner drops out or completes a programme. The standard deviation (SD = 0.76) shows a relatively high consensus on the mean of means value (M = 2.53). This means that the reasons why distance learners drop out of their programmes over a certain period of time are many, as attested by the students themselves. Interestingly, the students seem to consider motivation and support from family and friends as factors that increases the likelihood of students completing their programmes.

Tutors' views on causes of distance learners' attrition

The tutors' opinions on the causes of distance learners' attrition were also sought. The reason is that the tutors might have interacted with the friends of the dropouts or the dropouts themselves. Table 4 shows information gathered from the tutors. Mean ranges: Agree (A) – 3; Undecided (U) – 2; and Disagree (D) – 1. Mean of means = 2.60; Mean of standard deviation = 0.76.

Table 4: Tutors' views on causes of distance learners' attrition

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
1	Academic achievement before entry predicts attrition.	47(62.7)	15(20)	13(17.3)	2.95	.78
2	Whether the initial course is the first preference of students also has a significant impact on course attrition.	44(58.7)	21(28)	10(13.3)	2.45	.72
3	Student aspirations in undertaking particular courses and the degree of 'fit' between such aspirations and the courses' outcomes influence attrition rate.	57(76)	15(20)	3(4)	2.72	.53
4	The quality of teaching and the teaching staff influence attrition rate.	51(68)	14(18.7)	10(13.3)	2.55	.72
5	The economic position of the students themselves has also been linked to their risk of leaving study.	47(62.7)	9(12)	19(25.3)	2.37	.87
6	Distance education may cause a sense of isolation that weakens motivation, which is an important reason for student attrition.	30(40)	11(14.7)	34(45.3)	1.94	.93
7	A social environment where the student experiences security, takes responsibility and is inspired, produces positive learning effects and also reduces student attrition.	40(53.3)	19(25.3)	16(21.3)	2.82	.81
8	The student's ability to cooperate in a learning community is crucially important for the decision to drop out or complete studies.	46(61.3)	19(25.3)	10(13.3)	2.88	.72

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
9	The student's previous education, study experience and motivation are all important factors influencing attrition.	47(62.7)	14(18.7)	14(18.7)	2.74	.79
10	Distance education students who have their own families are somewhat more likely to drop out.	32(42.7)	12(16)	31(41.3)	2.91	.92
11	Motivation and support from family and friends are factors that increase the likelihood that a student will complete the course.	61(81.3)	10(13.3)	4(5.3)	2.76	.54
12	Communication, especially with the teacher, is an important ingredient in supported distance education.	57(76)	11(14.7)	7(9.3)	2.67	.64
13	There are great deficiencies in the communication between teacher and student, which should have a greater emphasis on the role of the teacher as a facilitator of dialogue and active participation.	45(60)	9(12)	21(28)	2.82	.89
14	Other reasons for dropping out are simultaneous work and studies or parallel studies.	55(73.3)	12(16)	8(10.7)	2.63	.67
15	Conflict between studies and other commitments in the family, social or working life is one of the important reasons for attrition.	57(76)	5(6.7)	13(17.3)	2.59	.77

No.	Statement	A N (%)	U N (%)	D N (%)	M	SD
16	Psychological factors, such as feelings of inadequacy, distress, lack of confidence and examination anxiety, cause students to drop out.	50(66.7)	13(17.3)	12(16)	2.51	.76
17	Lengthy and difficult course content causes attrition.	53(70.7)	10(13.3)	12(16)	2.55	.76
18	A loss of interest leads to students dropping out.	44(58.7)	17(22.7)	14(18.7)	2.62	.79
19	Course content not being relevant to students' present careers may also contribute to attrition.	12(16)	11(14)	52(69.3)	1.97	.76

An analysis of tutors' views on the causes of attrition shows the mean of means and mean of standard deviations as M = 2.60, SD = 0.76. According to the scale used for the analysis, these figures indicate that the tutors generally agree that the 19 listed factors are possible causes of distance learners' attrition rate. It means that some practical measures should be put in place as interim measures to address the problem of attrition. A standard deviation (SD = 0.76) shows a relatively high consensus about the mean of means value (M = 2.60). This means that the general reasons why distance learners' drop out of their programmes over a certain period of time are varied, as attested by the students themselves. Surprisingly, the students and tutors both indicated a lack of motivation from family and friends as the most common reason for dropping out.

Measures to reduce the attrition rate

The tutors' and students' views on measures to reduce the attrition rate of distance learners were elicited. Tables 5 and 6 respectively depict students' and tutors' views. Mean ranges – students: Effective (E) – 3; Not Sure (NS) – 2; and Ineffective (IE) – 3. Mean of means = 2.48. Mean of standard deviation = 0.74. Mean ranges – tutors: Effective (E) – 3; Not Sure (NS) – 2; and Ineffective (IE) – 3. Mean of means = 2.46; Mean of standard deviation = 0.75.

Table 5: Students' views on measures to reduce attrition rate of distance learners

No.	Statement	E N (%)	NS N (%)	IE N (%)	M	SD
1	Providing guidance in time management through their core faculty and part-time academic counsellors	200(70.2)	30(10.5)	55(19.3)	2.51	.80
2	Providing intense pre-entry counselling	225(78.9)	35(12.3)	25(8.8)	2.70	.62
3	Monitoring the counselling sessions and evaluating assignments with tutor comments	225(78.9)	30(10.5)	30(10.5)	2.68	.65
4	Providing more concrete guidance in writing assignments	205(71.9)	35(12.3)	45(15.8)	2.56	.75
5	Introducing different types of assignments besides short answer and long answer types	160(56.1)	50(17.5)	75(26.3)	2.30	.86
6	Sending evaluated assignments to the students in time	190(66.7)	50(17.5)	45(15.8)	2.51	.75
7	Contact between the core faculty and the students may be increased using various communication technologies	205(71.9)	45(15.8)	35(12.3)	2.60	.70
8	Introducing more hands-on experience for skills development	175(61.4)	55(19.3)	55(19.3)	2.42	.79
9	Making teaching and learning material available to students on time	250(87.7)	10(3.5)	25(8.8)	2.80	.59
10	Extending the duration of the courses to provide students with more time to complete them	170(59.6)	25(8.8)	90(31.6)	1.72	.91

An analysis was done to determine the nature of the responses given in terms of the measures that can be put in place to reduce distance learners' attrition rate. In the case of the students, a mean of means and mean of standard deviations were computed as M = 2.48, SD = 0.74. According to the scale used for the analysis, these figures indicate that the students generally agree that the 10 listed factors are possible means of reducing distance education students' attrition rate. A standard deviation of SD = 0.76 shows a relatively high consensus on the mean of means value (M = 2.48 ≈ 2.50). The most remarkable measure to which students (250 (87.7%)) responded was making teaching/learning material available on time.

Tutors' views

Table 6 presents tutors' views on the measures to reduce the attrition rate in distance learning. Mean ranges are: Effective (E) = 3; Not Sure (NS) = 2; and Ineffective (IE) = 3. Mean of means = 2.48; Mean of standard deviation = 0.74.

Table 6: Tutors' views of measures to reduce distance learners' attrition rate

No.	Statement	E N (%)	NS N (%)	IE N (%)	M	SD
1	Providing guidance in time management through their core faculty and part-time academic counsellors	52(69.3)	9(12)	14(18.7)	2.51	.79
2	Providing intense pre-entry counselling	60(80)	9(12)	6(8)	2.72	.61
3	Monitoring the counselling sessions and evaluating assignments with tutor comments	58(77.3)	8(10.7)	9(12)	2.65	.69
4	Providing more concrete guidance in writing assignments	52(69.3)	11(14.7)	12(16)	2.53	.76
5	Introducing different types of assignments besides short answer and long answer types	41(54.7)	13(17.3)	21(28)	2.27	.88
6	Sending evaluated assignments to the students in time	49(65.3)	14(18.7)	12(16)	2.49	.76

No.	Statement	E N (%)	NS N (%)	IE N (%)	M	SD
7	Contact between the core faculty and the students may be increased using various communication technologies	53(70.7)	13(17.3)	9(12)	2.59	.70
8	Introducing more hands-on experience for skills development	45(60)	16(21.3)	14(18.7)	2.41	.79
9	Making teaching and learning material available to students on time	65(86.7)	3(4)	7(9.3)	2.77	.61
10	Extending the duration of the courses to provide students with more time to complete them	22(29.3)	7(9.3)	90(61.3)	1.68	.90

An analysis was done to determine the nature of the responses given in terms of what measures can actually be put in place to reduce distance learners' attrition rate. In the case of the tutors, a mean of means and mean of standard deviations were computed as M = 2.46, SD = 0.75. According to the scale used for the analysis, these figures indicate that the tutors generally agree that the 10 listed factors are possible measures of reducing distance education students' attrition rate. A standard deviation (SD = 0.75) shows a relatively high consensus on the mean of means value (M = 2.46 ≈ 2.50). The highest rated measure given by the tutors, 65 (86.7%), was the provision of teaching/learning material on time.

Discussion of findings

The study has revealed that most of the students pursuing distance learning are male. One wonders why women are still lagging behind men, even when distance education has been made accessible in Ghana. It is not clear whether the socio-cultural practices that discourages in career development in African women are still dominant in communities. The smaller number of females also reflects in the number of course tutors in distance learning. This finding is contrary to findings made by Adrah (2000) in the then College of Education, Winneba, where female students were found to be more than males.

With regard to marital status, it has been found that the majority of the students are single. This fact may help the students concentrate on their books, as they will have no marital demands. It could also imply that the institution might need to monitor this trend. Monitoring this issue will enable the institution to understand the characteristics of such students, their profile and how to better support them in their studies, especially in view of technological trends in the age group.

On the topic of tutors' qualifications, it was revealed that the majority of the tutors were first-degree holders. This qualification is on the lower level, since the requirement for lecturers at the University of Cape Coast is at least a second degree.

With regard to the causes of a higher attrition rate in distance learning, students and tutors agree on the 19-point factor list above as possible causes of distance education. These factors fall in line with the existing literature (Nash 2004; Perraton, 1992; Keegan, 1988; Brookfield, 1987). The respondents' highest-rated factor for preventing attrition (motivation from family and friends) confirms what Brookfield (1987) noted: that adults need a comfortable and supportive environment to ensure success in learning.

With regard to how the attrition rate can be reduced, tutors and students have rated providing teaching and learning material on time, intense and monitored pre-entry counselling, and evaluating assignments with tutor comments as the most significant to reduce attrition. Again, sending evaluated assignments to students on time was also seen as a crucial measure to reduce attrition. These measures confirm literature in this area, which includes pre-course orientation (Wojciechowski & Palmer, 2005). While Minich (1996) contends that frequent contact with students is critical in reducing attrition, Nash (2004:2) reminds us that "interactions can be time-consuming and difficult for the faculty to sustain".

It has also emerged from the study that the reasons for female distance education students leaving the programme are significantly different from the reasons for male students dropping out.

SUMMARY AND CONCLUSION

The problem of attrition in distance learning programmes has been argued by several researchers, without any consistent conclusions about the magnitude of the problem or a clear understanding of what can be done to solve the problem. In examining tutors' and distance learners' perception of the attrition rate of distance learners, this paper focused on the distinctive characteristics of adult learners, predictors of attrition and measures to reduce the problem. While the findings of this study offer a constellation of causes of attrition among UCC distance learners and some measures to reduce the problem, little can readily be done to ameliorate the situation.

The complexity of the causes of attrition and measures to reduce it allows for few practical or readily applied solutions. In some instances, some causes may be evolutionary issues that may, in time, be resolved through improvements in technology, more effective course design, a better understanding of adult learner characteristics, good facilitation skills and effective learner support systems.

One area where something can be done to reduce the attrition rate of distance learners is early faculty contact, where intense pre-entry counselling sessions are given through orientation in relational, academic and other retention strategies. A greater level of persistence may be achieved if learners are supported to anticipate, recognise and recover from the cognitive burden they may experience as beginners.

The issue of distance learners' attrition needs further research. However, it is believed that early faculty contact and thorough orientation will help reduce the high rate of attrition as perceived by both tutors and students. This contact can improve retention and enhance the learning outcomes of UCC distance learners. Attrition cannot be attributed to one cause, but must be considered as from the result of a combination of factors. This study has identified important predictors of attrition in distance learning and has identified others that did not show significant effects. The findings may prove to be of value to UCC distance learning providers, future researchers and institutions providing distance learning.

RECOMMENDATIONS

Based on the findings, the following interim measures are recommended to reduce the high attrition rate of UCC distance learners:

- Efforts must be made by the Centre for Continuing Education to make it a norm to employ tutors who have at least a second degree. Such tutors will be able to teach and encourage students to get involved with the programme.
- Again, there is a need to provide teaching and learning material on time and intensify pre-entry counselling for tutors and students. This will help tutors and students to establish a foundation for the teaching and learning environment.
- The centre should create a course website to promote online chats. This will encourage frequent interaction between the students and the centre, so that issues can be discussed promptly to prevent frustration, which may eventually lead to attrition.
- The centre should also develop group projects and assignments that encourage students to develop relationships with other members in and outside their study centre, so that they can explore their knowledge base together. This group project may help students overcome physical separation, feelings of isolation, lack of support and feeling disconnected, thus reducing attrition levels.
- Furthermore, the centre should provide online access to a variety of services, including assessments, educational counselling, registration, technical support, study skills assistance, career counselling, library services, students' rights and responsibilities and governance.
- Finally, there should be an open forum in all the centres where students' concerns could be addressed.

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EFFECTIVE ASSESSMENT AND EVALUATION STRATEGIES FOR DISTANCE EDUCATION

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ABSTRACT

Distance education, or distance learning, is a field of education that focuses on teaching methods and technology with the aim of delivering teaching, often on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom (Wikipedia, 2011).

Most institutions across the globe have embarked on distance education to meet the demands of students who, under normal circumstances, are not able to attend classes in the traditional classroom format because of time constraints, and job and family responsibilities. There is a compelling need to determine success through effective assessment and programme evaluation.

Much has been written about distance education in terms of types and structures, and tools and methods of delivery. However, very little has been written and discussed about the effectiveness of distance learning and effective ways to assess and evaluate distance education programmes and the use of programme evaluation outcomes to improve students' learning, instructional techniques, resources and programme management. This paper discusses the various programme evaluation strategies, and assessment tools and practices. Effective programme assessment and evaluation not only helps to determine what and how students have learned, but also helps to improve programme quality.

Keywords: Distance education; distance learning; programme evaluation; assessment tools; evaluation metrics.

INTRODUCTION

The past decade has seen a rapid growth in distance education programmes all over the world. Many universities and other tertiary educational institutions have embarked on distance education programmes to expand their market reach and/ or bring affordable education to people who might otherwise not have access to higher education due to geographical barriers, employment demands, family demands, and financial constraints. Distance education programmes also seek to involve instructors who would otherwise be unavailable to teach on a regular basis, and link students from different socio-economic and cultural backgrounds.

In the past, the quality of educational programmes has largely been defined by the popularity of the programmes and the size of the institution. The rapid growth of distance education programmes has generated public interest in the quality of these programmes. There are skeptics who think distance learning does not deliver a similar quality of education to the traditional face-to-face setting in a classroom. Several research projects have addressed the parameters and themes that address quality, but there are few discussions on the metrics and strategies of accessing distance learning programmes in Africa (Materu, 2007).

A good assessment and evaluation of distance learning programmes identify the vision, goals, objectives, outcomes and measures. An effective programme evaluation should address the following questions:

- What do you like to do? (*Vision*)
- What steps do you take to get there? (*Goals*)
- What do you have to achieve for each step? (*Objectives and outcomes*)
- How well are you doing it? (*Measures*)
- What and how does a programme contribute to the development and growth of its students?

This paper outlines some of the problems associated with the successful implementation of quality distance education programmes in Africa. It also discusses evaluation strategies that will lead to quality distance learning. Quality evaluation issues related to the institutional mission statement, students' needs and satisfaction, students' learning and course outcomes, instructional technology, and staff needs and support are also discussed.

Categories of distance education programmes

Based on the technology in use and the location of the programme, the method of delivery in a distance education programme may fall under the following categories:

- Print-based courses
- Conferencing courses (video-conferencing)
- Computer-based training (CBT)
- Pre-recorded audio courses (tapes, podcasts)
- Radio broadcast courses
- Television broadcast courses
- Online courses using learning management systems

Problems affecting distance learning implementation in Africa

Despite the perceived promises and obvious advantages of distance education in Africa, several problems are associated with the implementation of distance learning programmes. The problems that need to be addressed in order to improve the quality of distance learning programmes in Africa include the following (Nartker, et al., 2009a:8, 2009b:35–69):

- A lack of clearly defined institutional mission statements
- A lack of a clearly defined programme mission
- A lack of trained and qualified staff
- Dependency on part-time instructors
- Inadequate technological infrastructure
- Inadequate staff training schemes
- Deficiencies in curriculum development
- Inadequate laboratory spaces for medical and science-based courses

In their reports on the use of distance learning to train health care workers in Mozambique and Tanzania , Nartker et al (2009a; 2009b) recommended the development of strategic plans and visions for distance learning programmes, the provision of improved infrastructure and human resources, an increase in the awareness and skills of the use of technology, the decentralisation of coordination functions and learner support, and improved programme coordination.

In the opinion of the general public and some academics, distance learning may not be as effective as face-to-face learning, and they are therefore skeptical about its quality. Rigorous programme evaluations are needed to address this misconception. The standards used in determining the quality of distance education must be based on the philosophy of Chickering and Gamson's principles of good practice (1987), which highlight accountability, effectiveness, impact, organisational context and unanticipated outcomes.

Distance learning can be as effective as traditional face-to-face learning if the following "seven principles of good practice in undergraduate education" (Chickering & Gamson, 1987) are applied to distance learning:

- Contact between students and instructors
- Cooperation among students
- Use of active learning techniques
- Prompt feedback
- Emphasis on time spent on each task
- High expectations
- Respect for diverse talents and ways of learning

Evaluation strategies

Analyses of the problems related to the successful implementation of quality distance learning by Wright et al (2009) and Yusuf (2006) resulted in the need for appropriate strategies to assess and evaluate the quality of these programmes. Standards must be developed over time, and the data collected on a regular basis should be compared with existing standards to determine which changes are necessary to steer the programme in the right direction.

Recent research activities in programme evaluation have led to the adoption of summative and formative evaluation techniques (Lytle & Wolfe, 1989). The data used in the evaluation includes interviews, surveys, documents and records gathered about various programmes, field reports and content analysis. As stated by Worthen et al., "failure to use formative evaluation is myopic, for formative data collected can help rechannel time, money, and all types of human and material resources into more productive directions" (Worthen, et al., 1997:16).

In developing an assessment plan with the objective of improving its academic programmes, the Office of Operational Excellence and Assessment Support (OEAS) at the University of Central Florida adopted evaluation strategies that addressed the following questions (Operational Excellence and Assessment Support, 2008):

1) What are the programme's goals and objectives?

2) How are these goals and objectives met?

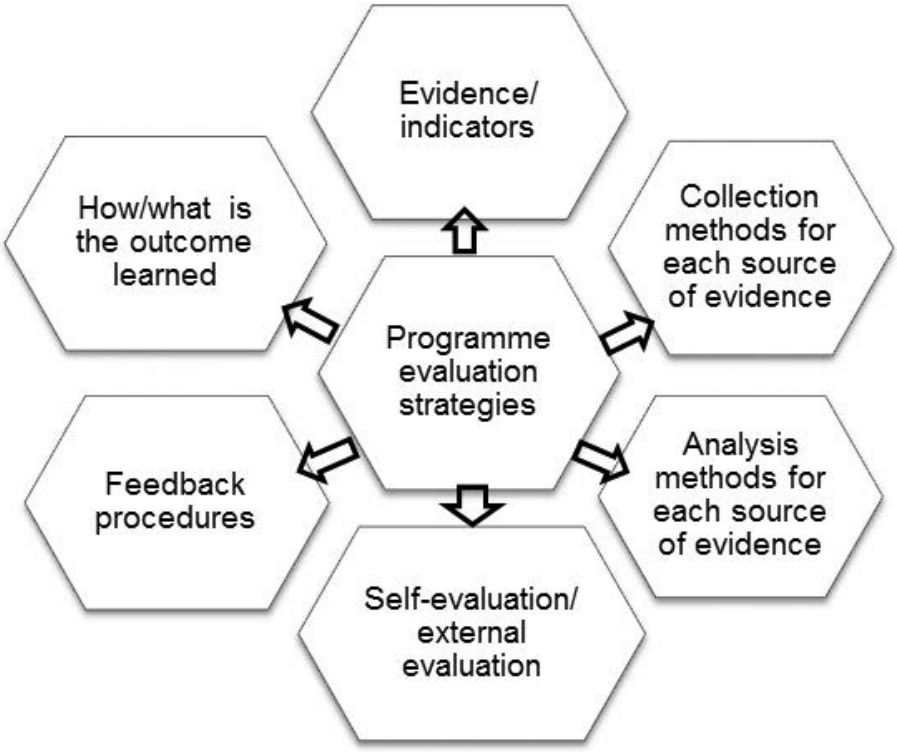
3) How (using the answers to 1 and 2) can the programme be improved?

Programme evaluations should be ongoing, not episodic. The cycle for an effective programme evaluation, as shown in Figure 1, begins with identifying the indicators that outline the goals and objectives of the programme in the context of the institution's mission.

The appropriate data collection methods are then defined. Data collection should focus on what and how the programme is contributing to the learning, growth and development of students (Operational Excellence and Assessment Support, 2008). The data normally tends to fall into two categories of information: quantity and quality. Typically, quantitative data comprises numerical descriptions of programme activities and achievements while qualitative data often portrays programme activities and achievements through narrative descriptions (Gajda & Jewiss, 2004).

Any programme evaluation, no matter how well it is conducted, is worthless unless it incorporates a feedback mechanism. Feedback procedures should be established to provide the information needed to define the outcomes that will be used to improve the programme. The outcomes will define and demonstrate what has been learned from the assessment efforts and how it can be used for programme improvement and revision.

Figure 1: Components of evaluation strategies



Both self-evaluation and external evaluation should take place. Self-evaluation techniques are used to determine if the objectives of various programmes align with the institutional mission statement. External evaluation will help judge the validity and credibility of the programmes. The external evaluators and assessors should include scholars with specialisations in the related fields and their responsibilities will involve the evaluation of format, curriculum and learning outcomes, student's needs, staff needs and support and the technology used for delivery. Table 1 shows the various evaluation metrics and related activities and evaluation frequencies.

Table 1: Assessment metric, related activities and frequencies

Assessment activities	Frequency of assessment
Institutional mission statement Accreditation Summary of departmental programme assessment Budget review	Site visits as scheduled by accreditation teams Annually as defined by the institution's annual report
Student needs and satisfaction assessment Distance education orientations Student profile study Student satisfaction survey Student evaluation of effectiveness of distance education	At the beginning of a programme or course Ongoing
Student learning and course assessment techniques Review of learning resources Course evaluations Classroom inventory Course development review	Both at the beginning and end of a programme or course
Instructional technology assessment Technology evaluation	Ongoing in some cases and at the beginning of a programme or course
Staff needs and support assessment Faculty satisfaction survey Review of academic credentials for new hires Needs analyses for training	Annually

Institutional mission statements

Assessing and evaluating the success of a distance learning programme begins at institutional level. The institution's mission statement should specify its educational philosophy and objectives. Distance learning needs must be in line with the institution's mission and be considered as providing education to distance learners using instructional methods that serve the needs of the learners. For effective distance programme implementation in Africa, there should be some cooperation with the government, businesses, private organisations, churches and communities.

The mission of the departments in charge of the various distance learning programmes or courses should also identify the missions, goals and objectives of each programme or course and align them to the institutional mission. Institutional missions, in most cases, are identified in self-study reports. Aligning the department's mission statement to the institution's mission statement helps to produce an outcome that will be used in the planning, administration and institutional support of the distance learning programmes. In its report, the Association to Advance Collegiate Schools of Business (2007:5) recommends that institutional objects should "specify the educational objectives of each degree, identify the student population to be served, explain how distance learning contributes to the mission, goals and objectives of the institution, and how the institution's distance learning differs from offerings of other providers". Upon assessing student learning outcomes, these will be aligned to the individual programme learning outcomes.

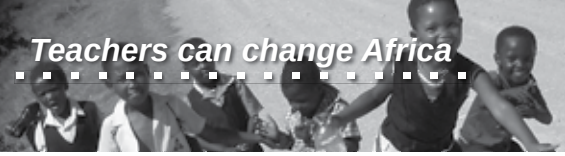
Institutional mission assessment and evaluation should address the following questions:

- Does the distance learning programme fit into the institution's mission?
- Is the institution equipped to offer distance learning?
- Does the institution have adequate resources to offer distance learning?

The various academic departments involved in the institution's distance education programme should conduct programme evaluation at the following times:

- Upon graduation
- At the end of a specific semester
- At the completion of a required set of courses
- Upon the completion of a certain number of credits
- Upon programme completion
- Upon employment
- A number of years after graduation

The outcome of the institutional mission and departmental programme evaluation will help shape institutional decision-making, planning and resource allocation.



Student needs and satisfaction evaluation

An important question to ask when it comes to student needs and satisfaction is: "Does the institution have adequate student support services and apparatus to support off-campus students in terms of learning, advising and career development?" Distance learners have diverse needs, which include family needs, business activities, and health issues. Their learning activities can be interrupted by births, illness, loss of job, career changes, relocations, death in the family and needed vacations. In some cases, there may also be communication problems due the unreliable nature of the communication infrastructure in Africa. The majority of students enrolled in distance learning programmes are working adults. As stated by Pallof and Pratt (2001:109): "Most of our students today are older, are working, and need more flexible schedules."

Students' needs can be identified by getting to know them as soon as possible through the use of profiles and introductory activities that will provide the instructor or facilitator an insight into who the learner is, not only academically, but also professionally and personally. If possible, their learning activities must be planned around their schedules, activities and learning styles to create a positive learning experience. Conrad and Donaldson (2004:19) state: "One common mistake distance education instructors make is by not giving enough time for activities."

Students' satisfaction can be measured by the way in which instructors and facilitators interact with the learners. Interactivity with students is, therefore, essential to the success of any distance learning programme. Limited technological infrastructure in most parts of Africa can hinder the effective implementation of distance education. In their report on the use of distance learning to train health care professionals in Mozambique and Tanzania, Nartker et al (2009a, 2009b) indicate that a lack of technology may hinder the effective implementation of the programme. An effective way of interacting with students is through setting up district meeting centres where instructors and facilitators periodically meet with students. Advances in mobile phone technology and the rapid expansion of fiber-optic technology in Africa will soon provide an effective medium to communicate and interact with students.

The following factors play a critical role in determining the students' needs: age, cultural and socio-economic backgrounds, interests and experiences, educational levels, familiarity with distance methods and delivery systems. Students' needs

can be assessed by analysing existing data sources, conducting regular surveys, studying student profiles, and interviewing community members and focus groups.

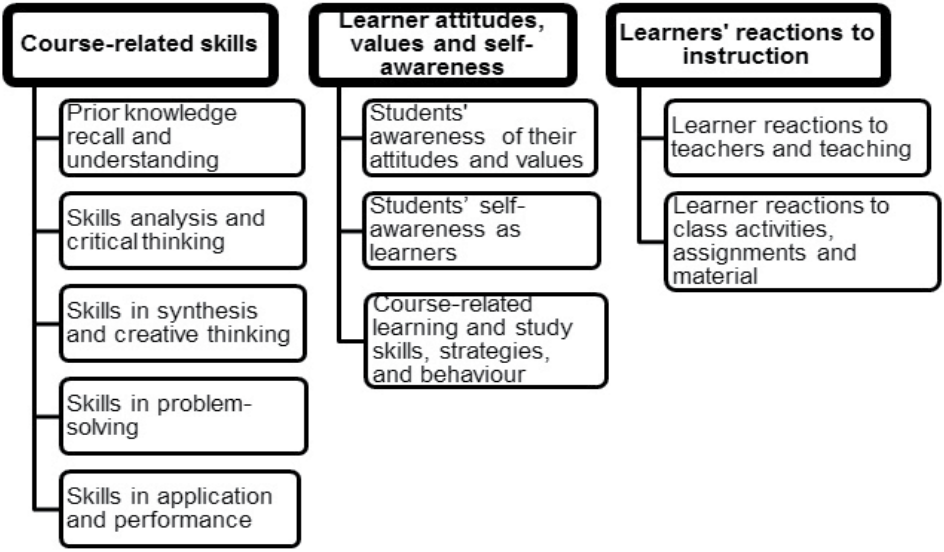
Student learning and course evaluation techniques

One of the major components of instructional design is course evaluation. Course evaluation standards should aim at achieving learning outcomes comparable to traditional face-to-face programmes. The timing and type of evaluation is highly essential in bringing out the learning outcomes needed to strengthen the integrity of the programme. Both summative and formative evaluation policies should be adopted.

In general, course evaluations are intended to measure what students are learning about the content they are taught. In some cases, teachers aspire to more than simply teaching students information about the subject matter. They hope to use the subject matter to teach students to think, in order to develop higher-level cognitive skills such as solving problems, analysing arguments, synthesising information from different sources and applying what they are learning to new and unfamiliar contexts (Angelo & Cross, 1993).

Effective course evaluation should help institutions determine whether the distance learning curriculum fits into the existing traditional programme of the institution and whether the institution has the appropriate guidelines for course development, review of instructional material, and revision of pedagogy, curricula and course sequencing. Figure 2 illustrates the core areas of course evaluation and the expected outcomes.

Figure 2: Course evaluation metrics and expected outcomes



Adapted from Angelo and Cross (1993:62–63).

Learning evaluation strategies

A. Direct indicators of learning

- Capstone course evaluation
- Course-embedded assessment
- Tests and examinations (locally/faculty-designed and commercially produced standardised tests)
- Portfolio evaluation
- Pre-test/post-test evaluation
- Thesis evaluation
- Videotape and audiotape evaluation of performance

B. Indirect indicators of learning

- External reviewers
- Student surveying and exit interviewing
- Alumni surveying
- Employer surveying
- Curriculum and syllabus analysis

(Adapted from http://www.provost.wisc.edu/assessment/manual/manual2.html.)

Student learning outcomes can be used to do the following:

- Provide the necessary feedback to determine ways of improving student learning activities.
- Design new courses and revise existing ones.
- Clearly communicate expectations to students.
- Help departments align their respective *programme* objectives with the institutional mission statement.
- Increase learning awareness among students.
- Help departments, instructors, and facilitators devise effective advice strategies.
- Design and develop course materials that suit new technology.

Instructional technology evaluation

The Bates ACTIONS model of quality – "Access and flexibility, Costs, Teaching and learning, Interactivity and user-friendliness, Organisational issues, Novelty and Speed" – can be used as an effective tool to select instructional technologies (Bates, 2000). Instructional technologies should not be limited to just one methodology, but rather a blend, depending on the geographical location, nature of the course and accessibility to technology. The cost factor is also a crucial element to consider, since it impacts on students, instructors, facilitators and institutions.

Staff needs and support assessment

The majority of the instructors in distance education are part-time instructors. Issues related to workload, efforts put into developing teaching material, work being considered as part for promotion/tenure decision-making and consultation time

should all be considered when assessing staff needs and support. If staffing issues are not addressed before the implementation of a distance learning programme, they may lead to programme failure.

In their paper on needs assessments, Stewart and Cuffman detail some important questions that must be explored when assessing needs (Stewart & Cuffman, 2011):

(1) What is a needs assessment?

(2) How are needs assessments related to successful distance education?

(3) Where have needs assessments been used in distance education?

(4) Which approach to needs assessment should one choose?

(5) What sources and methods might one use for collecting data?

(6) What factors influence the use of needs assessment results?

(7) What criteria can be used to evaluate a needs assessment?

Needs assessments must focus on some fundamental metrics that enable the staff to function effectively as distance education instructors. The process of needs assessment begins with feasibility studies to identify the tangible and intangible benefits to the programme and the institution as a whole. This is followed by the needs assessment plan, which identifies the goals and objectives of the needs assessment. Finally, conduct the needs assessment by using a combination of techniques such as interviews, job performance, observations, questionnaires, student evaluations and consultation with administrators. Conducting a needs assessment on the environment, incentives, motivation, knowledge, skills and proficiency necessary to integrate technology in instruction and mode of delivery, and the ability to evaluate student achievements at distant sites identifies the strengths and weaknesses of the programme.

CONCLUSION

Distance learning is only one strategy to deliver educational programmes. A particular assessment method and strategy cannot be applied to all programmes. The assessment and evaluation methods and data collected may vary in each environment. Whatever the situation is, the data collected and outcomes are useful for charting the course of distance learning in an institution.

By effectively accessing distance education programmes with regard to the institutional mission statement, students' needs and satisfaction, students' learning and course outcomes, instructional technology and staff needs, the integrity of distance learning can be assured and can be seen as comparable to traditional face-to-face programmes.

In the past decade, higher education institutions have incorporated distance learning programmes into their existing ones. The number of students enrolling in distance education programmes is increasing, so are the programmes. Quality assurance is critical to the overall acceptance and integrity of distance learning.

In most countries in Africa, quality assurance and accountability in education are addressed by the governmental agencies. To foster quality assurance, there should be accreditation bodies solely responsible for distance learning. For internationalisation and cross-border acceptance, regional accreditation bodies must be set up in the various economic blocs in sub-Saharan Africa to oversee the administration and programme development of distance education programmes.

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FACILITATOR PREPARATION, SUPPORT AND QUALITY ASSURANCE FOR THE IMPROVEMENT OF STUDENT PERFORMANCE AT CONTACT SESSIONS

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ABSTRACT

This paper focuses on how distance education (DE) facilitators of the Advanced Certificate in Education (ACE) are trained, supported and quality-assured during contact sessions to improve their facilitation skills. The argument is whether facilitators are adequately trained, quality-assured and supported to assist students studying independently in improving their performance. A further argument is whether the training, quality assurance and support of facilitators contribute to the two-way communication between students and the facilitator, and the communication of students with one another during the learning process. Ten facilitators from two provinces, the Eastern Cape and Limpopo, who were involved in the ACE Education Management Programme, were purposively sampled and interviewed using semi-structured interviews. The aim was to establish what the support structures and methods used for distance education facilitation were. Findings revealed that module coordinators had no standardised training programme or support mechanisms for the facilitators, which resulted in some facilitators being better prepared than others. These findings may contribute to designing a standardised facilitator training programme and support strategies for the improvement of facilitation and learning, as well as quality assurance at contact sessions.

Keywords: Distance education; training; support; quality assurance; contact session; facilitators; Advanced Certificate in Education.

INTRODUCTION

Distance Education (DE) in South Africa is provided by public universities and universities of technology (Matsilisa, 2007:1). South Africa, like the rest of the world, has shifted from correspondence education – based solely on the delivery of materials without any structured interaction – to distance education, where contact and structured opportunities for interaction between the facilitator and students are integrated into the programme design (Badat, 2005:379). The term "distance education" refers to an intentional process of teaching and learning in which physical space separates facilitators and students.

Before every contact session, a compulsory facilitators training workshop is held by the module coordinator at the University to sharpen facilitator skills and to provide support (Massyn, 2002). The module coordinators organise and plan the course and – with the assistance of the University's administrative staff – ensure that the facilitators receive all the material timeously. At the training workshop, the coordinators are able to communicate with facilitators to solve any module-related problems they experience or foresee. All facilitators are given an opportunity to present a particular topic from the module, and the other members of the facilitation team provide constructive criticism on the presentation. This process is done in preparation for facilitation at contact sessions and for quality assurance.

In addition to excellent study material, quality assurance is a very important aspect of achieving excellence in distance education, and follows a well-planned, proactive training and support programme for facilitators. Effective distance education facilitation training should enable facilitators to adapt traditional teaching strategies to a new learning environment at contact sessions (Massyn, 2002:139). The success and quality of distance education facilitation and learning is highly dependent on a variety of factors, such as the appropriateness of the learning material and the learning theory, the design and delivery of instructions, the roles of partners in distance education, methods and strategies to increase interactivity, inquiry, facilitator mediation, operational issues and facilitators' delivery mode (Dzakiria, 2008; Sherry, 1996; and Massyn, 2002:139). Sensitivity to the context and the socio-economic circumstances of students and their environment should result in models of best practice developed from past experience with similar groups of students (McLean, 2001).

Best practices that have been benchmarked with other students should assist institutions in designing, facilitating, training and assuring the quality of the educational process (Scardamalia, 2002:1). This should be done with the use of a triad consisting of the student, the facilitator/lecturer and the module coordinator – all of whom must function as a team (Porter, 1994). Where appropriate training exists, the level of understanding and experience of the facilitator is further enhanced through quality assurance. The facilitator may become more confident and deliver quality teaching from feedback discussions with the coordinator. In instances where facilitators have not been adequately trained, their abilities are curtailed and they find it difficult to interact with students – thus becoming fearful of interaction with students during quality assurance (Muhirwa, 2009).

Distance education students are given support by means of facilitation, peer interaction and support and the supplied materials (Garrison and Baynton, 1987). The assignments, tests and examinations that are compiled by the module coordinators are marked by the facilitators, but moderated by the module coordinator as a way of ensuring quality. The administrative personnel at the University are responsible for administrative support in terms of facilities and any other reasonable administrative need. They ensure that classrooms are available, that there is sufficient stationery and resources, and they also deal with student enquiries.

DISTANCE EDUCATION FACILITATORS/INSTRUCTORS AND THEIR FUNCTIONS

Distance education facilitators are employed on a contract basis by the University's distance education administrators and have the required qualifications to be support staff members. They are part of a team of academic staff and their role is important in that it alleviates the workload of the full-time staff members – mostly that of module coordinators – by making their jobs more manageable (Riffee, 2003:1; Scagnoli, 2001). The facilitators employed by the University of Pretoria's Distance Education Unit are teachers, heads of department, deputy principals and principals who possess a combination of training and experience that assures the required knowledge, skills and abilities for the position. Each module is presented by part-time facilitators who hold at least one advanced degree and full-time lecturers who hold master's and doctoral degrees.

The University of Pretoria's Advanced Certificate in Education (ACE) study programme is a formal certificate qualification for teachers studying part-time but who are already in the teaching field. The functions of facilitators include being facilitators, organisers, graders, role models, counsellors, problem-solvers and liaison officers. The facilitators of the different modules operate as a team and travel together to contact sessions (PSU 1998, 4). Lessons are presented in three to four hours per day for five days.

FACILITATOR PREPARATION

As distance education expands in the university setting, it is imperative that module coordinators train the facilitators and examine the arrangement and facilitation of problems experienced in distance education prior to facilitators embarking on their journeys to contact sessions (Wilson, Litle, Coleman & Gallagher, 1997). According to a study by Jelfs, Richardson and Price (2009), the facilitator's expertise should include effective facilitation, subject expertise and the ability to stimulate critical thinking in the students through facilitator-student interaction. This collaboration between the facilitator and the students should create a symbiotic relationship which benefits both the facilitator and the students (Calvert, 1986). Facilitators should be committed to high-quality teaching and learning in order to improve students' performance.

The appropriateness and effectiveness of distance education depends on why and how well the facilitation process is designed and delivered (Sherry, 1990). Distance education initiatives undertaken for contact session facilitation should lead to the necessary improvement of facilitator expertise as well as provide opportunities for the development and success of students (McLean, 2001; Beaudoin, 1990).

FACILITATOR SUPPORT

To enhance the distance education programme, all facilitators are provided with support in the form of a study guide, a reader and facilitation handouts or transparencies, an administration booklet, a tutorial booklet and an activity workbook for each module. The study guide contains details of all the units of the module and the content to be completed. It highlights difficult sections and makes suggestions on possible parts for self-study. The administration booklet contains important information related to the administration of the module in the programme, and the tutorial booklet explains the programme to be followed in

each module, the assignments to be completed and details of the examination. All the material is compiled by the Distance Education Unit and handed out prior to facilitator training for the contact sessions.

In practice, a compulsory facilitators' training session is held before every contact session. The module coordinator lists topics to be discussed in interactive group discussions. The coordinator then engages and interacts with facilitators as if they were students to give the facilitators a practical example of how to engage and interact with students in a face-to-face class setting. Through these workshops, facilitators experience more open, honest, transparent, and supportive group relationships and collegiality with other facilitators before going for contact sessions. The purpose of the training of facilitators by the module coordinator at the University is to sharpen facilitator skills and to provide support (Massyn, 2002). The module coordinators organise and plan the course and ensure that the facilitators receive all the material on time. This is done with the assistance of the administrative staff.

At the training workshop, the coordinators are able to meet all the facilitators immediately and solve any module-related problems with them. Furthermore, all facilitators are given the opportunity to present a particular topic from the study guide or module and the other members of the facilitation team give constructive criticism on the presentation. After the training, module coordinators and facilitators are in constant communication via telephone, email or SMS. The facilitators work through the study guide, reader, tutorial letters, facilitation handouts and workbooks. The training of facilitators on module content is continuous and occurs before facilitators go to the four contact sessions in the year: two short and two long contact sessions. The short contact session is a one-day get-together to orientate students on the module and inform them about the requirements for the assignments and the examination, while the long contact session is a week-long facilitation of module content.

During the preparation, training and support of facilitators, it is important that the module and learner characteristics and needs in the distance learning process be considered (Carnwell, 2000; Sherry, 1996). Module coordinators should not only have the capacity to prepare, train and support facilitators, but they should also invest in, or obtain, the necessary resources to do it well (McLean, 2001). Such resources include overhead projectors, flip charts, pens and data projectors.

QUALITY ASSURANCE

Training, supporting and assuring the quality of facilitators are important, as module coordinators are able to evaluate their facilitation skills and to identify strengths as well as areas for development during these activities. The module coordinator is responsible for the quality of academic content and ensures that the facilitators adapt to continuous developments in all the modules of the programme. The quality assurance of facilitators' facilitation skills is done at a different venue from that of the contact sessions by the module coordinators, who provide feedback afterwards. The purpose is to assess the facilitators' presentation skills, engagement and interaction with students, their mastery of content, their explanation of concepts and their provision of support for students. This is done by observing the lesson presentation, recording the facilitation process and having a feedback discussion with the facilitator after the lesson. Distance education students and facilitators evaluate one another after every lesson in order to identify areas that need improvement and for the module coordinator to plan future student and facilitator support.

CONTACT SESSIONS

Attendance at contact sessions is not compulsory, but approximately 90% of students do attend because the study material is unpacked and the interaction between students and the facilitator and between the students themselves encourages them to attend. Students also feel that attendance is part of what they have paid for. The numbers of students who attend contact sessions, however, vary from venue to venue. Some venues have more students than others, depending on the enrolment at the particular venue.

Facilitation and groupwork entails allocating students different roles to play in the given activities in the study material. Facilitators ensure that students know what is expected of them and they motivate and encourage them to participate – as instructed – in groups. Students are usually not very active on the first day, but as they become more familiar with the facilitator their involvement increases. To enable students to attain the set goals, facilitators are expected to make constructive suggestions where students struggle and help them improve and achieve success.

CONTEXT OF THE ACE: DISTANCE EDUCATION PROGRAMME

Distance education contact sessions are conducted at venues at colleges, universities or schools closest to the students. There are six module coordinators and six modules in the ACE: Education Management programme. Each module coordinator is responsible for one module. The six modules are Education Management (EDM) 401 and Education Management 402, Professional and Social Context (EDS) 401 and Education Law (EDL), Organisational Management (EDO) 401 and Organisational Management 402. The modules are distributed over a period of 18 months, with six months devoted to each of the following blocks: Block 1 consists of EDM 401 and EDS 401, Block 2 is made up of EDO 401 and EDL 401; and Block 3 consists of EDM 402 and EDO 402.

Students in the distance education programme reside in all the provinces of South Africa. In each of the modules, facilitators are responsible for the contact sessions and other duties identified by the University; they facilitate in terms of their module and discipline knowledge (Massyn, 2002).

THEORETICAL FRAMEWORK: FACILITATOR SUPPORT THROUGH LESSON OBSERVATION IN DISTANCE EDUCATION

The quality assurance of the facilitation process is important and is likely to inspire student learning and positive student performance. To achieve success in performance through facilitation, a theoretical framework for understanding and improving facilitator practice is imperative. This study has used a theoretical framework based on the principles of human learning developed by the Literacy Professional Development Project (LPDP) in New Zealand. This theory uses the principles of human learning, namely training and the interaction that occurs between facilitator and students during the facilitation of lessons. The observation and quality assurance of facilitation and learning depends on the training that the facilitator receives prior to travelling to the contact session venues. The aim of quality assurance is the improvement and the provision of feedback on the facilitator's practice.

The quality assurer offers facilitation suggestions after the facilitation of the lesson in order to help the facilitators improve their practice. The suggestions given are linked to the analysis of the observed lesson. The quality assurer and the facilitators work together in identifying areas of strength and areas that need improvement.

The analysis is made in clear and simple language, so that the facilitators understand the relevance of the suggestions in terms of practice. The suggestions offered serve as a guide for facilitation and the facilitators should accept them as possible measures that may translate well into the practice context.

RESEARCH METHODOLOGY

This article is the result of research that used a qualitative approach to collect data from ten participants who have particular knowledge that is most likely able to advance the study's interests and potentially open new doors (Tongco, 2007:147). The ten participants were from two provinces of South Africa, Limpopo (Tzaneen) and the Eastern Cape (East London). The sampled participants work in distance education and their knowledge and experience are related to the objectives and context of the study. All interviewed participants were males who perform facilitation in the two provinces. There were no female facilitators in the Education Management programme. Female facilitators are connected to the ACE: Special Needs programme, which was not the relevant sample for the study. The participants who were interviewed after delivery of their lessons at the contact sessions were easily accessed and they showed a willingness to participate in the study by signing consent forms (Merriam, 1998:61).

Method

Face-to-face, semi-structured and in-depth interviews were used to collect data concerning the facilitators' opinions about the training, preparation, quality assurance and support given to facilitators of distance education contact sessions. The interview questions were open-ended and multiple; varied responses were elicited from the facilitators about their experiences (Merriam, 1998:9). Each participant was interviewed for 20 to 30 minutes. Interviews were tape-recorded and later transcribed.

The facilitators who were interviewed were given copies of the interview transcripts with the emerging themes to verify the accuracy of the data and its interpretation. Transcripts of the data analysis were also peer-reviewed to verify the integrity of the data. Initially, the facilitators were asked to give a brief biography of themselves and their experience with contact sessions. Informed by the purpose of the research, the following types of questions were asked:

- *Exploratory questions* that focused on the preparation and training of facilitators, their roles as facilitators at contact sessions, and their recommendations regarding training, preparation, and the facilitation and quality assurance of the contact sessions.
- *Explanatory questions* that assisted in reassessing and refining issues to interpret and frame the key findings.
- *Descriptive questions* that revealed the significance and impact of the experience of facilitating contact sessions and the success and challenges of the quality assurance process at contact sessions (Denzin and Lincoln, 2000:388–389).

The verbatim transcripts produced from the interviews were coded and the codes were grouped into categories. From these categories, a number of themes emerged. The following themes were identified and emerged as key findings of the study: the importance of facilitator training, preparation and support for contact sessions; assumptions held about facilitation and quality assurance of contact sessions; the importance of facilitator and student interaction during quality assurance; facilitation and quality assurance success; contextual and administrative considerations; and suggestions for the improvement of facilitation and quality assurance processes.

Some of the questions asked were the following:

- How were you trained, prepared and supported for the contact sessions?
- Do you consider training and quality assurance beneficial? Why or why not?
- What is your experience of the contact sessions?
- What are your roles with regard to student support at the contact sessions, and why? Explain.
- What challenges did you experience at the contact sessions?
- What were the successes of the contact session?
- What is your view about the quality assurance of facilitators?
- What would you recommend with regard to the contact sessions?

RESULTS

Importance of facilitator training, preparation and support for contact sessions

The facilitators who were interviewed indicated the importance and usefulness of the training, preparation and support of facilitators for the contact session. They saw it as enhancing the level of preparedness and facilitator confidence to deliver quality instruction. These are some of the participants' responses:

> One can never say that he or she is familiar with the material to be presented, it is not good enough. It is good to have training because we share experiences with other presenters. You develop and grow as a presenter. (Limpopo)

> Yes, definitely. We received intensive training. We discussed issues around certain units and discussed the contents of the file and all the contents of the module. (East London)

Some facilitators – recognising the importance of training and support for contact sessions – felt that they should be standardised and adequately presented so as to ensure quality and consistency during facilitation. One of the participants said:

> You cannot just go there unprepared and embarrass yourself in front of people. Your listeners will expect you to be prepared and to get additional information. (Limpopo)

Other facilitators emphasised the fact that quality assurance was important and should be continuous, since different students and different environments need different interventions. They commented as follows:

> Preparation, training and quality assurance are important. You meet different students and some students are better prepared and ask more challenging questions than others. The module coordinator can pick this up and suggest strategies to the facilitator. (Limpopo)

> You have to reflect, you discover new things as you go on. Extra preparation means making things easier for the students. I have to use a different approach and examples for different students to make them understand better. You have to make updates all the time. (East London)

One facilitator maintained that quality assurance was not helpful:

> Money was wasted by sending them for quality assurance that does not even occur. The module coordinator came in while I was teaching. The next minute she was gone. I did not see her leave nor did she give feedback.

A further comment was:

> Whether module coordinators know exactly what has to be done is also questionable. To spend less than one hour listening to a facilitator, for me it is not sufficient. I think the module coordinator needs to sit in and give feedback and support. (East London)

All facilitators agreed that quality assurance should be continuous, standardised and well designed, despite some facilitators having been in the programme for a long time. Quality assurance cannot be underestimated, because it empowers and gives the facilitators confidence to interact with students and the facilitators' abilities are improved. Facilitators who are inadequately trained and supported are insecure and struggle to interact with students.

The criteria used for quality assurance should be explained to facilitators in order to be better prepared in terms of outcomes that should be realised. It is also important to be successfully rated through quality assurance by the module coordinator.

Assumptions about facilitation and quality assurance of contact sessions

The module coordinators initially assumed that facilitation of distance education was going to be difficult since, some ACE facilitators were newly appointed. They thought the facilitators would struggle with facilitation skills and would not be well prepared. One facilitator had this to say about his experience of quality assurance at contact sessions:

> In my first contact session I thought that I would struggle with students who are highly intelligent, but I did not experience that. I then realised that I did a lot to help our students. I said to myself, "I am learning some skills that I did not have before." (Limpopo)

Another facilitator, however, indicated the importance of assuring the quality of facilitators who were new to the work and emphasised that it was not only experience that counted. He commented:

> I think too much emphasis is placed on people's qualifications without really looking at whether they are able to facilitate at the contact session in such a short space of time, and how they are unpacking the content. I think people must be quality-assured or asked to present a certain aspect or a portion of the work in order to make a judgment. I think the training alone is not beneficial, given the way some new facilitators teach. (East London)

All facilitators initially had some fears about their teaching strategies and the comments they would get from the module coordinator. They soon realised that students came to contact sessions unprepared. What makes facilitation a challenge is when there is no training, preparation and support before the contact session. Students need to see that the facilitator meets them halfway and that they only become successful after the contact sessions.

The importance of facilitator and student interaction during quality assurance

The facilitators follow guidelines provided during their training in facilitating distance education students at contact sessions. These include the explanation of concepts and activities to be carried out, student guidance, group discussions and the provision of feedback. Facilitation is slowed down when facilitators struggle to engage students due to a lack of preparation; the facilitator has to resort to lecturing without getting feedback from the participants. It has become apparent to the module coordinator that the students struggle to understand the lessons. This is what one of the facilitators said about quality assurance and student expectations at contact sessions:

> We get an opportunity to explain in different ways so that they understand. I would expect the module coordinator to give feedback about facilitation and student participation and involvement after sitting through a facilitation process. (Limpopo)

These findings are in line with what Hilary Perraton (1988) says when she maintains that the role of the distance education facilitator – when she meets the

distance students face to face – is to become a facilitator of learning, rather than a communicator of a fixed body of information. The learning process should proceed as knowledge building among facilitator and students through the quality assurance of the facilitation process. From the relevant theory and the practical skills and competencies of the module coordinator, meaningful suggestions should be made to the facilitator during a feedback session. Facilitators become concerned about whether students will pass the modules they facilitate if they are not supported in their facilitation and in their engagement with the students.

Facilitation and quality assurance success: contextual and administrative considerations

When asked about the successes attained through their facilitation and quality assurance of distance education students at the contact session, the following response was given:

> I think the success of contact sessions is helping students succeed. We learn a lot in terms of the difficulties and hardships the students experience as well as some of their challenges when given support in areas of weakness, so that when next time we present we consider the input and we improve. (Limpopo)

A further response raised concerns about some of the challenges faced outside the facilitation process:

> Other challenges are in terms of administration. Irrespective of how much we try to avoid them, they still crop up. Sometimes you are morally discouraged. The students come to you with problems of not having received materials. We understand that we do not have to give them the material that we use but your morality will talk to you and you think of how best to help them. (East London)

Most participants interviewed have experienced success in their facilitation of contact sessions. Students usually call them or come to them at contact sessions to express their gratitude for the success they have attained from the support and facilitation received at the contact session. The facilitators appreciated having been given the opportunity to visit so many provinces in order to make a difference to students. However, the slow and unreliable postal system, little and unreliable telephone communication, the lack of electrification, poor road conditions, and

few and inadequate libraries and other public facilities for studying hamper the performance of distance education students. Distance education contact services should provide both instruction and support services, which include developing and implementing effective student communication systems and the necessary learning requirements.

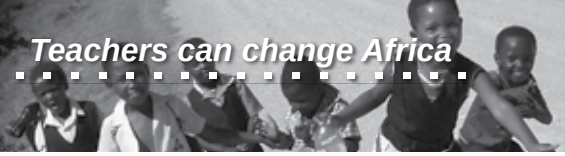
These findings are consistent with Garrison's report (Denzin and Lincoln, 2000), which suggests that the quality and integrity of the educational process depends on sustained, two-way communication and the provision of adequate facilities and resources beforehand. The purpose of the contact session is to allow students faster and better access to services because when they access services better, they learn better and this also improves facilitation. However, Geidt (1996:16–19) has identified significant practical challenges for distance education, such as the social and economic status of some disadvantaged communities in South Africa that make it difficult for facilitators to succeed in their facilitation of contact sessions. He also emphasises the fact that students need to be prepared beforehand, but since the written texts are not in the students' home language, facilitators have difficulty in accustoming students to critically interpret textual messages in English.

Garrison (1990), in support of Geidt (1996), indicates the importance of two-way communication for quality and the integrity of the educational process. Without connectivity, like communication with the administration staff, the facilitators and module coordinators, distance learning will degenerate into the old correspondence course model of independent study. Students may become dependent and isolated, they procrastinate and eventually drop out of the course. This finding reinforces the fact that distance education models and practices should be adapted to the social, cultural, economic and political circumstances of the students and their environment.

Suggestions for improvement in the facilitation and quality assurance processes

When asking the facilitators for recommendations on the development of the distance education programme, the responses included the following:

> I think the classes that we are conducting are too long. I think 3½ hours is a bit too long for one class. If they can reduce the time maybe it will be more efficient. (Eastern Cape)



> I do believe the University of Pretoria has tried everything in their power to make it easier by bringing us overhead projectors and so forth. But I think we need to move to the next step, for example, laptops and data projectors, to make sure students take more in. (Limpopo)

In the case of distance education, Geidt (1996:19–20), in line with what UP does, suggests that a substantial component of face-to-face support is essential, especially from community-based tutors. What is lacking at UP, however, is community learning centres and regional study centres. Even though students have extra support in the form of community-based tutors (McLean 2001), successful distance education systems should involve interactivity between the facilitator and students, between students and the learning environment, and among students themselves. There should also be active learning in the classroom during the contact sessions (Sherry 1996).

IMPLICATIONS/RECOMMENDATIONS FOR PRACTICE

Interviews conducted during the research show that training is imperative every time contact sessions take place. Facilitation at each contact session is different, because different students come for support at the different venues. Facilitators can never say that they are completely familiar with the material to be presented. Training has to be continuous, so that facilitators can share their experiences with other presenters and develop personally as facilitators. Extra preparation means making things easier for the facilitators and it improves their understanding of course content and how to use the available technology successfully. Experienced facilitators may be used to facilitate if there is a new facilitator in the programme. If facilitation is never practically demonstrated, new presenters may lose confidence in the module coordinator.

With regard to expectations of facilitators, the findings reveal that there were few students who were prepared or who asked challenging questions at the contact sessions. This indicates that facilitators need to prepare in order to encourage students to interact at contact sessions. Facilitators should not assume that most students can study on their own; they should realise that students will always need to be encouraged to be disciplined in their self-study. Facilitators try their best to make it easier for students to understand the material and to pass the examination. The facilitators' guidance and passion for facilitation are more important than their

having high qualifications. The recommendation is that facilitators should undergo quality assurance, and if found lacking, be supported or dismissed.

The findings from the interviews with the facilitators about their successes in facilitation include the fact that facilitators are able to reach out to many students in the different provinces who want to better themselves. The knowledge they gain from their interaction with students helps facilitators to improve their understanding of the students and to develop strategies to address the students' problems. Another finding is how delighted students are with facilitators who help them achieve success.

With regard to the challenges of facilitation and the quality assurance process, the administration of student affairs is seen as a deterrent in achieving success. Despite knowing that they are tasked to only facilitate students, it is not easy for facilitators to disregard students' administration problems. The distances to the venues affect facilitation, because the students are adults who travel far and start out very early in the morning. The long journey affects their participation, because they are tired by the time they arrive at the contact sessions. Language is another concern that was raised because some English education terms cannot be explained in code-switching if the facilitator does not speak the students' home language. Coordinators of distance education also have to be sensitive to the context and the socio-economic circumstances of students and their environment in order to develop models of best practice for contact sessions. Facilitators recommended that the ACE: DE programme's contact session time be reduced in line with that of the BEd programme for distance education. Further recommendations were that presentations be done through the use of improved technology.

BEST PRACTICE AND LESSONS LEARNED ABOUT FACILITATOR SUPPORT FOR DISTANCE EDUCATION

In designing effective distance education, the goals, needs and characteristics of teachers and students – as well as content requirements and technical constraints – should be taken into consideration. If unusual delivery systems are required, they must be made accessible to all participants. The theoretical basis on which facilitation models are based, affects not only the way in which information is communicated by the facilitator to the student, but also the way in which the student makes sense of, and constructs new knowledge from the information that is presented. Distance

education systems involve a high degree of interactivity between the facilitator and the student, particularly in rural and isolated communities separated by thousands of kilometres.

Although technology is an integral part of distance education, any successful programme should focus on the instructional needs of the students, rather than on the technology. It is essential to consider students' ages, cultural and socio-economic backgrounds, interests and experiences, educational levels and familiarity with distance education methods and delivery systems (Schamber 1988). Facilitators are of the opinion that attendance at distance learning venues far outweighs the lack of student preparation, because contact sessions offer considerable dialogue during face-to-face interaction (McNabb, 1994). Interactivity takes many forms; it is not only limited to facilitator-student interaction, but also establishes the connectivity the students feel with the distance teacher, the local tutors and their peers. In addition, infrastructural challenges and the previous school experiences of most students, such as rote learning, are important. These challenges make it difficult for students to develop independently and critically. There is also a large cultural and linguistic diversity and, as a result of this, many students may have difficulty with the language and culture of the standardised facilitation material. Geidt (1996:14–15) concludes that the preparation and training of facilitators of distance education contact sessions can only be effective when the delivery system and the curriculum are appropriately matched to the social and political context of the students.

CONCLUSION

The facilitation of contact sessions demands thorough training, preparation and support for the facilitators to produce successful students. Facilitators are required to assist contact students and to facilitate interaction among students. They should also assess group discussions and provide assistance with questions asked or discussions held during the contact sessions (Willis, 1993).

The strategies that are effective in distance learning are developing appropriate methods of feedback and reinforcement, optimising content and pace, adapting to different student learning styles, and using case studies and examples that are relevant to the target audience. Being concise and supplementing course content with printed handouts and personalised instruction also benefits the students.

The facilitators agree that the University of Pretoria's Distance Education Unit provides them with certain unique opportunities, like travelling to the different provinces of South Africa, both inland and along the coastal areas. They enjoy the working holiday, staying in hotels and guest houses. However, care should be taken not to focus too readily and eagerly on the rewards and forget about some of the shortcomings. These attitudes are greatly varied among institutions and individuals, but seem to be more positive when certain motivational conditions are present.

The findings from the study suggest that, although the study has drawn on a similar pool of staff members who work in the same programme, albeit in different modules, they appear to have undergone different methods of training. The implication of this finding is that the training, support and quality assurance of facilitators – though expensive and time-consuming – is well worth the effort. Not only can training and support help to attain goals and reinforce major roles and responsibilities, but they also provide a mechanism for measuring and communicating the students' progress. Other benefits include improved distance education teaching methods and learning, a significant increase in course completion rates and better communication among and between the module coordinators, the administration staff, facilitators and students.

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DISTANCE EDUCATION STUDENTS' EXPERIENCES OF LEARNING SUPPORT SESSIONS

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ABSTRACT

Distance education is a learner-centred approach to education that emphasises independent learning based on the assumption that students are self-motivated and active in the learning process. However, due to the fact that distance education students study alone most of the time, there is a need to enhance their learning experience by providing support structures. Besides supplying learning materials, the University of Pretoria offers face-to-face support sessions to facilitate learning. Although students provide feedback on the sessions in the form of short questionnaires, there is a need to further explore their experiences using a qualitative approach to capture nuances of how the students experience and conceptualise learning support. It should also be established whether they think that it is worthwhile attending the sessions. This paper draws on theoretical insights from transactional distance theory, focusing on learning support in terms of dialogue in the learning facilitation process, the structure of the programmes and learner autonomy. Data was collected by interviewing students enrolled for the Advanced Certificate in Education (ACE): Education Management at the Distance Education Unit of the University of Pretoria. The study's findings suggest that the students consider learning support sessions to be beneficial. The knowledge and skills gained during these sessions and through dialogue in the form of networking with other students contribute to their professional and personal development and – to some extent – to their learner autonomy. However, a need is identified for the continuous development of learning support facilitators, material and administrative support structures to enhance the quality of the support system and to reduce transactional distance.

Keywords: Distance education; learning support; students' expectations; facilitator support; transactional distance theory; South Africa.

INTRODUCTION

There are many public and private institutions offering distance education courses to students. This mode of learning often involves students working independently with course material, using postal services and electronic media such as email or the telephone as a means of communication, and being involved in mentoring and face-to-face tutoring (Sherry, 1996). According to researchers like Rumble (2000), course material alone cannot be relied on for the successful completion of studies. Face-to-face learner support can make a difference in ensuring students' success in distance education.

Additional learning support for distance education students can be provided in the form of "scaffolding" – a teaching strategy in which information and instruction from a teacher or facilitator serve as a means of assisting students in engaging with new knowledge (Rymarz & McLarney, 2011). Scaffolding involves a variety of activities in the learning process, such as offering explanations, encouraging students to participate actively, verifying and clarifying student understanding, generating questions and comments and modelling the desired behaviour (Roehler & Cantlon, 1997). Such support can be achieved by establishing contact with the students in a learning support session.

Some distance education students are independent and self-directed learners. Anderson (2007) describes independent learning as the learners' ability to self-monitor, recognise and manage their learning goals. However, since students are not homogeneous and have different needs, it is important to identify and understand the students' individual differences to be able to design appropriate learning support services (Rumble, 2000). Some may need more support and guidance than others, depending on their learning styles. In his study, Carnwell (2000) describes the different learning styles as systematic wading, speedy-focusing and global dipping. Learners who are systematic waders engage actively and systematically with their study material and need less facilitator support and guidance. The systematic waders experience deep learning. The speedy-focusing students (who also depend less on the facilitator) tend to take shortcuts in their studies by focusing only on what is required for an assignment or test. Such students experience limited deep learning. The third group, global dippers, are surface learners who study in a disorganised way, encounter difficulties with the learning material and may need more learning support. Distance education students may fall into any of the above three categories of students.

Regardless of their different learning styles, most distance education students need learning support and encouragement to be able to complete their studies successfully. Learner support structures include services, such as tutoring and face-to-face contact sessions, and a variety of resources that may incorporate media technology (Tait, 2000). In distance education, it is often assumed that students have the ability to be self-determined and self-regulated. Self-regulated learning is a strategy of dealing with academic challenges that involve personal motivation, knowing when and who to ask for help and learners' ability to use contextual motivational resources (Newman, 2002). Some distance education students may be in dire need of learning support structures to enhance and improve their ability to be independent learners who are able to interact with the learning material and with other students (Dzakiria, 2008).

The need for a particular type of learning support structure may be determined by the type of learning style and the stage of a particular student's study. According to Brigley and Kell (2007), students may need a greater degree of tutor support at an early stage of their study, while at a later stage a higher priority may be given to peer support, social integration and networking.

An action research study with Open University students in the United Kingdom revealed that students enrol for distance education with high expectations of support services from tutors. Students' satisfaction with tutor support increases the course completion rate and reduces the student drop-out rate (Stevenson, MacKeogh & Sander, 2006). In a related study, student and tutor perceptions of effective tutoring in distance education show that students and tutors conceptualise effective tutoring in different ways (Jelfs, Richardson & Price, 2009). Students relate effective learning support to subject expertise, the development of critical thinking and interaction with other students, while tutors perceive good tutoring as the ability to facilitate the transmission of knowledge and support learning. Students' expectations focus more on the tasks to be performed, while tutors are more inclined to focus on the students. The study recommends that both students and tutors should appreciate the importance of support in facilitating learning and whether it is task- or student-oriented.

The things students and tutors/facilitators expect from a learning support session may change as the students progress in their studies (Jelf et al., 2009). A study conducted at the Open University of Hong Kong (Fung & Carr, 2000) explored the factors that contribute to successful tutorials and revealed that the data collected

at an earlier stage of the research indicates that students expect tutors to lecture them. The students want tutors to help them understand the course content better in order to improve their academic achievement. However, as they continue with their studies, students realised that interaction with their peers reduced their dependency on their tutor. Thus, when providing support services in distance education, the students' wishes should not be ignored and their needs should be taken into consideration (Rumble, 2000).

In an earlier study, Sherry (1996) suggests that the most important factor for successful distance learning is the ability of the teacher to be caring, confident, experienced, creative and to interact with the students. The support the student receives may overcome any feeling of disconnectedness with the educational institution during the self-study period. Tait (2004) argues that student retention in distance education is, in part, related to human relationships, which should have the ability to overcome different emotional and cognitive challenges experienced by the students.

The purpose of this study was to explore students' views on, and opinions of the integrated support components of a support session; to identify the students' needs in terms of learner support; and to recommend strategies for improving support sessions. The study investigates the students' perceptions and expectations of learning sessions, as there could be a discrepancy between their perceptions and expectations and the purpose of the sessions (Fung & Carr, 2000). An understanding of students' experiences of support sessions may contribute to improving facilitation, learning materials and support structures for distance education students.

Transactional distance theory

The underpinning theoretical framework used in this study is Moore's Theory of Transactional Distance, which deals with the physical, psychological and communication separation between teachers and students in distance education (Kang & Gyorke, 2008). The patterns of behaviour of the students and teachers that affect the teaching and learning process in distance education are determined by examining the relationship between the learning structure, dialogue and the students' ability to be autonomous (Moore, 1980). Moore theorises that when learning programmes are highly structured, there is a tendency towards reduced learner communication and interaction, and when they are less structured the learners need greater direction. The relationship between the structure of distance

education programmes and learner communication is concerned with the nature of transactional distance in distance learning. Less structured programmes call for high learner dialogue, which results in low transactional distance. Programmes that are highly structured require less communication and dialogue and make the learner feel more isolated. Learners who have more opportunities to communicate with their tutors and other learners will feel more autonomous. According to Moore (1980), learner development in distance education is based on bridging a gap through procedures, instructional design and communication.

The context of the study

The University of Pretoria offers the Advanced Certificate in Education (ACE): Education Management as part of its distance education programme as well as a Bachelor of Education programme – mostly to in-service teachers who wish to upgrade their qualifications and improve conditions at their schools by becoming better education managers. ACE: Education Management consists of six modules. Each module addresses a different aspect of education management, organisational management, the professional and social context of education and education law.

Because of an increase in the use of technology in teaching and learning, the more recent literature on distance education suggests a paradigm shift from traditional learning support structures to technological support media (Lawton, 1997; Zhang, Perris & Yeung, 2005; Alonso & Blazquez, 2009). Although the general movement is towards a more technological world, there are distance education students in many communities that still depend on traditional approaches to learning support. These students are mostly in areas where new technologies are absent or used minimally (Tait, 2000). Most of the students enrolled in distance education at the University of Pretoria live in remote and rural areas where there is no electricity or other resources to facilitate the use of technological innovation in the learning process; they rely on traditional face-to-face learning support to complement the course material and instructions. Such support should be given during the tutorials and support sessions.

Learning support framework

The different components of learning support given to distance education students enrolled for the ACE: Education Management at the University of Pretoria are learning guides, readers, worksheets, tutor facilitation and opportunities for peer interaction

in group activities arranged during the facilitation sessions. The components of such learning support structures are interlaced and they are used simultaneously during the session. For successful distance education learning to take place, there needs to be interaction between the tutor/facilitator and the students, between the students and the course material, and active learning should result from students' interaction with their peers.

Brigley and Kell (2007) found that the role of the tutor in learning support was to help students make sense of the course material, integrate the acquired knowledge with educational practice, and develop as educators. The tutor's role is also to facilitate interpersonal relationships of friendship between the tutor and the students and among students in the process of learning (Price, Richardson & Jelfs, 2007). Learning support that takes place in peer discussions enables students to share ideas, review ideas and provide feedback (McConnell, 2000). Students do not only gain new knowledge, but they also acquire new social skills in communicating and collaborating with their peers. Ferguson (2010) notes that, unless peer interaction is well managed, it may have a negative effect on students' learning due to strong emotional and social elements that may be involved in the established relationships. On a positive note, through peer support students are given the opportunity to share advice and common experiences of the challenges of distance learning (Cain et al., 2003).

Learning support during the contact sessions of the ACE: Education Management takes place mostly in the form of facilitator presentations and peer support learning. These contact sessions enable the students to engage critically in exploring and evaluating their own school situation as part of the process of knowledge construction. Students work in groups of four to six, working through and discussing the activities provided on the worksheets. In a similar study, McConnell (2000) found that students share information in group discussions and review ideas based on feedback from peers. The support that the students receive from one another in group discussions not only reduces the feeling of isolation and loneliness that some distance education students experience (Dzakiria, 2008), but it is also important for promoting networking (Lawton, 1997). Price, Richardson and Jelfs (2007) suggest that the role of the facilitator is to encourage student interaction with others in terms of course content.

In view of the argument presented earlier that different students have different needs and learning styles, it seems that study material for distance education

students should be designed to cater to the contextual content and to the students' particular environment. For distance learning, study materials such as learning guides, tutorial worksheets and readers are designed in such a manner that the content and structure are suitable for independent study and allow students to participate actively in learning.

In this study, the use of case studies and examples are relevant to the target audience. This provides the students with a better understanding of the course as education managers. In the ACE programme, the learning guides contain the structure and content of the course. They also include exercises and activities that should be completed by the students during self-study or when working in groups. In addition to the learning guides, students are given worksheets that have been designed to complement the learning guides. The worksheets provide scenarios and case studies for students to reflect on and to apply what they have learned to real-life situations. The readers contain a number of articles and research literature related to specific modules. These readers contain case studies that are relevant to their context and that stimulate students' thinking and make them reflect critically on issues related to the modules as well as the practical application of different management theories.

The role of the tutor/facilitator during the support session is to explain the content material to make it easier for the students to understand the theories and concepts involved. The tutors/facilitators also encourage and monitor group discussions using the provided worksheets that were developed by a university lecturer, based on the subject content of different core modules. Brigley and Kell (2007) believe that the role of the tutor is to help students make sense of the course material, integrate the acquired knowledge with educational practice and develop as educators.

In order to facilitate learning, the tutor/facilitator should be knowledgeable about the subject and prepare thoroughly before a session. The tutor should also be able to refer students to other sources of support (Lawton, 1997). According to Fung and Carr (2000), tutors working with groups of students during contact sessions help students to better understand the course content and provide guidance in completing assignments – especially if such tutors are interesting, helpful and able to express themselves clearly.

RESEARCH METHODOLOGY

The study design was based on an interpretive paradigm, qualitative approach. The author assumed that to be able to understand the world of distance education students, it was necessary to explore the life experiences of the students and the realities of their everyday life. Participants were given full details of the aims of the study and what was expected from them in responding to the interview questions. They were assured that the information they shared with the researcher during the interview would be treated confidentially and that they could withdraw from the study at any time. The identity of the participants was protected by using pseudonyms. They were requested to sign consent forms before the interviews. The subjective knowledge of the participants' experiences was collected through semi-structured interviews with ten participants who volunteered to be part of the study.

All participants were distance education students who were enrolled in the ACE: Education Management and had attended tutorial sessions. The participants were from different age groups and various ethnic backgrounds and they taught in primary or secondary schools. The interviews were used as a data collection method to explore the learning support needs of the students, their experiences and concerns. All the interviews took place at the tutorial venues after the sessions and lasted for approximately 30 minutes each.

To gain some knowledge about, and a better understanding of the current learning support structures for distance education students, the following questions were asked:

- What can you say about the learning support sessions?
- What is your role in and expectations of a session?
- What kind of support do you receive in a learning support session?
- What are the challenges?

The data from the interviews was analysed in terms of the themes in the interview questions. To enhance credibility and trustworthiness, triangulation was done by means of different data sources. Participants were given the transcribed data to see if there was any information that may reveal their identity and to confirm the accuracy of the data. The interviews with the students were compared to determine the differences and similarities of their experiences and expectations.

Peer triangulation enabled the researchers to compare transcript codes, emerging patterns and themes. Recommendations were made based on the findings about how learning sessions could be improved. The study was limited to two learning support venues, namely Polokwane and Mokopane in the Limpopo Province of South Africa.

THEMES THAT EMERGED FROM THE INTERVIEWS

Four major themes emerged from the interviews. The first theme was appreciating the ability of the tutor to clarify subject content and to motivate students during the sessions. Students recognised the importance of a combined effort of peer support in collaborative learning. The second theme involved the different ways in which the role of the tutor was perceived by tutors and students. The third theme is concerned with the nature and importance of the support that students were getting from support sessions, while the fourth theme dealt with the administrative problems experienced by distance learning students.

Theme 1: Students' experiences of learning support in respect of subject content

Learning support sessions were perceived by all students to be a useful support structure that provided them with the opportunity to improve their understanding of the course material through lectures provided by the tutor/facilitator and meaningful interaction with other students. The sharing of ideas among peers seemed to motivate the students and reduce any feelings of isolation. The following comments were made in this regard during the interviews:

> Without contact sessions I would not have made it. Books alone are not enough because there are questions at the end of each unit that you may not be able to answer if you are alone. (Student 3)

> When you come from a support session, you feel that you want to read. Even on your way home, you start reading. You feel as if someone is telling you to read. (Student 2)

Some students felt that it was important for them to participate in group discussions during the session:

> Groupwork is good in a contact session. It gives us a chance to learn. I think that it is important for me to participate in the discussions during the

> sessions, to share ideas and listen to each other's opinions. Even if you do not talk, you gain something from those who talk. (Student 1)
>
> I think my role in a tutorial session is to participate in order to help the tutor to try to understand us. If I participate, I contribute a lot to the tutorial. You would have a problem if you try to do assignments on your own. (Student 4)

The learning support sessions were perceived by some of the students as an opportunity for self-development and life-long learning. The knowledge and experience they gained seemed to have more meaning for the students – beyond the final effects of an examination:

> I would recommend that they attend the sessions. I would tell them that this is not only for the exams, but life-long learning. You will apply it in life even after passing the exams. It can even help you to become a better person outside your working environment. (Student 7)
>
> When we were discussing problems in our groups, one of the group members talked about a similar problem I was having and how she solved it. We share with others the problems we have in our schools. After the sessions when I went back to my school, I was able to handle some of my problems better. (Student 6)
>
> I feel that if I miss one tutorial session, I would have missed something that I would have applied in the weeks to come. What I gain here I can practically apply in our school even before I write the exam. (Student 4)

Some participants seem to experience a wider transactional distance in terms of structure and the content of the learning support materials. They appear unable to fully engage with the learning content independently, and acknowledged that the support from their peers and the facilitators was valuable.

Theme 2: Expectations and roles played during a learning support session

Some students expected the tutors/facilitators to lecture them and give them the answers to the questions asked on the worksheets, while others expected the facilitator to guide them in terms of the course content and its application to real-life situations. After attending the session, students commented as follows:

> I want to gain insight on what the course entails, how to approach the work, how to prepare for exams and what is expected of me. I find that sometimes at home I struggle with what is expected of us. When I come to the contact sessions I say it's like a formal class where I can share my experiences and what I understand in the programme. (Student 10)

> I expect to get knowledge, to share the problems around our school and classrooms with others. (Student 5)

> It must guide me to get to know how to study on my own because we do it individually. It should teach us to work in groups. You find that there are people from your area who are doing the same course and you can make a study group. You can read books but you find that doing an assignment is still difficult when you are alone without guidelines. (Student 6)

Other students felt empowered and saw their role as making a contribution to the learning process during contact sessions:

> My role at the discussion session is to participate in order to help the tutor to try to understand us. If I participate, I contribute a lot to the session. (Student 6)

> We as students have a role to play in the sessions. We must come prepared and not blame the facilitators for not being prepared. (Student 2)

It seems that the students' interaction with their peers during the support session tends to reduce the gap in the transactional distance. The students talked of taking an active role in the learning process through discussions with their peers.

Theme 3: Support received during the sessions

The responses show that some students experience the learning support session mainly as a means of preparing them for completing assignments and for writing examinations. The students felt that it was also an opportunity for networking with other students and establishing study groups.

> I want to assure you that, for each and every assignment I wrote, I got high marks because of these sessions. The notes you take at the sessions help when you work at home. When it comes to assignments, the support sessions are number 1. (Student 2)

> The worksheets help us a lot. They give us what is expected of us. The worksheet summarises what is in the study guide. If you do the worksheets with others you are already preparing for exams. (Student 9)
>
> Worksheets are designed according to the study guide and they encourage you to read the study guide. (Student 6)
>
> I find the tutors very supportive. We gain a lot of knowledge from them. We achieve the outcomes of the module units through group discussions with the help of the tutor. (Student 8)
>
> The quality of the facilitator is really good. The first time I came here, I wondered what the module was all about. Through the help of the facilitator, I now understand the module better. I am also able to do the assignments. (Student 3)

The participants' narrations indicate the use of a well-designed learning structure and the interaction between the facilitator and the students as being fruitful. A better structure and an increase in dialogue seem to reduce the transactional distance and improve the ability of the students to complete assignments and prepare for examinations.

Theme 4: Challenges and recommendations from participants

A common challenge mentioned by all students relates to administrative problems, such as venue changes, the cancellation of tutorial venues and last-minute confirmation of tutorial venues. Many students complained about the lack of response when they called the University. The students expressed their disappointment about poor service delivery:

> We are supposed to register by SMS but we do not get responses or when they respond they give you a wrong venue. I am looking at a scenario supposing that the students who register are less than ten, only to find out that the tenth student is the one relocated to Umtata. This is doing injustice to the nine students. (Student 1)
>
> There is a breakdown in communication with the University. Lately, there are no SMS reminders for contact sessions. Sometimes our names are not on the list and you feel embarrassed because you sent the SMS. Sometimes the SMS does not go through because of poor network signals. For long

> contact sessions an SMS is not enough, we should fill in a registration form. (Student 2)
>
> We did not attend the long contact session last time because our SMS was not registered due to weak signal. We were embarrassed because we came here and the session had been cancelled, although we had a confirmation message on our phones. (Student 7)
>
> We have administration problems – sometimes when we come for learning support sessions there is nobody to help you. We phone the University but we cannot get through – the lines are always busy. (Student 4)

Contrary to the negative experiences that many students had with regard to administrative support, some seemed satisfied with how the University organised the learning support sessions.

> I am happy with the arrangements. The environment is conducive for the sessions. The tutors are very friendly. So, what I could say is that the University should keep on doing what they are doing. (Student 3)
>
> All in all, the contact sessions have been excellent. (Student 10)

Other challenges that were not of an administrative nature concerned the use of the vernacular during the sessions as well as questionable tutor competency.

> Some of our colleagues who are primary school teachers sometimes find it hard to express themselves in English. Somebody teaching Grade R will use the vernacular throughout but we have to reproduce the material in English and that is when it becomes a problem. (Student 1)
>
> At times you find that the tutor knows only one module and the second one is too difficult for him – when you ask him a question he cannot answer. Language is also a problem. (Student 4)

With reference to the study guides, some students struggled to obtain additional study material.

> The recommended study materials are not easily available. Sometimes we have to move around the country to get some references needed. Perhaps the University should supply a summarised version for us. (Student 9)

> The University should come up with more information because some of our study materials give us brief or little information, then refers us to some books that we should buy or information to search on the Internet. The Internet is not always available. (Student 1)

DISCUSSION

The distance education students who were interviewed during this study found learning support sessions useful in the sense that they could more easily understand the subject content because of tutor facilitation and peer learning support. The experiential knowledge gained through peer discussions seems to have had an impact on the work environment of the students. Peer interaction seems to reduce the feeling of isolation by decreasing transactional distance (Moore, 1980) between the facilitators and the students. The students appeared excited to be able to apply theory to practice in their work environment. They appreciated the role that the tutor/facilitator played in providing insights that made the course content easier for them to understand.

Stevenson et al. (2006) report similar findings. In their study, students' positive feedback on tutor leadership motivated tutors to continue to evaluate the key issues of the course material. For most of the learners, the support they received during learning support sessions seemed more advantageous than studying alone. This finding shows that a high level of dialogue reduces transactional distance (Moore, 1980). This links up with Dzakiria's (2008) warning that students studying alone may feel isolated and experience learning problems.

It is suggested that students want more than just lectures from the tutor/facilitator; they want to be able to share their experiences, learn from each other and in the process increase learner autonomy, which results in low transactional distance. Some of the students in the current study felt that they were contributing to the body of knowledge during the sessions and, thus, they did not rely exclusively on the tutor/facilitator as an expert.

Another important aspect of this study is concerned with the students' expectations of a learning support session. The role of the tutor/facilitator was perceived in different ways, as some students expected the facilitator to lecture and give answers to the worksheets and the assignments, while others expected the facilitator to provide guidance only as they took charge of their learning. Both

groups of students needed some form of dialogue with the facilitator, although one group seemed more inclined to being autonomous. In the study by Stevenson et al. (2006), some students wanted discussion and interaction with fellow students in a learning session, while others wanted lectures and a focus on course content. According to Brigley and Kell (2007), third-year students need tutor support with reflective learning and content-oriented skills rather than pastoral care. Different students were found to have different learning styles and needs. Some students would engage more deeply with the study material and needed passive tutor support, while others were "disengaged" from the learning material and needed more active tutor guidance and support (Carnwell, 2000).

In this study, the students expected the facilitator to explain the course content and give them additional information that would be helpful in assignments and examinations. The implication of this finding is that the role of the tutor/facilitator and that of the students should be clearly defined so that there is a common understanding of the nature of the learning session. Facilitators should be trained to balance the two roles to meet the learning needs of the different students. They should explain the difficult course content to improve students' understanding and, at the same time, provide an opportunity for the students to share their own knowledge and understanding.

This paper argues that the role of the tutor should be balanced between providing insights into the course content and facilitating peer learning through group discussions. Furthermore, findings in this study reveal that tutors/facilitators who were more inclined to teaching did not give adequate time for groupwork and students tended to become more dependent on the tutor/facilitator as the holder of knowledge. On the other hand, tutors/facilitators who believed in constructivist learning were more likely to encourage group discussions and conducted interactive sessions.

With regard to the actual support received during the learning sessions, the students in this study seem to have benefited from the knowledge and expertise of the tutor/facilitator, and peer participation in group discussions contributed positively to the learning process. The tutor's contribution was linked more to examination preparation and successful assessment outcomes, like obtaining pass marks for assignments and examinations, while the peer contribution was of a practical nature and addressed the work environment of the students. The sessions provided an opportunity for networking and collaborative learning, which was a

way of overcoming the loneliness and reducing the transactional distance that is often experienced by distance education students.

A noteworthy finding involves the problems experienced by the students in the process of registering for, and attending learning support sessions. There seems to be serious communication problems between the students and the University's administrative structures. The situation was described by one student as a "breakdown in communication".

The University's infrastructure for communicating with students by means of SMS technology seems to be inadequate, at times, in terms of recording students' confirmation of attendance of the sessions. The discrepancy between the data records of the administrative section and students' cellphone notifications indicates a serious malfunction in the communication system. The consequences of such malfunction is that students are denied access to the learning support sessions, as some venues are cancelled due to a low number of registrations that are confirmed *via* the SMS system. It seems that the system requires a back-up or alternative means of confirming attendance for students in areas where there is poor network coverage and where students are not able to receive or send SMSs.

Ntshoe (2010) asserts that a reliance on technology for distance education students may alienate students in rural and remote areas where network coverage is problematic. In terms of the student context, it would be worthwhile exploring how communication can be improved to benefit all students rather than being a barrier to learning support for some students. Dzakiria (2007) argues that the role of management is crucial for successful learning support to take place in distance learning, while Cain et al. (2003) maintain that effective communication is a vital element in providing constructive learning support for distance education students.

Another aspect of communication that constitutes a part of the reported problems in this study is related to the language of communication. It is evident from the experiences of some students that not all the facilitators are comfortable communicating in English and rather use the vernacular during the sessions. The use of colloquial speech may be problematic, as some of the terminology may not be easy to translate. In addition, since assignments and examinations are written in English, it would be better for the students to understand the subject content in English in order to make it easier for them to answer the examination questions in that language.

It should also be noted that students mentioned that they had difficulty accessing the recommended additional study material. The reasons for this could be a lack of Internet access for some students due to the underdeveloped technological infrastructure in their region and/or the non-existence of local libraries that could serve as resource centres.

IMPLICATIONS FOR PRACTICE

From the study, it is clear that a number of steps should be taken to improve distance education students' experiences of learning support sessions. The following recommendations are made:

- The University should encourage peer support networks during and beyond the learning support sessions.
- Tutor/facilitator training should focus on strategies that develop the competency of the tutor/facilitator in respect of course content knowledge and the ability to motivate and facilitate group activities.
- A reliable and effective mode of communication should be put in place. It seems that it is not enough to rely on SMS communication. The University administration should consider implementing additional communication strategies to supplement the use of SMS technology. The messages sent to students should be timely and, if possible, reminders should be sent as well.
- Examinations and assignments are mostly written in English. Thus, when facilitators are recruited and prepared, their proficiency in English should be a prerequisite and a priority for further training.
- When the training course material is designed, it is crucial to take into consideration the availability of additional course material before drawing up the reference list., It is essential to provide an alternative means of obtaining the learning material for students who are unable to download reading material or who do not have access to libraries. These measures can include arranging for mobile resource units to be available as part of the learning support structure.

CONCLUSION

In the current study, it was found that distance education students generally experienced learning support sessions as useful and worth attending. There was a close link between what the students expected from a learning support session and what they actually experienced during the sessions. The students positively valued the role and function of the tutors/facilitators. In their view, tutor/facilitator support managed to make theoretical content easier to understand and the support sessions encouraged practical activities by means of group interaction. Interaction during group discussions was viewed as the sharing of knowledge and experience among peers, which seemed to reduce transactional distance. In their work environment, some students made practical use of the relationships and networks they had established during the discussions. The sessions also helped to develop the students, both professionally and personally. It was found that the high dependency on the use of SMS communication for registering students for support sessions was likely to disadvantage some learners in areas where mobile phone network coverage was poor or unavailable, widening the transactional gap between the students and the support system. These students struggled to confirm their attendance, thus limiting their opportunity to attend learning support sessions. Further research is required to establish a more effective communication system to meet the expectations of the students and to enhance the process of learning support.

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EFFECTS OF OUTDOOR ACTIVITIES ON BIOLOGY STUDENTS' ATTITUDE TO THE ENVIRONMENT

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ABSTRACT

The teacher's use of lecture method has been observed to be ineffective in bringing about the right attitude towards the environment and environmental problems. The purpose of this research is to find out what are the effect of outdoor activities and the influence of gender on secondary school students' environmental attitude to Biology. Outdoor activities are educational activities that occur outside the regular classroom activities to create awareness about the environment. The aim is for students to notice the environmental problems caused as a result of a negative attitude towards the environment and the need for a positive attitude instead. The study was carried out using a pre-test, post-test, and a control group. A quasi-experimental design data analysis was undertaken using descriptive statistics and inferential statistics such as analysis of covariance (ANCOVA). The outdoor activities had a significant effect on students' environmental attitude ($F=5.067$ $P<0.05$). Gender also played a significant role in the attitude of students to the environment ($F=6.939$, $P<0.05$). Outdoor activities were observed to have brought about significant attitudinal change in the students. Therefore, outdoor activities are recommended for teaching and learning environmental education in Biology for both genders.

Keywords: Attitude to environment; environmental concepts; environmental education; environmental problems; gender; outdoor educational activities.

INTRODUCTION

Environmental education (EE) is generally concerned with the development of the necessary motivation to make informed decisions about environmental issues. It is a learning process that increases an individual's awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations and commitments to make informed decisions and take responsible action (UNESCO's Tbilisi Declaration, 1978).

Teaching at any formal level of education should never be deemed a totally "talk-and-chalk" affair. Today, effective and meaningful teaching should be a process in which both the teachers and learners are actively engaged. If this process is to be fully realised, each significant step should be backed up with learning resources that are designed to make teaching easier and learning more meaningful (Ayodele, 2001, as cited by Orenuga, 2006).

Environmental education requires a "student-initiative education" in the sense that it is fundamentally oriented towards problem-solving. The inadequate environmental ethics, ignorance and inadequate environmental awareness, knowledge and skills in pupils and students in particular, can only be remedied through such education (Ogueri, 2004). There is thus a need for a methodology that will make the students functional in environmental education. The need is to have environmentally conscious and literate citizens who are concerned about saving the environment from disasters. It may happen only when people are knowledgeable about their environment and associated problems, are aware of the solutions to these problems and are motivated to work towards these solutions. This naturally means a change in attitude and behaviour of the public (Ahove, 2001). The more we learn, the better we realise the worth of our environment.

The *Oxford Advanced Learner's Dictionary* defines "gender" as "the fact of being male or female." Much research on factors that affect the performance of students in science and science-related subjects has been carried out. Among the factors that have received attention are learner characteristics, such as gender.

Attitude is a way of life or a human behavioural pattern that can always serve as a direction towards human endeavour (Afuwape, 2003). An attitude is a hypothetical construct about a mental state that is inferred from verbal reports and behavioural observation. As a concept, attitude takes its reality from our own introspection.

Attitude has been useful in understanding the behaviour of others. Attitudes are based on values, have horizontal and vertical structure and range from general to specific. Attitudes towards the environment are fundamentally important, widely discussed, frequently measured and poorly understood. They are conceptualised in terms of attitude theory as being composed of beliefs and affective components towards an object. Environmental concern appears to be a specific belief that is largely embedded in cognitive structure and should be considered as an opinion rather than an attitude.

Although the issue of gender and achievement in science is an important area that has involved a lot of research, available results have not yielded a conclusive trend in performance (Bilesanmi-Awoderu, 2002). For instance, Raimi (2002) has found a significant gender group difference (in favour of boys). In addition, female students have demonstrated better performance than their male counterparts as revealed in the study of Bilesanmi-Awoderu (1998). Some studies do not establish such differences or, at most, determine gender group differences to some levels of education and some science topics only (Raimi & Adeoye, 2002). According to Owoyemi (2007), students' achievement in physical chemistry courses has nothing to do with attitude or whether the student is male or female. In their separate research works, Ogunleye (2002) and Olatundun (2008) reveal in their findings that females display more verbal commitment to the environment than their male counterparts. Raimi and Adeoye's (2002) research results show that no significant influence of gender and/or effect of ability existed on science students' attitude to the environment.

The results of research that focus on gender and students' achievement in science and science-related subjects are thus conflicting. The present study is thus concerned with the influence of gender on the learning outcomes of environmental education. More studies on this influence can bring about a resolution of the conflicting nature of the subject.

RATIONALE FOR THIS STUDY

The study would perceive how much environmental change can be achieved through outdoor educational activities, especially when a holistic view of environmental problems and issues is portrayed to students through this method.

The study would enhance the utility of knowledge and skills acquired through the formal education system for better living and sustenance of the environment in the process of harnessing it for survival. This would help to remove purely cognitive achievement and eventually lead to a systemic change in society.

It may eventually bring about new educational policy or curriculum changes, especially in the areas of teaching methods and material for teaching, which would stimulate participatory learning by students.

STATEMENT OF THE PROBLEM

It has been observed that students exhibited poor knowledge of, negative attitudes towards and harmful practices to a healthy environment. This is evident in the way they sometimes litter.

Teaching science for utility is one of the goals of science education. A situation where students who are exposed to years of science instruction are still unable to tackle simple problems in their environments is highly undesirable. This occurs because such students have not grasped the vision of science application purposes (Ige, 2003).

Therefore, there is a need for a methodology of teaching that will lead to the acquisition of knowledge as well as its application to everyday life activities, especially those related to solving of problems in the environment and the development of a positive attitude towards the environment. The problem this study seeks to address is to determine the effect of using another teaching strategy (outdoor educational activities) on secondary school students' environmental attitude. It is to reveal how outdoor activities could bring about functional and holistic environmental education and an all-round national development and systemic change in education.

HYPOTHESES

The following null hypotheses were tested at 0.05 levels of significance.

Ho 1: There is no significant main effect of outdoor activities on students' attitude to the environment.

Ho 2: There is no significant main effect of gender on students' attitude to the environment.

METHODOLOGY

This study adopted a pre-test, post-test, control group and a quasi-experimental design using a 2x2x2 factorial matrix, which is represented below.

Table 1: The 2x2x2 factorial matrix

Treatment	School location	Gender	
		Male	Female
Experimental	Rural Urban		
Control	Rural		
	Urban		

The researcher used 240 Senior Secondary School Two (SS II) students from four selected secondary schools in urban and rural areas of the Akinyele and Ibadan North local government areas of Oyo State, Nigeria, respectively. Two schools from the urban and two schools from the rural areas were randomly selected from all the secondary schools in the area.

The random sampling technique was used to assign the schools to experimental and control groups for the study. That is, two out of the four schools were randomly assigned as the experimental groups and the other two as the control groups. Intact classes were used. The biology teachers (one from each of the schools) were involved in the study.

Instruments

Four instruments, constructed by the researchers, were used for data collection in this study. These are as follows:

- Students' Environmental Attitude Scale (SEAS)
- Instructional Guide for Teaching with Outdoor Activities(IGTOA)
- Instructional Guide for Teaching with Conventional Method (IGTCM)
- Evaluation Sheet for Assessing Teachers (ESAT)

Students' Environmental Attitude Scale (SEAS):

This instrument consists of 14 positive items and six negative items with responses of "true" or "false" to be chosen by the students. Each item was designed to test the students' sense of responsibility towards the environment and how they as students could, through their attitude, show how much of the environmental education ethics have been inculcated in them, in order to conserve natural resources and solve environmental problems around them. The instrument was also trial-tested and the Cronbach Alpha measure was used to ensure its reliability. The reliability coefficient obtained for the scale is 0.82. This gave the indication that the items in the instruments were reliable.

Instructional Guide for Teaching with Outdoor Activities (IGTOA):

This is an instructional guide for teachers participating in the experimental group. It contains the statement of topic, objectives and the procedures expected to be followed by the teachers in teaching environmental education concepts during outdoor activities. This was prepared and used for the training of teachers to ensure uniformity in the teaching method.

Instructional Guide for Teaching with Conventional Method (IGTCM):

This is an instructional guide for teachers participating in the classroom using the conventional or lecture method of teaching. It contains the statement of the topic, objectives, instructional material and the procedures expected to be followed by the teachers in teaching the environmental concepts in the classroom. This was prepared and used for the training of teachers to ensure uniformity in the teaching method utilised in all the classes used as control groups.

Evaluation Sheet for Assessing Teachers (ESAT):

This instrument was designed to be used in evaluating the teachers' effective use of the instructional guides during the teaching process. It shows their presentation of concepts, mastery of the topics, use of materials and activities as directed, and how effective their presentation would be for the mastery of concepts by the students.

PROCEDURE FOR DATA COLLECTION AND ANALYSIS

In carrying out this research, the action plan was set out as follows:

- Two weeks for the training of teachers/scrutiny
- One week for the pre-test
- Eight weeks for the treatment
- One week for the post-test
- Total = 12 weeks

The researcher took time to train the teachers on the use of the provided teacher's guide in order to ensure uniformity. The areas of disparity of ideas were discussed and the reason why the guide should be used as expected was explained. The teachers were trained to teach with the instructional guides (IGTOA) in the experimental groups.

For a pre-test, the SEAS instrument was administered to the students to test their attitudes on environmental issues and concepts in Biology to compare the likely effect of the treatment on them.

The students in the environmental group were exposed to outdoor activities. The outdoor educational activities in this study included field trips and excursions. The experimental group visited illegal dumping sites in the markets and environment near their school. They went on excursions to rivers and streams where domestic waste was being dumped. This was to enable them observe the effects of human activities on the environment, so that they can suggest solutions to the problems. The experimental group also used the lecture method, as well as charts, pictures, field trips and excursions. These were used to enhance students' understanding of the concepts they were taught.

In the control group, the students were subjected to the conventional method of teaching and the outdoor activities by their Biology teachers. The conventional method involved the use of lecture method and various teaching materials such as charts, pictures etc.

For the post-test, the test (SEAS) was again administered on the subjects after the various treatments with the help of their Biology teachers in the school. The students' scripts were collected and marked. The scores were used to determine the extent of the effect of treatment (outdoor educational activities and lecture method) on students' attitudes to environmental education.

PROCEDURE FOR DATA ANALYSIS

Data collected were analysed using descriptive statistics of frequency counts, means, percentages and standard deviation. In addition, inferential statistics, such as analysis of covariance (ANCOVA), were also used. The hypotheses were tested at 0.05 level of significance. Multiple classification analysis (MCA) was also used to determine the magnitude of the differences of the various groups.

RESULTS

The results of this study and the summary in the tables are presented below using the research hypotheses as guide.

Table 2: Descriptive statistics of post-test attitude towards environmental education according to treatment, gender and school location

					N	Mean	Deviation
	Gender	Male	Location	**Urban**	24	18.42	1.349
				Rural	29	17.79	1.841
				Total	53	18.10	2.441
		Female	Location	**Urban**	36	17.86	1.807
				Rural	31	14.90	2.700
				Total	67	16.49	2.693
		Total	Location	**Urban**	60	18.08	1.650
				Rural	60	17.05	2.418
				Total	120	17.37	2.362

					N	Mean	Deviation
Treatment	Gender	Male	Location	Urban	35	17.89	2.720
				Rural	24	15.90	2.568
				Total	59	16.90	2.384
		Female	Location	Urban	25	17.40	1.472
				Rural	36	16.59	2.645
				Total	61	16.50	2.264
		Total	Location	Urban	60	17.68	2.281
				Rural	60	15.38	2.662
				Total	120	16.73	2.589
	Gender	Male	Location	Urban	59	18.10	2.264
				Rural	53	16.75	2.441
				Total	112	17.46	2.434
		Female	Location	Urban	61	17.67	1.680
				Rural	67	15.79	2.777
				Total	128	16.69	2.496
		Total	Location	Urban	120	17.88	1.992
				Rural	120	16.22	2.667
				Total	240	17.05	2.493

Table 2 presents the descriptive statistics of students with respect to their attitude to the environment. It comprises the mean score, standard deviation and numbers of students involved in the research. A detailed study of the table reveals that, with respect to attitudinal disposition towards the environment, the experimental groups' performance was better than that of the control group. Furthermore, male students performed better than their female counterparts, and urban students performed better than students in the rural area. For further statistical clarification, the analysis of covariance – an inferential statistical method – was used to test the hypotheses in order to show whether the difference in the mean scores was significant or not. It was also used to make up for the initial differences that may have existed between the groups, since intact classes were used.

Ho1: There is no significant main effect of outdoor activities on students' environmental attitudes

Table 3: Summary of 2x2x2 ANCOVA of post-test attitude scores according to treatment, gender and school location

		Type III sum OF square	d	Mean square	F	Sig.
Source	**Corrected model**	394.443	8	38.055	7.444	.000*
	Intercept	929.712	1	929.712	181.856	.000
	ATTI_PRE	4.971	1	4.971	.972	.325
	TREATMENT	25.907	1	25.907	5.067	.025*
	GENDER	35.472	1	35.472	6.939	.009*
	LOCATION	120.434	1	120.434	23.557	.000*
	TREATMENT * GENDER	.064	1	.064	.012	.911*
	TREATMENT * LOCATION	71.811	1	71.811	14.046	.000*
	GENDER * LOCATION	5.020	1	5.020	.982	.323
	TREATMENT * GENDER* LOCATION	.238	1	.238	.046	.830
	Error	1180.957	231	5.112		
	Total	71254.000	240			
	Corrected Total	1485.400	239			

a.R squared = .205 (adjusted R squared = .177

The result of the 2x2x2 analysis of covariance in Table 3 reveals that outdoor activities have a significant effect on students' attitude to the environment ($F=5.067$ $P<0.05$). The hypothesis was therefore rejected. This means that the experimental group scored higher ($x=17.37$) than the control group ($X=16.73$), as shown in the mean scores in Table 4. This shows that students in the experimental group had a better attitude towards the environment than those in the control group.

Table 4: MCA on post-test attitude scores by treatment, gender and school location

Treatment + category		N	Adjusted for factors and co-variates	Unadjusted	Adjusted for factors and co-variates	Eta	Unadjusted	Beta
Treatment	Outdoor activities	120	17.37	17.37	0.317	0.127	0.322	0.129
	Conventional method	120	16.73	16.73	-0.317		-0.322	
Gender	Male	112	17.46	17.38	0.414	0.156	0.334	0.125
	Female	128	16.69	16.76	0.363		-0.292	
Location	Urban	120	17.88	17.80	0.833	0.335	.755	0.303
	Rural	120	16.22	10	-0.833		-0.755	

Grand mean = 17.05

Table 4 shows the results of the MCA on the post-test scores of attitude to the environment by gender, treatment and school location. The table revealed that the experimental group had a higher unadjusted mean (X= 17.37) than the control group(X= 16.73). The treatment is observed to have contributed 1.7% to students' predisposition towards the environment.

Ho 2: There is no significant main effect of gender on students' environmental attitudes

The results from Table 3 reveal that there gender had a significant influence on the students' attitudes ($F=6.939$, $P<0.05$). The hypothesis was therefore rejected. Table 2 shows that males had a higher attitude mean score ($x=17.46$, $SD=2.434$) than the female students ($x=16.69$, $SD=2.496$). The males are therefore more positively disposed towards the environment than their female counterparts. The results in Table 4 further show that gender accounted for 1.6% of the total variance in students' attitude scores, as given by the Beta value of 0.125.

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

The results of the analysed data revealed that outdoor educational activities had positive effects on the students' attitudes towards the environment. The effect of outdoor activities on attitude was significant. This, in a way, was in line with the findings of Olatundun (2008), Martins (2002), Stine (1997) and Knapp (1996).

The study has provided students with the opportunity to build attitudes based on their experiences encountered in the environment. This approach towards solving environmental issues and problems is a step in the right direction for future sustainable development and could bring about change in peoples' attitudes. This shows that the better an individual learns, the better he/she realises the worth of his environment and the better his repertoire of behaviour towards the environment.

Gender, which is the moderator variable in this study, was investigated to determine the influence it exerted on students' environmental attitudes. The results of the analysis of data revealed that gender had a significant main effect on students' environmental attitude. The male students performed better than their female counterparts. This is in line with the findings of Oyedeji (1996), Balogun (1994), Raimi (2002), who showed a significant gender group difference (in favour of boys). This stands, however, in contrast to the findings of Ogunleye (2002) and Olatundun (2008), whose research revealed a significant gender group difference (in favour of the girls). This finding further lends credence to the fact that the boys are more predisposed to the learning of science-oriented subjects/topics than the girls.

The present study was necessary to find a way of bringing about functional and holistic environmental education and an all-round national development and systematic change, and an acquisition of attitude for utility, especially towards the environment, which has been observed to play a vital role in all facets of life.

The outdoor activities were seen to be effective in achieving this. Thus, students are expected to make maximum use of outdoor activities as an opportunity to improve their attitudes towards the environment. Based on the findings of this study, the recommendations below are considered as appropriate for the following role-players:

1. Curriculum planners: The results of this study have shown the need for curriculum planners to include outdoor activities as one of the methods required in the curriculum, especially the student/teacher activities, to bring about effective environmental attitudes.

2. Teachers and students: Outdoor activities have been observed to have brought about significant attitudinal change in students. Therefore, outdoor activities are recommended for the teaching and learning of environmental education concepts such as pollution, erosion, desertification, deforestation, conservation of matter and energy, overpopulation and even ecological topics in Biology.

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THE IMPORTANCE OF CONTINUOUS TEACHER DEVELOPMENT THROUGH DISTANCE EDUCATION FOR TEACHERS USING ADDITIONAL LANGUAGE FOR LEARNING, TEACHING AND ASSESSMENT

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ABSTRACT

This paper is based on a study conducted to determine the influence of a curriculum-based dynamic assessment (CDA) procedure on the performance and effect on additional language (AL) learners in mainstream education. Eight learners in Grade 8 selected from two schools in Lagos, Nigeria, participated in a process of debriefing and mediation during three continuous assessment cycles and the end-of-term examination in two subjects, Business Studies and Integrated Science. The study was an attempt to employ CDA as a means of reducing the inequity in the assessment of learners using a language in which they lack proficiency. Although the results suggest a generally positive influence of CDA to varying degrees, the participants' low level of AL acquisition was almost crippling to the entire study. Code switching had to be used extensively during mediation and debriefing, questioning the actual AL teaching and learning process. The severity of the barriers constituted a serious limitation to optimum learning. The results suggest that the AL teaching and learning process could be fundamentally flawed, as it appeared that some of the teachers, as models of language, were themselves failing the learners. The question of the adequacy of teacher training and continuous professional development for teachers was deemed a strong factor in both the participating schools. The results of this study indicate a profound need to expand teacher education and in-service training through distance education in order to increase the number of truly qualified teachers, particularly in rural areas.

Keywords: Additional language; code switching; assessment; dynamic assessment; teaching and learning.

INTRODUCTION

The study focused on the influence of curriculum-based dynamic assessment (CDA) as an alternative form of assessment for learners with an additional language (AL), in this case English, as the language of teaching, learning and assessment (LoLTA), but the close relationship to teacher education became evident during the data collection. The importance of initial teacher education and continuous professional development could also not be ignored, but was rather deemed as requiring further investigation. The resultant assumption was that distance education could be the key to successfully training and engaging with teachers, particularly in rural and remote areas.

This paper discusses the results of the study as they relate to language, and how language teaching methods and practices might have affected the learning and assessment of the participants. The paper begins with the background to the study, leading to a description of the study and the methods employed, followed by a discussion of the results and findings. The paper concludes with a discussion of the place and value of distance teacher education and continued professional development as probable avenues for improving learning outcomes on language acquisition and use.

BACKGROUND TO THE STUDY

The additional language factor in education is a global phenomenon. Immigration is on the increase and, with it, cultural and linguistic diversity (CLD) in classrooms. In addition, many learners in developing and postcolonial African countries have to use an AL as the language of learning, teaching and assessment (LoLTA) (Omidire, Bouwer & Jordan, 2011). This is due either to the multiplicity of the languages represented in such countries or their official languages being foreign ones. The situation creates a new generation of AL learners worldwide who are now said to outnumber L1 learners (Nieman, 2006). Teachers sometimes seem unaware of the complexities of AL acquisition and learning, and classroom practices often label AL learners as having learning disabilities, underachieving or being emotionally unstable, leading to classification into one or another form of special educational needs programme (Gonzalez, Brusca-Vega & Yawkey, 1997).

Other challenges associated with learning in an alternative language include static assessment in a language in which the learners lack proficiency on both

the receptive and expressive levels. Static assessment does not accommodate the language barriers that are often associated with alternative language acquisition and learning. How can assessment in the alternative language be equitable, valid or reliable when learners fail to comprehend or communicate due to alternative language barriers? The continued use of such static assessment practices can have lasting effects on the learners and their attitudes, especially when assessments are high-stakes assessments that are used for the classification of learners, selection and progression in schools.

PURPOSE OF THE STUDY

Other forms of alternative assessment and accommodation in assessment have been investigated and found to not be fully able to cater for the challenges of alternative language learners (Omidire, 2009). The study therefore investigated the influence of dynamic assessment as an alternative method of assessment for learners whose home language is different from that of the LoLTA. The study built on CDA, which was developed by Lidz (2002:73) out of the need to "bridge assessment with intervention and for the results of the assessment to inform instruction". The purpose was to find out how alternative language learners respond to this method of assessment and determine the corresponding influence that the CDA procedure has on the learning, performance and affect of the alternative language learners.

RESEARCH METHOD

A qualitative multiple-case study was conducted with eight alternative language participants, purposively selected from two Grade 8 classes in each of the two government schools, one from the lower-income bracket (LIB school) and the other from the middle-income bracket (MIB school). The study ran for the first school term through three continuous assessment (CA) cycles and the end-of-term examination. The participants were coded: AF, AM, BF and BM (LIB school) and CF, CM, DF and DM (MIB school).

The instrumentation consisted of CA1 assessment tasks in Business Studies (BS) and Integrated Science (IS) as initially developed by the teachers, and mediational assessment tasks for the further rounds of assessment. Mediational assessment then entailed the linguistic adaptation of assessment questions set by the teachers to mediate cognitive-linguistic acts of response, and scaffolding in the form of a glossary was developed. The glossary contained subject-specific and functional

assessment terms from the questions, e.g. *agent, differentiate, describe*. The strategies aimed essentially at enabling the alternative language participants to self-direct their language-related acts to process the questions and construct their responses more effectively (Omidire, 2009).

Per CA cycle, the CDA procedure took the form of mediational assessment, linguistically focused debriefing and mediation regarding assessment questions. Debriefing involved discussing their observed behaviour and experience of the assessment with participants. The purpose of this was to identify the language-related challenges of the assessment tasks and engaging participants in a solution-finding exercise to address the perceived linguistic barriers (Omidire, 2009).

Permission to conduct the study was obtained from the Lagos State Ministry of Education and the participating schools. Informed consent was obtained from the participants and the teachers after a detailed explanation of the purpose of the study and processes involved.

DATA ANALYSIS

Each participant's continuous assessment scripts were examined individually in respect of receptive and expressive language skills. The participants' test scores were also analysed comparatively across the CA cycles and with some reference to the means of the scores of the relevant classes for signs of possible progress.

The transcripts of the debriefings and mediations in the original mix of English and Yoruba were analysed per participant, using an explanation-building technique, but with some member checking, with reference to the linguistic challenges experienced. Collective analysis of the debriefing and mediational data per CA cycle was used to arrive at emergent themes for the adaptation of the assessment items in the subsequent CA cycle or examination.

RESULTS AND FINDINGS

(a) Use of dynamic assessment

The mediational process focused largely on the participants' access to the assessment questions by mediating more in terms of language than content (Losardo & Notari-Syverson, 2001). Particularly with the LIB school, mediation generally took the form of reading support. Decoding and comprehension of the assessment material

became the focus of most sessions, when, due to the extent of the alternative language barrier, graduated prompting (Campione & Brown, 1987) in respect of conceptual processing was rendered somewhat ineffective in some cases. The severity of the alternative language challenges (especially with participants AF, AM, BF, BM) often meant that processing the subject content itself was secondary to coping with basic communication in the LoLTA.

Three of the four participants in the MIB school were slightly different in that they could read and understand generally what the questions required of them. Therefore, support of metacognition to ensure focused comprehension of the questions and direction for the processing to arrive at appropriate responses became features of the dynamic assessment mediation. The findings from the debriefing and mediation shed valuable light on the nature of the challenges in assessment that each participant had individually.

Dynamic assessment appears overall to have had a positive influence on the assessment process for the participants: directly, by aiding the reading and comprehension of questions, and guiding appropriate oral responses; and indirectly, by mediating comprehension of the questions during actual assessment through presenting linguistically modified questions and providing the glossary and spelling list. The use of the glossary empowered the participants to exercise a degree of self-regulation in respect of comprehension of the assessment questions, suggesting that even indirect, non-individualised mediation in dynamic assessment could have a positive influence on the assessment of alternative language learners generally.

The study concluded that dynamic assessment appears to have had a positive influence on the participants' performance in assessment, although to varying degrees, and that contextual factors as well as individual learning potential played an important part in the variation. The results are an indication that latent learning potential possibly impacted on the participants' capacity to respond positively to the dynamic assessment used. Once the nature of the participants' alternative language challenges was identified and scaffolding was provided, individually appropriate dynamic assessment measures seemed to enable the participants' true ability to manifest itself to different degrees, and allowed them to perform closer to their full potential even in the face of the alternative language factor. However, they seemed to require mediation sustained over a longer period, which would hopefully have resulted in even better achievement.

(b) The additional language situation

The socio-economic and affective contexts in each of the schools were major factors that contributed to the findings, but none more so than the overall context of language. The findings from this study suggest that the challenges concerning the alternative language proficiency experienced by the participants formed the unique linguistic context within which each of these learners resided, both cognitively and affectively. The factors contributing to the linguistic context included the language of the community and immediate out-of-school environment, including the family or parental influence, the processes of teaching and learning, the participants' individual challenges in learning, and the influence of the school as context. All of these contributed strongly to the synthesis towards an understanding of the alternative language context of the study.

(i) Language in the community

The participants' oral and written responses displayed a high level of interference with their L1 (Yoruba), at least in the linguistic, socio-linguistic, cognitive and affective dimensions. Their pronunciation was laced with the Yoruba accent and their spellings were faulty, often based on writing words as pronounced. Whole sentences were sometimes translated directly from Yoruba, thereby blurring the clarity of the meaning and making it especially challenging for someone who did not belong to the community. The interference of the L1 with pronunciation appeared to be a general phenomenon with all the participants. In Yoruba, words are written phonetically, i.e. according to the pronunciation of the component sounds on the alphabet table, which means there are no unpronounced letters or irregular spellings as there are in English. Therefore, some spelling errors of participants (AM, BM) are actually phonetic spellings as they perceive the sounds and thus become understandable, e.g. "loamy" as "lomin" and "heart" as "hart".

Grammatical "errors" made by learners in the alternative language sometimes carry psycho- and socio-linguistic overtones. For instance, in Yoruba, singular nouns and proper nouns (e.g. mom, dad, Mrs X) quite often take the plural form of the pronoun in spoken communication, depending on the relationship between the parties. Ordinarily in Yoruba, one cannot refer to someone older or in a position of authority using a singular pronoun, as in the English language, because the plural form signifies respect in Yoruba. An example would be a learner saying "They are calling you" instead of "He/she is calling you". Therefore, when referring to the

teacher as “they”, CF in the example below was obeying the rules of Yoruba, which is incorrect in formal English:

Researcher: *Ma a worry, ko kin se pe nma so fun teacher yin. Mi o ni so*. (Don’t worry, it’s not as if I’m going to tell your teacher. I won’t tell.)

CF: No, Ma. If they (teacher) catch you, they will beat you very well (Omidire, 2009).

The tenses also create confusion for those who are not proficient in both languages. In Yoruba, actions that occurred in the past are described using the present tense. There is no declension for verb-noun correspondence; it is denoted by adverbs of time and by the subject, and not by actually changing the verb form. Therefore a direct translation from Yoruba to English often results in grammatical errors. Below are examples in which CF was referring to incidents that occurred in the past, using utterances that were direct translations from Yoruba:

(a) CF: We do the correction in class. We stand up and answer the questions. (We did the correction in class. We stood up and answered the questions.)

(b) CF: I check for words on the paper. (I checked for the words on the paper.)

(c) CF: Yes, Ma. I check the words. It make it better. I can answer. (I checked the words. I made it better. I could answer.) (Omidire, 2009)

For the numerous differences between the two languages, ranging from phonology to syntax and orthography, learners require some measure of cognitive modifiability to accommodate the variations as they move from the L1 used in their community to the alternative language used in their lessons. The participants in this study appeared to have little exposure to reading in either language.

Many learners in the communities to which the participants belong have parents who are not competent users of English even at the level of basic interpersonal communicative skills (BICS) (Cummins, 2000; Cummins & Swain, 1986). They get by using Yoruba and pidgin. Such learners (e.g. AF and AM) can be described as being linguistically hemmed in because they are surrounded by people who do not speak the language they need to acquire to make progress at school. Hence, their only exposure to English, the LoLTA, is during their lessons in school. From the findings, even peer interaction in the schools seemed to take place in Yoruba, while

conversational communication in Yoruba, which was mainly at the level of BICS, was different from their required academic communication in English at the level of cognitive academic language proficiency (CALP) in respect of content, linguistic complexity and lexicon (Cummins, 2000; Cummins & Swain, 1986).

In discussing the language proficiency of the participants and the results of this study, the choice and use of language in the immediate environment cannot be ignored. In Nigeria, English may have been placed in a position of prominence because, as suggested by Opara (2004), it appears to be a unifying element in a highly complex multilingual society in which it is estimated that about four hundred indigenous languages are spoken (Bamgbose, 1995). Although English is the official language of the country and by implication of the communities within which the study took place, local variations of English containing alterations to the grammatical structure are also in use, and press against the boundaries of the proper use of English grammar as well as pronunciation. This tendency, coupled with the everyday use of pidgin, forms a formidable challenge for any individual, particularly alternative language learners who have to attain English proficiency at CALP level as well as assimilate complex subject terminology.

In Nigeria, there is now a very thin line between the correct use of English and the accepted use of English based on interference of the local languages. Knowing where one ends and the other commences could be challenging for alternative language learners. The link between some of the participants' errors in spelling and the local variation of the pronunciation of the words needs further investigation, as well as the use of pidgin in the community as a confounding factor in alternative language learning.

The findings revealed that the language situation in the communities of both schools possibly constituted a limitation for the participants. This substantiates Vygotsky's suggestion that the physical and social contexts within which learning takes place remain an integral part of what is learned (Haywood & Brown, 1990; Kozulin & Garb, 2002; Minick, 1987; Wood, 1998), and that the concept of human development places interaction between children and more mature members of their culture at the heart of psychological growth. Where cultural tools – such as language and speech – that facilitate social construction and intellectual development are not distinct or focused, the challenges become more complicated. Vygotsky's emphasis on the importance of the social environment and the social construction of the mind as a means of intellectual development (Deutsch & Reynolds, 2000; Minick,

1987) seem to be borne out by the influences that the contexts of the LIB and MIB schools had on the distinction between the results of their teaching and learning.

(ii) Processes of teaching and learning

The impact of teaching and learning conditions on learners' progress cannot be under-estimated and, as noted during the course of this study, barriers may sometimes be almost overwhelming. As with the power of the language factor of the community, the severity of the barriers in the teaching and learning situation studied constituted a serious limitation to optimum learning and, in some cases, appeared to make other considerations even seem irrelevant. The challenges ranged from an outright non-conducive physical environment brought about by a serious breakdown of basic infrastructure, to inadequate teaching techniques and poor language models from which to learn. In the LIB school, the lack of basic amenities appeared to make both teaching and learning very challenging.

What the MIB school gained in terms of provision of basic infrastructure, it lost in hugely overcrowded classrooms averaging more than a hundred learners. The entire context seemed to be pitched against teaching and learning from the outset, a situation compounded by the alternative language factor and the learners having underdeveloped language proficiency in the LoLTA and often even in their L1. It is noteworthy that in the MIB school, even learners with above average performance (DF and DM) had failed to comfortably attain language proficiency in English at CALP level.

The LIB school participants required considerable code switching to be certain that they had a good understanding of what the project was about, and in particular for the debriefing and mediation procedures. This was despite the responses anticipated in the assessment tasks not requiring the formation of lengthy or complicated sentences or advanced grammar. In the MIB school, code switching was not necessary that often, but neither could it be ruled out (with CF).

Code switching functions on two levels: the receptive and the expressive. At the receptive level, it aids comprehension and allows the teacher to act as mediator of understanding, while at the expressive level, it helps one to convey one's knowledge and understanding (Brock-Utne & Holmarsdottir, 2004; Nieman, 2006). In the study, the implication of code switching, when practised by the Science teacher in the LIB school, was that the learners were able to achieve some measure of comprehension of the lesson content. Subsequently, preparing for an

assessment from English notes and textbooks and making sense of assessment questions in English independently without the help of code switching was a grim reminder that the challenges of an alternative language as the LoLTA certainly did not disappear. Moreover, achieving some understanding did not ensure any communicative competence at the expressive level. English was still the medium of expression of what had been learned. Code switching to convey understanding was not permitted, but rather learners were often stringently penalised for the smallest of errors.

Although the teachers' code switching seemed to aid learners' comprehension at the receptive level and the knowledge was then seemingly acquired, a major hurdle remained in preparing for assessments purely through the medium of the alternative language. Learners had to depend on either the recalling of information learned by rote, or the translation of all knowledge back to the alternative language when expressing themselves. Code switching certainly did not serve the needs of these alternative language learners at the expressive level. Unfortunately, the Nigerian National Policy on Education (2004) does not address the use of code switching in teaching and learning, so there seems to be no guidance on the subject.

The alternative language challenge is further compounded by the level of complexity and linguistic demand of some subjects over others. Integrated Science was deemed more difficult than Business Studies by most participants (AF, AM, BF, BM, DF and DM), apparently due to poor knowledge of subject terminology. The Integrated Science terminology was complex and finding Yoruba words for scientific concepts was daunting, so much so that AM and BM wished to drop the subject and speculated as to its pointlessness in their daily existence. Business Studies was obviously less complex for the majority of the participants and easier for the teachers to present.

The alternative language factor in teaching and learning made it essentially difficult to ascertain whether errors were due to a lack of subject knowledge, language deficiency or learning disability, or maybe a combination of all three. This substantiates the suggestion that teachers in multilingual and multicultural classrooms face the task of distinguishing between language-related achievement issues and other obstructive factors, such as genuine learning disabilities (Camilleri & Law, 2007; Frost, 2000; Lidz & Macrine, 2001; Pena, Iglesias & Lidz 2001).

The findings suggest that it is crucial to have resources to make this distinction. There appeared to be no special education consultants, coordinators or educational psychologists, which left a gap in the system.

(c) Participants' challenges in learning

The findings suggest particular areas in which the participants experienced the greatest difficulties. For instance, the learners in the LIB school seemed to have greater challenges with all aspects of reading than those in the MIB school, and this necessarily impacted on their learning overall. In a study carried out with Grade 8 learners in a township school in South Africa, Pretorius and Ribbens (2005) found that a lack of basic reading skills indeed had direct implications for the learners' academic performances. Some of the challenges the LIB participants faced included vocalising as well as following the words with their fingers when reading (AF and AM). This style of reading should long have been outgrown by learners in Basic 8, and could indicate an extreme degree of reading difficulty at the decoding level at this stage. It could also lead to a risk of losing track of the textual content due to overload of the short-term memory. AF and AM were the weakest readers among the participants. BF struggled with recognition of keywords, whilst BM's reading, though slightly more fluent than that of the others, still also required much practice.

The participants' reading comprehension was far from adequate, with questions having to be translated and terminology explained before they showed signs of understanding. However, in some instances (e.g. AF), even that was insufficient to ensure full comprehension. In contrast, the MIB school participants, except CF, were able to read relatively well. CF repeated words and phrases, which made the text sound somewhat confusing. CM, in his bid to rush through the reading, often tripped on words and then started again. DF and DM required minimal assistance with their reading, but more with pronunciation.

In all respects, comprehension was a considerable challenge for some of the learners, validating the findings of Barry (2002), who maintained that English L2 speakers did not have the level of proficiency required for comprehension to make inferences and critically evaluate texts used in the study, and had also found it difficult to complete sections in which they were required to write their own responses as a demonstration of comprehension. The learners in the LIB school

required extensive explanation (most often in Yoruba) to grasp the essence of the assessment questions. They demonstrated a lack of comprehension of the conceptual aims of questions.

At the expressive language level, virtually all the learners appeared to have difficulty coping with terminology and subject-specific key concepts, and more so for Integrated Science than for Business Studies. This finding is not surprising, considering the extent of difficulty generally associated with Integrated Science, and suggests that lacking equivalent words for translation into Yoruba increased the level of complexity of the Integrated Science terminology from the point of view of the participants. CF and CM were the only two participants whose scores in Integrated Science were better than in Business Studies. These two participants (from the same class) appeared to have serious problems with the teaching methodology and attitude of the Business Studies teacher, resulting in a serious lack of interest in the subject and probably having a direct impact on their motivation and performance.

There was evidence of rote learning on the part of participants from both schools (AM, CF and CM). The findings seem to corroborate those of other studies (Banda, 2000; Barry, 2002; Howie, 2004; Howie & Hughes 1998; Prinsloo, 2005) suggesting that, due to the alternative language factor, the participants saw no other way to cope with the complex terminology than to memorise learning content even without real comprehension. As a result, they found it exceedingly difficult to formulate answers in their own words when questions required them to *explain, differentiate and describe.*

The tendency to learn by rote could be linked to the alternative language factor and is a critical setback for education in developing countries, since it could inhibit learners' ability to think independently and contribute to discussion and debate. Higher-order thinking, the application of knowledge, synthesis and evaluation become virtually impossible if basic comprehension has not been achieved. The ultimate product of rote learning, especially where alternative language is a factor, are learners who fail to develop to their full potential, who simply regurgitate what they have memorised and who are unable to contribute meaningfully to issues that affect them.

The findings further imply that, for the participants, processing their thoughts and ideas seemed challenging to varying degrees. DF and DM appeared able to process

their thoughts and ideas better than AM and BF, but for some, such as AF, it seemed virtually impossible. All the participants appeared to process their thoughts in Yoruba and then attempt to translate them to English. The following ensued, as they:

- read the questions in English;
- translated to Yoruba to attempt comprehension;
- processed and mentally formulated their answers in Yoruba; and
- translated their responses back to English.

This process of translation is very delicate, and could compound the problem when the learner's English lexicon is limited. From the findings, translating back and forth appeared directly related to the issue of vocabulary building and to participants' varying lack of adequate vocabulary, ranging from functional assessment terms at the receptive language level, to subject-specific terms, which made it impossible for most (AF, AM, BF, BM and CF) to express themselves clearly when speaking or to achieve clarity in their written work. The findings are supported by the report of Howie and Hughes (1998) on the performance of South African students in the Third International Mathematics and Science Study (TIMSS, 1995), which also identified these crucial language-in-assessment issues and concluded that they probably had a negative impact on achievement. Similarly, Aigbomian (in Ogunleye, 1999) found that learners in Nigeria did not have the required level of academic language to comprehend the physics concepts to the extent that they would meaningfully apply them. It is certainly not out of place to suggest that the above findings might be related to the methods and processes adopted for language teaching and learning.

THE PLACE OF TEACHER TRAINING AND ACCESS TO DISTANCE EDUCATION

The linguistic challenges encountered during the course of the study were almost overwhelming. One of the reasons the participants were chosen from Grade 8 was to ensure that, after seven years in full-time schooling and learning the alternative language, there would be some level of competence in the alternative language. The important questions then became: How was language taught in Grade 7 and during the primary school years? What was the quality of language teaching for these learners? How can teacher training be used to address the challenges in language teaching for better outcomes with a majority of alternative language

learners in a particular classroom? How can distance education be used to bridge the gaps in teacher education when one considers the remoteness of many of the schools in Lagos in terms of access to teacher training institutions?

The findings of this study suggest that the training of alternative language teachers might be more effective if elements of the training are directed at an awareness of the psycho- and socio-linguistic overtones that hinder language learning in the community in which the teacher will work. Training should also incorporate possible errors affecting grammar, spelling and pronunciation due to interference of the L1. The obvious challenge for those teachers who are already trained and in the system is that the logistics for retraining or acquiring new teaching skills are lacking and there are no obvious support systems in place. The idea of using distance education to create access to teaching innovations is therefore encouraging.

From the findings of the study, there appeared to be a somewhat desperate suggestion by the participants that English, (the alternative language) as a school subject, should be broken down into focused parts such as grammar, vocabulary, speech/ phonetics, comprehension and spelling. The participants further believed that each component should be taught by different language teachers. This suggestion by the participants is an indication that the language teachers might not be doing enough to ensure that the learners reach the CALP level of language proficiency.

The participants all felt that a support system independent of the schools, such as private after-school tutoring or study support, was important for them to make progress. This further demonstrates the participants' lack of faith in the capability of the teachers to positively impact on their achievement. This appeared to be a call, albeit by a small group, for researchers to take a closer look at teaching practices and, consequently, the adequacy of teacher training methods to ensure that teachers are equipped with the right skills to handle the task of teaching alternative language learners.

There is a need for a specialised focus on teacher training for alternative language teachers. Literature has shown that achievement could be linked to proficiency in the LoLTA. The importance of a teacher training package that incorporates teaching strategies for trainee alternative language teachers cannot be understated. Once-off training should also be discouraged. New teaching techniques and innovations for language teaching and learning should be accessed through ongoing in-service training and professional development through distance education.

CONTINUOUS TEACHER DEVELOPMENT THROUGH DISTANCE EDUCATION

Distance teacher education appears to be a feasible tool for addressing the challenges of inadequate language teaching in schools. There are numerous advantages to using distance education for initial teacher training and continuous professional development for alternative language teachers. Among them is the convenience and flexibility with which learning can be achieved; study can be organised around work, social and family commitments. The training could also be directed at specific individualised needs for personal growth for teachers, and it could thus also be self-paced. The implication is that there should not be a gap in the methods adopted to facilitate additional language learning.

It is an avenue for the latest language-teaching and vocabulary-building strategies to be intermittently introduced to teachers for effective teaching and learning to take place. Distance teacher education could also hold promise, particularly for continuing professional development and in-service training. In-service training is an integral part of teacher development in the school system, ensuring that teachers keep abreast of the trends in education and encouraging consistent best practices and innovations in teaching. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) *Report on Teacher Education through Distance Learning* (2001) states that distance education is used to "raise the skills, deepen the understanding and extend the knowledge of teacher" and that the basic initial training for teachers is no longer adequate. The organisation believes that distance education can be a means of reorientation for teachers.

This study has been an eye-opener as to the extent of work still required to ensure that all teachers have basic training. Language pedagogy and actual classroom practices require further investigation. There is a need for teachers to be encouraged to seek assistance and/or support when their teaching methods do not yield the expected results. In the case of Nigeria, there is probably a need for urgent action to intensify efforts to make continuing professional development available and compulsory for teachers. It is essential to conduct research into practical ways of using distance teacher education and the latest teaching technology for professional development and in-service training in rural areas and places where the basic infrastructure is almost non-existent.

CONCLUSION

In the course of the study, several questions became apparent that require research. At the fundamental level of theory formation, the influence of the alternative language and the severity of the linguistic challenges encountered mean that exploring the background of the classroom teaching of the alternative language is of primary concern. At the level of application, research into alternative language education practices in the feeder primary schools as well as into the level of proficiency carried forward into the secondary school is proving to be essential.

The findings of the study suggest a need for further research into alternative language teaching and learning in primary schools as a method of exploring where the possible origins of the alternative language challenges for learners lie. In order to reduce the challenges faced by alternative language learners in mainstream classrooms, the alternative language teaching methods of Grade 8 teachers should be studied. It is evident that distance teacher education is the most feasible way to maximise the reach in terms of teacher training and development. Innovations are, however, still required to achieve success in rural areas. In Nigeria, there appears to be a need to raise the entry requirements for teacher training programmes in order to ensure that those admitted have the basic criteria. The possession of the required skills enables teachers to be effective trainees and forms a solid foundation on which to build the requisite knowledge and teaching skills.

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FOREIGN LANGUAGES IN AFRICAN SCIENCE CLASSROOMS: PERSPECTIVES ON AND APPROACHES TO LANGUAGE USE DURING TEACHING

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ABSTRACT

Africa is perhaps the only continent in the world where most formal or school education is conducted in instructional languages that are foreign to most learners and their teachers. In contexts where formal learning is conducted in a foreign language, achievement of general proficiency in the instructional language is a necessary first step if any learning is to be expected in that language. In this article, the objective is to argue an appropriate perspective on – and suggest approaches to – the use of (the foreign) language by science teachers during teaching. This article is the outcome of sustained literature reviews of cross-national research on language in science education over the last 40 years. In this article, a plural nature of school science is adopted, including it being a distinct language foreign to all learners, irrespective of their first language. Therefore, the main objective of this article is to highlight the role of the instructional language as used by the science teacher and in science texts. This article targets the science teacher with regard to the well-known need for teacher intervention in the learning of school science.

Keywords: Africa; foreign language; language of instruction; components and nature of words in the language of instruction; science learning and teaching; learning context; science education research.

INTRODUCTION AND OVERVIEW

> "What kind of science can a child learn in the absence, for example, of basic language competence and an attendant inability to handle concepts?" (Achebe, p. 162)

Despite the United Nations Educational, Scientific and Cultural Organisation's (UNESCO) assertion that educating learners in a language they understand best is a tenet of good practice (UNESCO, 2007), Africa remains the only continent in the world where formal education is generally conducted in instructional languages that are foreign to most learners and their teachers. The continent has in this regard been balkanised into Anglophone, Francophone and Luzophone states, with reference to the European (former colonial) languages; English, French and Portuguese respectively. In the special case of Tanzania, the balkanisation may be referred to as a "Swahiliphone". In Tanzania, Swahili, the mandatory language of primary school education – but also used widely in secondary and higher education, although unofficially – is neither a local nor the first language to all students and their teachers. Swahili is therefore also a foreign language to most students and teachers in Tanzania, even though it is an African language.

A common argument has been that all the foreign languages of European origin were retained at independence as the official as well as classroom instruction languages for economic and political reasons. It is also an acceptable argument that the retention of the languages must have been dictated by circumstances that were prevailing at the time in the respective African countries. In the case of Kenya, although English was adopted on the recommendation of the first Education Commission, popularly known as the Ominde Commission, the logic may have been that at the time,

> "...English was [already established as] the language of the entire secondary education system, of university, in large part, of the press, and of many other sectors; it was also the language of much creative writing, and of effective public debate, whether in... scholarly writing and so on. It was for the time being, the main language of communication with outside ideas, whether in East or West, or indeed in other parts of Africa... not... that this was desirable or that it... be perpetuated or protected... this was a fact." (Ogot, 2003:171–172)

While the same argument may have been used in adopting French and Portuguese in the respective African countries at their attainment of independence, the case for Swahili in Tanzania was purely a political one. Arguably, the adoption of Swahili as the language of formal education in Tanzania in 1967, several years after independence, was so that the country became fully liberated from colonial influence (Kadeghe, 2003).

The current state of Swahili in Tanzania is such that the logic for the adoption of English in Kenya – as argued above by Ogot (2003), but in reference to Swahili – is very relevant. In other words, all arguments should be for the adoption of Swahili as the sole instructional language at all levels of education in Tanzania (Brock-Utne & Holmarsdottir, 2003; Brock-Utne, 2005; Prah, 2003; Roy-Campbell & Qorro, 1997). The global trends in the popularity of English (Newsweek, 2007) and the need for easy international communication would be the major issues in the ongoing debate for the need to adopt English instead as the instructional language at all levels of formal education in Tanzania.

In the African countries where English, French and Portuguese are already the languages of formal education, it is apparent that they may continue to be used at all professional and academic levels because of their global presence and attractiveness in international communication. With Swahili also being a generally foreign language to most Tanzanians, it follows that most students and their teachers in Africa will continue to use foreign languages as instructional languages in formal education. There is thus a requirement for students in African countries to achieve proficiency in whichever classroom language of instruction. This is a necessary first step for effective learning of school subjects to occur.

At least at the initial stages of learning, students in Africa will continue to experience greater difficulty than students who learn in their first languages. This is due to the double task of learning two new things – the language of instruction and, for example, science – at the same time. The learning of most school subjects, including science, requires more than simple proficiency in the language of instruction (Wilson, 1999), in spite of the assumption by many (including teachers) in multilingual societies that once proficiency in the instructional language has been achieved, students would be able to understand everything they are taught in that language (Rollnick, 1998, 2000).

In this article, the focus is on the instructional language as used by the *science teacher,* based on the role of language in all learning, including school science (Scott, 1998), and the now well-recognised need for teacher intervention in the learning of school science (Driver, 1989; Hodson & Hodson, 1998; Hodson, 1999). The article consists of three main parts. Firstly, the components and nature of the language of instruction as used in science texts and by science teachers in classrooms are discussed. Secondly, a critical review of research-based evidence of the possible universal difficulty of this language is presented. Thirdly, the approaches to working around the difficulty and foreignness of this language via, in particular, effective classroom use of language by science teachers and the necessary research on language in science education are considered.

The focus is particularly on science teachers' language, because the author regards the science teacher as the foremost resource in students' effective learning of science. However, based on the variety of resources or sources of school science knowledge available to the student, the term "science teacher" is considered to embrace and subsume the term "science texts" as a resource or an alternative source of the ideas of school science. Hence, *teachers' (classroom) language* as used in this article refers to the science teachers' oral language as well as the language of science texts, including that used in distance education material. Although the instructional language in particular focused on in this article is English, these discussions are meant to apply to any instructional language in use.

THE COMPONENTS AND NATURE OF SCIENCE TEACHERS' LANGUAGE

The instructional classroom language of the science teacher and science texts has two parts: a technical component and a non-technical component.

The technical component: The technical component is made up of technical words or terminologies specific to a science subject, for example, "chromosome" in Biology, "capacitance" in Physics, or "anion" in Chemistry. Such terms may also be referred to as technical terms, scientific terms or terminology, science terms or simply science words. Technical words, as originally argued by Gardner (1972), "...include such things as physical concepts (mass, force...) names of chemical elements, minerals, plants, organs, processes, apparatus etc." (p. 7). The technical or science words are everyday words deliberately used as science words (Miller, 1999), and they

have new (scientific) meanings in addition to their everyday meanings (Sutton, 1992; Wellington, 1994). The new, different meanings everyday words acquire when used as science words and/or when they become science words make them resemble words in a new, different or foreign language, although with fixed meanings. Regardless of the base language, the meanings of these words must be known in the international science community. Therefore, apart from representing science concepts (Murphy, 2002), science words are also representations of words in a different and/or foreign (science) language.

The non-technical component: The non-technical component of the science teacher's classroom language is made up of non-technical words. It is this part of the science teacher's classroom language that may be referred to as the medium of classroom instruction or interaction as separate from the technical terms. This component of the science teacher's classroom language thus becomes recognisable to be the same as the language in which a science textbook is written. Gardner (1972:7) used the following sentence to illustrate examples of non-technical words: "Gas molecules display random motion; we may predict their behaviour from theoretical considerations: the actual volume of the molecules may be neglected." Although they are not "technical terms", the four words "random", "predict", "theoretical" and "neglected" remain key words in the sentence with regard to the understanding of the behaviour of the gas molecules, on the assumption that the meaning of the (technical) term "molecule" is known to the learners. In science education research literature relevant to this article, it is words like these thathave been referred to as "non-technical words in the science context" (Wellington & Osborne, 2001). Apparently this has been done to distinguish them from the metarepresentational terms (Wilson, 1999) and logical connectives (Gardner, 1977), two other groups of words considered as distinct categories of non-technical words. The non-technical component of science classroom language of instruction and interaction, therefore, consists of three categories of non-technical words, namely non-technical words in the science context, metarepresentational terms and logical connectives. Highlighting the boundaries between these is of interest.

The "non-technical words in the science context", as part of the language typical of science subjects, may be considered to constitute a language characteristic of school science. For example, the word "diversity" is more common in Biology, "reaction" is more common in Chemistry than in Physics, and in a similar way, "disintegrate" would be more acceptable as a standard word when referring to the

concept of decay of an unstable nucleus in Physics. The words "diversity", "reaction" and "disintegrate" are recognisable as words also commonly used in everyday language, but become "specialist language" (Barnes, Britton & Rosen, 1986:46) only when used in science to constitute the register of the science subject. Each of these words embodies certain concepts important to the process of learning specific science subjects; this is unlike when everyday words are used as science words, when they become distinct science concepts as already considered here.

The *metarepresentational terms* in particular refer to the non-technical words that signify *thinking*; these include metalinguistic and metacognitive words as defined next. According to Wilson (1999:1069), "metalinguistic verbs are words which take the place of the verb to *say* (e.g. define, describe, explain, argue, criticise, suggest), while the metacognitive verbs are words which take the place of the verb to *think* (e.g. infer, calculate, deduce, analyse, observe, hypothesise, assume, predict)." Evidently, metarepresentational (metalinguistic and metacognitive words) terms constitute the same words that are associated with learning and "talking science" (Lemke, 1990), such as "observe", "hypothesise", "experiment", "classify", "analyse", "conclude", "deduce", "interpret", "define", "investigate" and "infer". It is these words, often used in examinations to indicate the content as well as the structure and emphasis required by the examination questions, that Bearne (1999:62) and Bulman (1986:188) have respectively recognised as the "key terms" or "operative words". Consequently, the value of these words is in the fact that knowledge of their meanings may enhance students' understanding of the demands of the questions and accordingly design the correct responses (Bulman, 1986). Students' understanding of the meanings of these words may also be expected to enhance their classroom participation (Rodrigues & Thompson, 2001).

According to Gardner (1977:v), *logical connectives* are "words or phrases which serve as links between sentences, or between propositions within a sentence, or between a proposition and a concept." Examples include "conversely", "if", "moreover", "because", "therefore", "in order to", "consequently", "by means of", "since", etc. The importance or functional value of logical connectives, as may be evident from these examples, is that they are words that, according to Fensham (2004:202), "are commonly used in the oral or written discourses of science to link observation to inference, theory to explanation, hypothesis to experiment, experiment to findings etc." Again, students' understanding of the meanings of these words would enhance their classroom participation as well as the understanding of the processes of learning science, including science teachers' classroom language.

GENERAL DIFFICULTY OF THE SCIENCE TEACHER'S LANGUAGE

Research studies have shown that all categories of words that comprise the science teacher's language are generally difficult.

Difficulty of words in the technical component of the classroom language

George (1999) recorded that the general difficulty of school science – hence, science content that is well known the world over – is that it varies in extent, depending on the specific circumstances in different countries. In this article, this general difficulty is argued on the foreignness of science words/language or technical terms used in science. While most arguments on the difficulty of school science have always made a claim on the difficulty of the science content matter, the foreignness of science to learners is also a very important factor, as can now be explained.

The fact that any science word has a meaning different to that in everyday language is one reason such words can be viewed as representations of a different, new or foreign language. The use of these words, therefore, comes with a way of speaking that is very uncharacteristic of the common or dominant culture. The science words and language therefore also represent a different culture – the (foreign) science subculture. Science words may therefore be considered to have a triple identity (conceptually, culturally and linguistically). The origin of the general difficulty of technical words interchangeably referred to as science words, science terminology or science content is this aspect of general foreignness. The foreignness of the science words may also explain the gap that exists between the students' world and the world of science they are meant to learn (Lemke, 1990; Jones, 2000).

Yet, this general difficulty of science words and content is only part of the difficulty of words that comprise the science teacher's instructional language. As revealed in the reviews of empirical research in the next section, all categories of non-technical words, just as the case with the science words, are also generally difficult. Evidence is presented that the general difficulty of non-technical words does not depend on the linguistic and cultural circumstances of the science learners.

Difficulty of words in the non-technical component of classroom language

In this section, a critical review of the general difficulty of all categories of non-technical words in the science teacher's language is conducted. The distinctive focus is on the influence of students' proficiency in the language of instruction (English) at the various levels of students' understanding of the words. This has been done in the order of non-technical words in the science context, metarepresentational terms and logical connectives.

a) Student difficulties with non-technical words in the science context

With regard to non-technical words used in the science context, there have been several cross-national studies, all of which have been based on Paul Gardner's pioneering study (Gardner, 1971). In this first project conducted in Papua New Guinea (Gardner 1971; 1972), Gardner studied the accessibility of 599 normal English words using a sample drawn from secondary school students in forms 1 to 4 for whom English was not their first language. Tests were administered in the form of multiple choice items (see Oyoo, 2009, for details on formats of representation of the test items). The study was not to compare, but only to detect the levels of difficulty the non-technical words presented to students of science. In the analysis, items were summarised in three ways:

- Alphabetical order: List contained all words tested in alphabetical order, with a brief description of the item, and the percentages correct for each form level and for the total sample.
- Level of difficulty: Words were grouped into difficulty levels based on the percentage correct in the total sample. Level 0 words were items on which the scores were 100% correct; level 1 words appeared in terms of which 90–100% were correct; level 2 words represented 80–89% correct and so on.
- Test item list: Presented all items used in the project: the percentages selecting each distracter within each form level and within the total sample were shown for each item.

In this first study, three words – "spontaneous", "disintegrate" and "random" – stood out as the most difficult for the students, especially for the form 1 students, with only 10–19% of the sample scoring correctly on these words. In summary, 31%, 26% and 25% of the entire sample scored correctly on the words "spontaneous", "disintegrate" and "random" respectively.

Two other studies by Gardner using the same design and for the same objectives were conducted using the same test items in Victoria, Australia (Gardner, 1972), and later in the Philippines (Gardner, 1976). While in both cases, participants were drawn from class levels/forms 1, 2, 3, and 4, all the participants in Victoria were science students who used English as their first language, while those who participated in the Philippines study were students who learned science in English as their second language. Both studies revealed similar trends in the understanding of the non-technical words, with differences that were a reflection of relative linguistic circumstances specific to each of the countries. If comparisons on the levels of performance were made, it could be concluded that the second-language sample (Philippines) performed poorer, i.e. encountered more difficulties with the non-technical words in the science context than the first-language sample (Victoria).

Although several subsequent studies have been conducted (Oyoo, 2004), only the studies of Farell and Ventura (1998), Prophet and Towse (1999) and Oyoo (2000) have not used the four-test design, or mainly English first-language (L1) samples. The above studies, on the other hand, focused on different categories of learners at different levels of schooling. Farrell and Ventura (1998), for example, focused on non-technical words as used in a specific school science subject – Physics. Prophet and Towse (1999) compared performance on these words in different countries and by first- and second-language learners simultaneously, drawn from a developing country (Botswana in Southern Africa) and a developed country (United Kingdom). The Oyoo (2000) study also drew its sample from both first- and second-language learners, but from Kenya and England (United Kingdom, UK).

In all the studies, the types and trends regarding students' difficulties with everyday words presented in the science context were very similar, irrespective of design and gender. The trends in the difficulties encountered by students further did not depend on whether a student learns science in English as a first or second language. A summary of the types of difficulties is as follows:

- Students selected words of which the meanings were opposite to those intended in the studies. For example, "negligible" for "a lot", "random" for "well ordered", "initial" for "final".
- For many words, the students lacked the required comprehension and often confused words with others in the same semantic field, e.g. "detect" with "project", "isolate" with "insulate", "reference" with "referred", "theory" with "fact" or "belief".

- It was also common for students to confuse words that were "graphologically" similar (Gardner, 1972), i.e. "look-alike" (Cassels & Johnstone 1985:14), or "phonetically" similar (Gardner, 1972), i.e. "sound-alike" (Cassels & Johnstone 1985:14), e.g. "complex" with "compound", "consistent" with "constituent", "component" with "opponent", "detect" with "protect"; "accumulate" with "accommodate"; "diagnose" with "diagonal"; "proportion" with "portion".

The study by Pickersgill and Lock (1991) detected no difference between the understanding of non-technical words in science by males and females and no difference between the verbal reasoning ability of males and females, but found a positive correlation between a student's score on a verbal reasoning test and on a test of understanding of non-technical words in science. The finding on verbal reasoning may be taken to imply that proficiency in the language of instruction may enhance the understanding of scientific concepts, but could also be a reflection of the different levels of intelligence and/or relative aptitude towards the subject. These explanations were not considered in the study. In all four-test format-designed studies, it was noticed that the best performance had been in the test where the words were presented in the science context and the lowest performance had been in the synonym test. Pickersgill and Lock (1991, p. 77), who used a first-language sample, explain this as follows:

> "... In the sentence, science and non-science format questions, the word under test is placed in a context which may carry sufficient information to give a cue or trigger to the student. In the synonym format, this information is missing and it may be the absence of such cues which leads to the poor performance on this type of question compared with others."

According to Marshall, Gilmour and Lewis (1991), the better performance in the test that had the words in the science context stem occurred because it is in the science context that the students first learnt the words; they conclude this by making comparisons with the Cassels and Johnstone (1985) study that used an exclusively first-language sample:

> "... although Cassels and Johnstone (1985) regard the words in this test as normal English, the results of this study indicate that for the Papua New Guinea students, this is probably not the case. For approximately 20 of the words, the results would seem to indicate that students acquired the meanings in science classes." (Marshall & Gilmour, 1991:334)

In the Marshall, Gilmour and Lewis (1991) study, an additional observation was that the words were easier when presented in the science context stem to students in Papua New Guinea, themselves English second-language learners, than was the case in the United Kingdom studies by Cassels and Johnstone (1980, 1985). This confirms that everyday words have different meanings when used in the science context. This may be justified by the fact that, although these studies claim an overall improvement in the relative scores in the higher (older) classes, a scrutiny of scores on the items does not reveal a linear trend. Scores on individual items were either better or worse in the higher or the lower class levels. The greater difficulty that the synonym-type test presented even to English first-language samples indicates that the non-technical words may not have been those common in the world outside the school (Ariza, Webb & Marinaccio, 2007; Mason & Mason, 1996; Rolstad, 2005).

b) Student difficulties with metarepresentational terms

No empirical study in the literature has specifically reported students' difficulties with metarepresentational terms. Reference to confusion caused by two everyday words, "describe" and "observe" (Cleghorn & Rollnick, 2002; Peacock, 1995; Clark, 1997), may be taken as evidence of the possible difficulty of the two words; "describe" and "observe" belong to this group of non-technical words. However, the difficulties students encounter with these terms may be argued on the fact that low outcomes in science examinations have been alleged to have their origin in students' poor understanding of these terms. Comments in the Kenya National Examinations Council (KNEC) Reports from 1990 to 2002 in the subjects Chemistry, Physics and Biology, for example, would suffice in this regard. In Kenya, English, a second language to learners and teachers alike, is used in all teaching and assessment. It is evident from the following comments that students' low outcomes in these subjects may, among other reasons, have been a consequence of their having encountered difficulties with the meanings of these words. Comments about poor performance in Chemistry papers revealed students' difficulties with the words "explain", "comment" and "describe":

> Teachers should make a deliberate effort to explain to their students what certain terminologies mean when used in questions. Such terminologies include "explain", "comment" and "describe". "This is because the kind of answers... indicated that the... candidates did not even understand what the questions were asking." (KNEC, 1992:97)

Students' difficulties with "define" and "distinguish" are suggested in the following comment on performance in the Physics examination question: "Distinguish between ductile and brittle material." As reported in KNEC (1990:41), "the candidates could only *define* the terms but could not *distinguish* between them. Teachers should teach the candidates to differentiate between the terms *distinguish* and to define and such other terms used in physics." Further evidence of student difficulty was reported with regard to "describe" and "account" in the 1997 and 1998 Biology examinations, where it was apparent that the students had encountered problems in the theory and practical papers because they lacked an adequate understanding of the meanings of the words. In Oyoo (2004:199), the following students' opinions are recorded in support of these reports.

> **Student 1:** "If you do not understand the meaning… of the words used in the topic … when these words are used in an exam, you will fail the paper because you do not know the word meanings."
>
> **Student 2:** "Lack of knowledge of the meanings of the words leads to time wastage during examinations because one takes a lot of time fumbling with the word meanings and then end up failing the exam just because of the meaning of a word."

In a first-language context, Rodrigues and Thompson (2001) report a teacher's reasons for explaining the meanings of these words to students during teaching based on the fact that otherwise, students would confuse the meanings of these words. Since confusion between the words has been a common source of students' difficulty with everyday words as already reviewed above, these words may also be difficult in first-language contexts.

c) Student difficulties with logical connectives

As Gardner (1977a:v) reports about the only major study conducted so far of students' difficulties with logical connectives, his was "a project set to identify the more commonly used logical connectives in science, and to measure junior secondary students' difficulties in comprehending the connectives". The connectives that emerged as difficult are the ones common in science texts and in science teachers' classroom talk (oral language). This is evident in the following groupings of related connectives (Gardner, 1977b:11):

- Several connectives that indicate inference are difficult: "and so", "consequently", "hence", "it follows that", "therefore", and "thus".
- A second group contains connectives involved in generalisations: "commonly", "frequently", "in general", "occasionally" and "often".
- Several difficult terms signal similarities, comparisons and contrasts: "alternatively", "as", "at the same time", "conversely", "in contrast", "in fact", "in turn", "much like", "nevertheless", "similar to", "similarly" and "unlike".
- Several apposition terms are difficult: "for instance", "i.e.", "in these examples", "namely", "that is" and "viz".
- Some students are unfamiliar with additive terms like "again", "also", "further", "furthermore", "in addition" and "moreover".

Overall, three connectives, "conversely", "if", and "moreover", were found to be extremely difficult (mean item facility at Form 4 less than 30%). Although the study used an English first-language sample, the emergence of a large number of difficult connectives implies that teachers' classroom language could be a challenge to all learners, irrespective of their linguistic backgrounds, if the connectives are used with no appropriate measures taken to assist students' understanding of them.

General difficulty of the science teacher's language – a summary and analysis

The general outcome of the review is that students encounter similar types and trends in difficulties with these words of the science teacher's language, irrespective of whether they are female or male (their gender). The types and trends of the difficulties encountered further do not depend on the students' linguistic circumstances, i.e. whether they learn science using their first language or not. The overall outcome of the review therefore is that the total language of instruction as may be used in science texts or by the science teacher (technical as well as non-technical words, as broadly defined in this article) presents difficulties to students, irrespective of their linguistic and cultural backgrounds.

In addition to students' difficulty with the words that have been referred to simply as non-technical words in the science context (Gardner, 1971), students also encounter difficulties with metarepresentational terms (metalinguistic and metacognitive words) and logical connectives. Despite the fact that these words

comprise the entire non-technical component of the classroom (English) language of instruction and interaction, this overall outcome has now made it more apparent that science teachers' language is generally a challenge to all learners. The extent of this challenge to students who learn in English as their second language may be dependent on the students' relative levels of general proficiency in the language of instruction. General proficiency in the language of instruction is a necessary first step for successful learning of science to occur in that language (Achebe, 1990).

Those who have to learn in a foreign language need some level of proficiency in the language of instruction as a prerequisite for all learning. The larger percentage of participant students in the studies reviewed for this paper had English as their first language. What has thus become apparent is that, generally, there is a need for caution in explaining students' difficulties in learning science on their perceived levels of proficiency in the language of instruction. The general difficulty of the science teacher's language in itself is therefore a strong support for the assertion that "everyday words when used in a science context cease to be mere English words" (Marshall & Gilmour, 1991:334). Consequently, what now needs to be emphasised, perhaps more than has been the case, is the fact that learners need to be appropriately and contextually proficient in the language of the science classroom.

The general difficulty of all categories of words in the language of the science teacher, whether written or oral, technical or non-technical, presents the linguistic face of the difficulty of school science. Drawing on the nature and functional value of these and other words that comprise the science teacher's language, it becomes apparent that there are other factors that influence students' understanding of these words, in addition to the students' proficiency in the (English) language of instruction. These words may also be representations of particular science subjects as well as embodiments of science concepts. Students' general ability or aptitude for science may also be expected to impact on the levels of understanding of the words.

ADDRESSING THE FOREIGN LANGUAGE PROBLEM IN SCIENCE CLASSROOMS

To reiterate, the role of language in all learning and the need for teacher intervention in the successful learning of school science (Driver, 1989; Hodson & Hodson, 1998; Hodson, 1999) are now well established. Language, either as text prepared or presented by the teacher or science teachers' own classroom

talk, is therefore unavoidable in learning science. We should expect that students' understanding of the meanings of all words in this language when used *as* science words and/or *in* science context would result in enhancing students' understanding or internalisation of the taught concepts. The appropriateness of this language to the level of schooling and general background of the learners (as the teacher may be expected to know) may therefore be of utmost importance.

Teachers' approach to classroom use of language as addressing the foreign language problem

Although teacher intervention in enhancing students' understanding of the technical/ science words, or science terminology, is what has often been regarded as science teaching, the general difficulty of science teachers' language has suggested the need for equal attention to the meanings of the non-technical words as broadly defined in this article. The difficulties students encounter with words that comprise teachers' language have suggested that aspects of teachers' approaches to the use of language in classrooms (vocabulary) may serve as major sources of students' linguistic difficulties when learning science. As implicit in the reviews of students' difficulties with words in science teachers' language, these include the need for checks on talking speed, pronunciation, audibility and language level (vocabulary). As becomes apparent from the discussions that follow, these aspects clearly form a necessary checklist for effective communication in classrooms, which should be generally observed by teachers. This is especially in light of the general difficulty of science teachers' language, as has now become apparent.

a) Speed of talking and pronunciation

A teacher's speed of talking may be a potential source of students' difficulties with learning, even in very well-planned lessons. Depending on students' ability and linguistic circumstances, teachers' fast speech may result in students not understanding or not recognising words used during teaching. The way in which words are pronounced during teaching is related to the speed of talking. While in fast speech words may not be pronounced clearly and/or correctly, incorrect pronunciation would possibly cause students to confuse these words with similar ones, or even fail to recognise the words altogether.

While this problem might be expected to occur only at lower school levels, the reviews presented in this article have revealed that confusion between words

due to how they are pronounced occurred even at pre-university level. The confusion was between the following words that sound alike: "consistent" and "constituent", "component" and "opponent", "detect" and "protect", "accumulate" and "accommodate", "diagnose" and "diagonal", "proportion" and "portion" (Cassels & Johnstone, 1985), "consistent" and "constant" and "parameter" and "perimeter" (Farrell & Ventura, 1998). Other examples include "simultaneous" and "instantaneous", and "spontaneous" and "simultaneous" (Oyoo, 2004).

b) Audibility

Word recognition may not be a problem only when the speed of talking is fast or words are pronounced poorly. This may also be the case if the talking is not clear or loud enough, as may be necessary in large class sizes characteristic of schools in some populations, or depending on teaching arrangements. As may be expected, students not yet comfortable with secondary school-level language of instruction or those yet to attain an appropriate level of proficiency in the language of instruction would be additionally disadvantaged by a teacher talking fast, poor pronunciation and inaudible speech.

c) Language level (vocabulary)

With regard to other components of teachers' classroom language, the use of vocabulary that is not appropriate for the levels they are teaching may result in students' difficulties with the classroom language. Logical connectives, for example, may be especially difficult for many students. As pointed out here, the only study so far of students' difficulties with these words involved only first-language learners (Gardner, 1977a). Hence, it can be expected that students who learn in a second or foreign language, and perhaps with different and possibly lower levels of proficiency in the instructional language, would have more problems with these words. What may be considered an obvious implication of this is that teachers' classroom language could be a greater challenge to the learners who learn in a second or foreign language, depending on their levels of proficiency in the language.

The importance of metarepresentational terms in examinations, as already pointed out in this article, highlights the need for learners to possess a good understanding of the meanings of these words. The difficulty of these words, particularly during examinations, assessments or in solving problems (Bulman, 1986), may therefore be expected if science teachers do not emphasise their meanings during teaching.

Explicit or implicit use or reference to terms in particular may be sources of students' difficulties with the content of lessons and even assessment tasks. It is important to note that although science teachers would only use metarepresentational terms when solving numerical questions (problems), metacognitive and metalinguistic words, they would minimally explain the words' meanings (Oyoo, 2006). However, with regard to making explicit or implicit references to these words, teacher sensitivity to students' language difficulties may need to be judged on individual students' circumstances. The implication of this for teachers is that they need to carefully consider when to make explicit or implicit references to words during their teaching (Wilson, 1999).

In addition to the approaches so far suggested, different approaches may be necessary, depending on teachers' levels of knowledge and sensitivity to students' general learning needs, including linguistic competence. The most important argument for the need for attention to how science teachers use language has been based on the nature and functional value of each category of the words that make up the language as used in science texts and by science teachers. Apart from some of these words being themselves science concepts, others are representations of particular science subjects. Yet, some of them embody science concepts as well as concepts necessary for the understanding of the processes of learning science, for example "filtration", "distillation" etc. Arguably, no word should be avoided during teaching, for the simple fact that:

> "... the learners are progressing with the learning and will most likely meet the same words at a higher level. The teachers should just uplift the level of vocabulary of the students. They should explain the meanings of these difficult words whenever they are used in class to avoid confusion in the understanding by the students." (Oyoo, 2004:203)

While this opinion may be considered with reference to the entire non-technical component of the classroom language, it is generally applicable to circumstances where learning is in a language other than the learner's first language. It is also generally applicable to circumstances where the learners' levels of proficiency in the instructional language are perceived to be lower than may be the appropriate standard for the school level. The benefit of this approach is in the fact that students' competence in the instructional language will facilitate their understanding of the taught concepts. Another argument (reproduced immediately below) represents the often-neglected voice of the student – the main stakeholder in all teaching.

The argument is in favour of non-avoidance of any words, including those deemed difficult. Learning the meanings of difficult words would also perhaps enhance their subject-related self-esteem.

> "Student: We also should know the difficult words relevant to the subject so that when we meet the words, like "anomalous" then we just know that it is [means] "unusual". So the teacher should provide the other possible meanings and this should be all the time." (Oyoo, 2004:204)

The implication for teachers is that they need to have good mastery of subject matter content, vocabulary in the language of the classroom, and the learning context, including the learners' cultural backgrounds. The non-technical words are generally unavoidable in the characteristic teachers' classroom talk and students may generally not be expected to discover the meanings of these on their own. This is especially argued based on 1) the possible changeability of the meanings of words used in the instructional language depending on the context of use, and 2) the fact that the meanings of science words must be known in the science education community circles. Teachers also need to observe the triple identity of the science words to be able switch between these during their offering of explanations in the classrooms. While teachers should be well aware of these issues, more information need to be sourced via more research, as discussed in the next and last major section of this article.

Further and new focus in science education research as addressing the problem

This review has explicitly laid out the general difficulty of all words that comprise the *language of instruction* typical of science classrooms and texts, an outcome that may have conveyed the reality of the centrality of the language of instruction to science learning. As argued at the beginning of this article, the attention that has been given to language issues in the learning of science has in the main been with regard to learners' proficiency in the language. Further, interpretations of the findings in studies in this area (Peacock, 1995; Peacock, Cleghorn & Mikkila, 2002) have been conducted to benefit the improvement of science texts as learning resources for primary science. The teacher, as the foremost learning resource in school science at all levels, and teachers' instructional language as a tool have been out of general focus in international science education research. Hence, an urgent need exists for more research on the manner in which science teachers use the

language of instruction in classrooms, with an emphasis on how this may influence students' understanding and retention of science concepts via enhanced knowledge of word meanings. The role and place of language in all learning (Vygotsky, 1986) is now well established. The need for this new focus in science education research is justifiable, based on the need for teacher intervention in the learning of science and everyday words when used in the scientific context.

A focus on teachers' classroom use of language is now generally urgent, including in countries where non-English language background (NELB) learners are in the minority (Ariza, Webb & Marinaccio, 2007). In such countries, the teaching of science has continued with the expectation that students will understand and learn when teachers present the content in scientifically appropriate ways. In other words, there has been little consideration for these students' literacy, language, and cultural understanding (Lee & Fradd, 1998). While this tendency might be responsible "in part for the under-representation and alienation of diverse students in science" (p. 13) in these countries, similar assumptions in the countries where students learn in a second or an additional language may have adversely impacted on levels of students' outcomes and attitudes towards science.

Based on the observed similarities in the classroom language use of science teachers, more studies on the impact of teacher intervention in enhancing students' understanding of language in the science classroom may be justifiable. Although literature in this area is still scanty as observed so far (Yore & Treagust, 2006; Yore, Hand & Bisanz, 2003), there is adequate evidence in the few reports in circulation on teachers' classroom approaches to science teaching.

In the Bleicher, Tobin and McRobbie (2003:234) study of experienced teachers in Australian and American contexts, for example, the teacher participant clearly controlled "the discourse in a linear, unyielding one-dimensional push to reach a satisfactory conclusion to cover the topic of the day". In the same study during a follow-up interview, the students as well as the teacher indicated that they preferred the approach. The reason was that it led to the completion of the syllabus in time and would be a window on the constraints on effective practice teachers face in classrooms.

The presentations by Ogborn, Kress, Martins and McGillicuddy (1996) of teachers' approaches to explaining science in classrooms may be examples of science teachers' approaches found in the United Kingdom (Yandell, 2003). They may

also be examples of science teachers' approaches in any other country. Abagi, Cleghorn and Merritt (1988), Cleghorn, Merritt and Abagi (1989), Cleghorn (1992), Cleghorn and Rollnick (2002) and Abdi-Kadir and Hardman (2007) would present the situation in primary school science classrooms in Kenyan and South African contexts in particular, as well as in classrooms where English is a second language to both students and their teachers. More research will have to be based on the recognition of the triple identity of the nature of science words and concepts, and should be based on the following three issues:

- Recognition of the science teacher as the foremost resource in learning science (Driver, 1989)
- The general purposes of teacher use of language in science classrooms (Scott, 1998)
- The greater percentage of talk in many classrooms, including those of science, across a wide range of teachers and across countries, comprises that of the teacher (Barnes et al., 1986; Barnes & Todd, 1995; Edwards & Mercer, 1987; Wilson, 1999; Bleicher, Tobin & McRobbie, 2003)

This commonality in science teachers' classroom approaches may offer more support for the argument for more research in teachers' use of instructional language in classrooms. The general existence of science teachers' classroom approaches to classroom talk serves to challenge any assumptions about the existence of culturally determined approaches to the teaching of school science.

CONCLUSION

In contexts where most formal education is conducted in instructional languages, usually foreign to most learners and even the teacher, the impact of language on learning is not new. However, the attention that has been given to the language of instruction has been with regard to the need to make learners proficient in it; hence, the apparent assumption that once proficiency has been achieved in the instructional language, the students would just understand the words' meanings. This may be evidence of the possibility that communicating objective knowledge by means of language has traditionally been taken for granted by educators (Von Glasersfeld, 1998). While proficiency in the language of instruction is necessary for social interaction in the classrooms, learning science involves more than mere social interaction; it also involves deliberate formulation and sharing of ideas (Wilson, 1999). Therefore, the instructional language needs to be appropriate in all respects.

It thus becomes apparent why even students who have attained acceptable levels of proficiency in the language of instruction have often been found unable to follow classroom discussions with "good" science teachers. In many cases, this occurs when both the learner and the teacher know the meaning of a word (e.g. everyday word used in science context or as a science word) and each assumes that the other shares the same meaning. The consequence has been breaks in communication, poor understanding of the scientific concepts, and poor science outcomes.

Although it has been possible to educate science teachers on the contemporary effective teaching approaches for enhanced learning in science, the role of language of instruction has not really been a focus area. This is because 1) post-colonial practices linked to formal examinations and teacher training practices based on old models (personal communication), and 2) the education of science teachers in Africa have often depended on research findings in (English) monolingual societies – mainly Australia, the United Kingdom and the United States of America – to inform local approaches on how teachers are prepared. In these monolingual societies, the identity of the language of instruction has mainly been taken as static; hence an existence of unawareness of how words have different meanings when used in different contexts. Despite the larger volume of research in these societies so far (Fensham, 2004; Harlen, 1999), studies on language for effective science education may only be beginning to consider the impact of the language of instruction on enhanced learning in science classrooms (Kinchin, 2005; Yandell, 2003).

In this article, the objective has been to suggest an approach to the use of language by science teachers appropriate to the general international science education community, which may lead to an enhanced understanding of the scientific concepts. It will be of particular relevance to contexts where science is learnt in a foreign language (such as in all countries in Africa) because of the language proficiency requirement as a necessary first step in learning in that language. The need to ensure that the language for learning is appropriate to the context of use also makes this article relevant to developers of science texts for classroom use as well as distance education material. This article is the outcome of sustained literature reviews of cross-national research and the view of science as a distinct language, foreign to all learners irrespective of their first language. The outcome of this review has apparently strengthened the need to recognise an instructional language as an appropriate technology (Oyoo, 2008) in spite of any foreignness of the language.

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PEDAGOGIES *OF* AND PEDAGOGIES *IN* DISTANCE LEARNING MATERIAL FOR TEACHER EDUCATION

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ABSTRACT

This paper is a response to calls made in the teacher education pedagogy literature (e.g. Loughran, 2006; Moletsane, 2003; Murphy, 2008; Russell, 1997) for teacher educators to take a critical look at how they mediate knowledge and skills to pre-service and in-service teacher education students. Teaching teachers is a particularly complex kind of teaching, and is even more complex when this teaching is done on the page or screen in distance learning programmes. It is argued that, when teacher educators design materials for teacher education at a distance, they should consider not only the pedagogies they wish to describe and discuss *in* the materials, but also the pedagogies *of* the materials because both contribute to the constitution of particular subject positions for readers (as students and as teachers). Such positioning is likely to affect their "investment" (Norton, 2000) in their studies and in the classroom practices advocated by the designers. I use examples from a critical pedagogic analysis (Reed, 2010) of selected South African teacher education materials to illustrate this argument.

Keywords: Pedagogy; critical pedagogic analysis; teacher education; distance education materials.

INTRODUCTION

According to Levine (1992), pedagogy is the case of the missing concept. Many authors in the broad field of education theory and practice either assume the meaning of pedagogy to be self-evident (Murphy, 2008), or add a wide range of descriptors to the concept, with Freire's *Pedagogy of the oppressed* (1968/1970) being one frequently quoted example and Jansen's "pedagogy of compassion" and "post-conflict pedagogy" (2008; 2009) being two recent examples from South

Africa. Because Bernstein foregrounds the relation between learner and teacher, his conceptualisation of pedagogy is used to frame this paper:

Pedagogy is a sustained process whereby somebody acquires new forms or develops existing forms of conduct, knowledge, practice and criteria, from somebody or something deemed to be an appropriate provider and evaluator. Appropriate either from the point of view of the acquirer or by some other body or both. (Bernstein, 1999:259)

While all designers of materials for distance education face the challenge of selecting, sequencing and mediating knowledge on the page or screen (the pedagogies *of* the materials), those who design materials for teacher education face an extra challenge, because they also need to make decisions about the "sustained process" with regard to the pedagogies *in* the materials (knowledge and skills for teaching in particular ways). As the pedagogy/pedagogies *of* the materials also offer pedagogic models to teachers, each is "entangled" (Nuttall, 2009) in the other. Teaching teachers is thus a particularly complex kind of teaching.

All material designers for teacher education constitute "ideal" or "preferred" readers (Hall, 1980), both as students and as teachers. However, even if the materials are read hesitantly, they are read within a particular semantic frame because all texts are "potentials of a quite specific kind" (Bezemer & Kress, 2008). Texts have an effect on readers:

They entice us into their way of seeing and understanding the world – into their versions of reality. Every text is just one set of perspectives on the world, a representation of it: language, together with other signs, works to construct reality. (Janks, 2010:61)

The central argument of this paper is that the pedagogies *of* and the pedagogies *in* the texts read by student teachers in initial teacher education programmes or by in-service teachers enrolled in higher degree and professional development programmes, offer them particular subject positions. These subject positions are likely to influence their "investment" (Norton, 2000) in their studies of educational theory, the subject or disciplinary content, and their "take-up" (Adler & Reed, 2002) of the classroom practices advocated by those who design the texts.

The elements emphasised, ignored and backgrounded by the designers affect the professional knowledge signals communicated to readers of particular texts.

In these texts, readers might be "imagined" (constituted) as students and teachers of a particular "type" – a type with which they may fully or partly identify. They may even reject the type altogether.

The argument is derived from a critical pedagogic analysis (Reed, 2010) of how content on "reading" is presented in three sets of South African teacher education materials, each of which has received accolades for its quality from local and international educationists:

Learners and learning (learning guide and reader in separate volumes), a module in the Study of Education series, is designed for use in both pre-service and in-service teacher education. A team drawn from several South African universities, under the leadership of staff members at the South African Institute of Distance Education (SAIDE), designed the text. It was first published by SAIDE and Oxford University Press (Gultig, 2001).

Language, literacy and communication, Imithamo 1–6 (36- to 48-page booklets), a six-part module in an in-service BEd programme designed by a team of university lecturers, education NGO staff and primary school teachers. It was developed under the leadership of the University of Fort Hare Distance Education Unit and first printed for internal use between 1998 and 2000.

Language in learning & teaching (LILT) (learning guide and reader in a single volume), a module in the BEd Honours programme, designed by lecturers in the School of Education at the University of Natal and published by the Natal University Press (Inglis et al, 2001).*Learners and Learning* was revised in 2010 and is now an open education resource (OER) available on the OER Africa site. To my knowledge, *Language, literacy and communication* has been used only in University of Fort Hare programmes. *Language in learning and teaching* has been used as a resource in both distance and contact teacher education programmes at several South African universities.

CRITICAL PEDAGOGIC ANALYSIS OF TEACHER EDUCATION MATERIALS

Critical pedagogic analysis should not be understood as synonymous with "critical pedagogy" (as theorised by Giroux, 1983; Simon, 1992). Rather, it is critical in its orientation to the analysis of pedagogy/pedagogies *of* and *in* teacher education materials. It seeks to identify and understand the designers' purposes and their sense of audience, and is framed by questions such as the following:

What knowledge selections are included and excluded?

How do the designers mediate these knowledge selections?

What subject positions are constituted for readers as students and as teachers when designers make particular knowledge selections and mediate knowledge in particular ways?

Who may be advantaged or disadvantaged by a particular constitution of an ideal subject – as student and as teacher?

The ways in which material designers address the first two of these questions affect answers to the latter questions about readers' subjectivities and responses.

In the next section, the elements of a knowledge base for teacher education are outlined. Examples from the materials listed above are used to illustrate how different design choices with regard to these elements are likely to influence both the learning opportunities and the subject positions offered to readers as students and as teachers.

MAKING KNOWLEDGE SELECTIONS

In 2001, Munby, Russell and Martin wrote the following in the *Handbook of research on teaching:*

The category "teachers' knowledge" is new in the last 20 years, and the nature and development of that knowledge is only beginning to be understood by the current generation of researchers in teaching and teacher education. (2001:877)

A review of a knowledge base for teaching proposed by teacher educators widely regarded as leaders in their field suggests that there is general agreement on

including the elements listed below in teacher education programmes. Examples of such leaders are Alexander, 2008; Banks, Leach & Moon, 1999; Darling-Hammond, 2006 and Morrow, 2007.

The knowledge focus of each element is illustrated by an example from content on "reading":

Subject disciplinary knowledge – material that relates to theories and research about reading

Pedagogic knowledge – material that relates to methods of teaching reading

Knowledge of how learners learn – material that relates to what is involved in learning to read, both cognitive processes and sociocultural processes

Knowledge of the curriculum – material that focuses on current curriculum statements about reading and their "translation" into classroom practice

Contextual knowledge – material that locates reading and the teaching of reading in sociocultural context

Knowledge of self as learner and teacher – at a metacognitive level this includes material that promotes reflection on past and present learning and teaching practices but also on other factors contributing to identity formation, including identity as a reader.

An additional element frequently included in South African materials is academic literacy – an element that aims to extend teachers' academic reading and writing competencies and to enable them to assist the learners they teach to do likewise.

There is broad consensus on the inclusion of these elements in teacher education programmes. However, the extent to which each element is foregrounded, backgrounded or ignored by material designers, results in the offering of different subject positions to students/teachers. Material designers' choice and use of published texts in material plays a role in this regard. The three boxes below summarise the elements of a knowledge base on the topic "reading" that are foregrounded or backgrounded in three sets of material widely used in teacher education programmes in South Africa for several years.

Learners and learning

Foregrounded: (i) subject or disciplinary knowledge about learning to read and reading to learn and the liberating possibilities of both; (ii) knowledge about how learners (including the readers of the material) learn – with some reference to sociocultural context; (iii) an international literature within a broadly constructivist frame; (iv) academic literacy

Backgrounded: (i) pedagogic knowledge; (ii) knowledge of the curriculum (deliberately, as these are the focus of other modules in the Study of Education series, but perhaps problematically as not all teacher education programmes incorporate all the modules)

Language, literacy and communication

Foregrounded: (i) pedagogic and contextual knowledge through the provision of very detailed guidance on collecting isiXhosa traditional moral tales (iintsomi) and using these in reading activities, and on producing "Big Books" of learners' stories and using these in the classroom – both presented as new ways of working in the classroom; (ii) reflections on pedagogic practices; (iii) knowledge of the curriculum

Backgrounded: (i) subject/disciplinary knowledge and knowledge of how learners learn (though a key text on a whole-language approach to literacy is included and presented as "new" to teacher-learners); (ii) academic literacy

Language in learning and teaching

(i) All the knowledge is woven together, with the pedagogic experience of in-service teachers often explicitly acknowledged. For example, the introduction to the unit on reading begins with content about the importance of reading and the relationship between writing and reading, and ends with an activity which takes teacher-learners through a process of surveying both the materials they are studying and the textbooks they use in particular classroom contexts. (ii) In six of the seven texts in the reader, lecturers from the University of KwaZulu-Natal mediate ideas from key theorists and from empirical research to produce texts with reference lists attached.

As each set of material was designed for different constituencies of ideal readers, the differences in the knowledge selections are not surprising. An analysis of *Language, literacy and communication – imithamo* suggests that the designers have constituted their readers as teachers who need to change some of their traditional classroom practices and who will be responsive to detailed guidance for doing so. At the same time, they are positioned to value local traditional texts and cultural practices and to incorporate these in their "new", whole-language approach to literacy teaching. They are expected to accept rather than critique what is presented in the booklets. By contrast, the designers of *Learners and learning* encourage a critically reflective orientation to teaching and learning. Readers are established as either learner-teachers or teacher-learners (given that the module was designed for use in both pre-service and in-service programmes). They will engage with particular theories about learning to read and reading to learn. They will also reflect on the implications of these theories relating to their practices as adult learners and as teachers, while also extending their academic literacy.

However, the very limited attention paid to pedagogy may not give them sufficient access to practices that would enable them to achieve what is advocated in the materials in their teaching.

An analysis of the knowledge selected by the designers of *Language in learning & teaching* suggests that the designers have constituted readers as teachers with both subject and pedagogic knowledge. They will extend this knowledge be able to use it productively in new ways as a result of working with the course materials. The designers also constituted the readers as student teachers with an interest in extending their own academic literacy and that of the learners they teach.

It is argued below that the ways in which the knowledge selected for teacher education programmes are mediated on the page or screen also contribute to the constitution of particular student and teacher identities.

MEDIATING KNOWLEDGE SELECTIONS

Lantolf and Thorne (2006:79), with acknowledgement to Vygotsky, define mediation as "the process through which humans deploy culturally constructed artifacts [sic], concepts and activities to regulate (i.e. gain voluntary control over and transform) the material world of their own and each other's social and mental activity". In terms of the pedagogy of their materials, the culturally constructed artefacts used

by designers include in-text activities and scaffolded readings, and in some teacher education materials "cases" (Shulman, 2004) or "pedagogic episodes" (Loughran, 2008). In teacher education materials, some instances of in-text activities, scaffolded readings and cases/pedagogic episodes are likely to focus on aspects of classroom practice (that is, pedagogy *in* the materials).

Designers' choices of language (and explanations of language), visual elements, access devices, organisation of content and layout also contribute to mediating the selected knowledge. All of the above, individually and in combination, contribute to the pedagogy *of* the materials. When face-to-face interaction between teacher educator and students is limited or non-existent, the nature of the "authorial voice" is particularly important. For example, are readers encouraged to merely accept what is presented by experts or should they engage critically to offer alternatives?

Reed (2010) analysed the ways in which the designers of *Learners and learning, Language in learning and teaching* and *Language, literacy and communication* used all of the artefacts and design elements listed in the previous paragraphs in detail. For this article, I have chosen two examples to illustrate how a critical pedagogic analysis of teacher education materials can help designers and evaluators to understand the "potentials" (Bezemer & Kress, 2008) of particular design choices. These examples have been chosen because they are in many respects "representative" of the choices made throughout by the teams of teacher educators who designed *Learners and learning* and *Language, literacy and communication.*

Example 1: A pedagogic episode from *Learners and learning*

Shulman (2004:207) advocates the uses of cases as one way of representing knowledge to teacher education students. He argues that a case is not simply the report of an incident or event: "... to call something a case is to make a theoretical claim – to argue that it is "a case of something" or to argue that it is an instance of a larger class". It is the knowledge that the case represents that makes it a case and thus, for Shulman, "a case must be explicated, interpreted, argued, dissected and reassembled" (2004:209). In other words, a case, which in itself is a way of mediating knowledge, must in turn be mediated. Loughran (2006:33) suggests that cases create opportunities for questioning the taken-for-granted and "invite inquiry into the diversity of possibilities and responses inherent in the problematic situations that arise in teaching and learning". In a subsequent publication, he refers to such cases as "pedagogic episodes", which he encourages teacher educators to

offer to “students of teaching” for the purpose of informing their “developing views of practice” (2008:1180).

The designers of *Learners and learning* include pedagogic episodes in each section of the module. The episode selected for discussion takes the form of a cartoon strip and is introduced with the following statements:

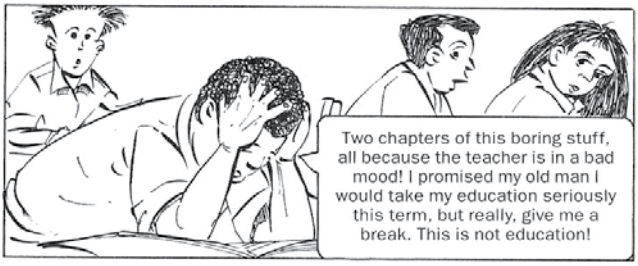
*Not all of us who read, however, enjoy the experience. Reading is hard work and can be exhausting, especially if our experience of the world is very different to the world of the text we are readin*g. (Gultig, 2001:119; italics in the original)

The second of these sentences is made more salient by its repetition in the white space of the page margin where it is printed between quotation marks in large font. This feature of the page design, in conjunction with the high modality of the statements, the emphasis given to the affective word “enjoy” through the use of italics, and the choice of inclusive pronouns throughout (“us”; “our”; “we”), offers readers the following positions:

- As readers of academic and other texts, “membership” of a reading community that can expect to experience difficulties at least some of the time
- As teachers, responsibility for mediating unfamiliar worlds to learners

This introductory paragraph is followed by a directive to “look at” the comments made in the cartoon strip by Mike who “describes what happened when he was supposed to read a book in class” (Gultig, 2001:119). The designers model the classroom practice of “reading for a purpose” (one of the ways that teachers can mediate text) by asking readers to “try to identify at least two reasons why Mike is not interacting with the book he is supposed to be reading” (Gultig, 2001:119). The cartoon strip is reproduced in Textbox 1 on the next page.

Textbox 1: *Learners and learning:* The story of a struggling reader (Gultig, 2001)



For many learners reading is a struggle.

The facial expressions, body language and words of teenage Mike and the facial expressions and body language of the teacher all offer readers what Adams (2008) terms an "authentic vicarious experience". As a result, they are expected to identify with the learner and to be critical of his teacher's pedagogy. The high modality statement[1] immediately below the final frame supports this positioning: "For many learners, reading is a struggle" (Gultig, 2001:121). It is likely that the previous reading experiences of many teachers educated during the apartheid years in South Africa were constrained by inadequate textual resources and limited teacher or lecturer mediation.

The pedagogic practice, evident in the chalkboard instructions in the background of the first two frames of the cartoon, is likely to be familiar to many of them. It may be a naturalised aspect of their own classroom practices as teachers and/or their experiences as learners. It is a practice in which teachers assume that learners know how to read chapters and how to answer questions without any support or guidance. While the teacher is recognisably male, he is a "type" and not an individual and has been drawn so that he cannot be identified as a member of any particular "racial" category. However, the designers do not focus on the teacher in the first part of their explication of this case. Instead, as shown in Textbox 2, they direct readers to reflect on their own reading experiences as learners at school.

1. The modality of statements can be placed along a continuum from high (certain) through median to low (uncertain).

Textbox 2: *Learners and learning:* Personal reflections on reading

Stop. Think.

- Think about your own experience of reading at school. Was it similar to Mike's experience? What was different?
- Did you ever experience reading as difficult, *but worthwhile*? If you answer yes, what made it worthwhile? If no, why do you think reading isn't worthwhile? (Gultig, 2001:121)

In mediating knowledge about reading and the teaching of reading, the designers work with two of the analytically distinguishable strands of activity that are constitutive of academic practice: distantiation and appropriation (Slonimsky & Shalem, 2006). Distantiation "calls upon students… to make the familiar or taken-for-granted strange" (Slonimsky & Shalem, 2006:43). By requiring readers to engage with Mike's experiences as a reader, to reflect on their own reading experiences at school and to work with input on factors that promote successful reading experiences before they respond as teachers, the designers encourage them to distance themselves from their naturalised practices and then to appropriate new knowledge.

The presentation of what might be new knowledge for at least some readers begins under a bold type subheading: **"Why is Mike struggling to read?"** The use of bullets, italics for key words and phrases and repetition of the key message in large font in the right-hand margin, all reiterate one of the main ideas communicated in the cartoon by Mike's words, facial expressions and body language: "Our attitude to reading is very important to the reading process" (Gultig, 2001:121).

In the next subsection, with the bold type sub-heading **"Important factors for a successful reading experience"**, the designers again use bullets and italicised key words to construct a preferred reading. In some of the bulleted points they begin to constitute readers as teachers ("we") rather than as learners ("they"), but in the final bullet they position themselves as teachers and the readers as learners:

Making meaningful links between the text and our existing knowledge will influence how successful the reading experience will be. (This is why we have tried to use

familiar analogies in this text but, more importantly, why we have asked you to constantly relate ideas to your lives and practices as teachers.) (Gultig, 2001:122)

This is one of a number of instances in *Learners and learning* where the designers make their own pedagogy explicit and present it as a model to the reader. In the explication of the case of Mike's reading experiences, there is an example of another recurring meditational strategy: revisiting content. The designers use questions in some of the small blocks in the page margins to recycle the content of earlier pages and to introduce new content:

*Do you notice how similar the prerequisites for successful reading are to the prerequisites for successful learning? What does this tell you about the relationship between reading and learning? (*Gultig, 2001:121)

The first question uses a grammatical metaphor in which a question disguises a directive: notice the similarities and, by implication, if you do not notice them, revise the previous section (on "school learning"). The second serves to prepare readers to engage with the diagram of "a reading-learning cycle" on the next page of the *Learning guide.* The designers return to the case of Mike's reading experiences in order to mediate this diagram.

Example 2: Photographs, drawings and language choices in Language, literacies and communication – imithamo

The designers of *Language, literacy and communication – imithamo* make extensive use of photographs (in colour on the covers; otherwise black and white). In a pedagogic episode that centres on the collection of a traditional story by one of the material writers, photographs of story collector Tillie and her informants and information about the informants' careers, ages and knowledge of the story, position teacher-learners to accept both the truth of the statements about the story and the complexity of the story collecting process. They are then given the set of instructions reproduced in Textbox 3.

Textbox 3: Instructions for recording an instomi

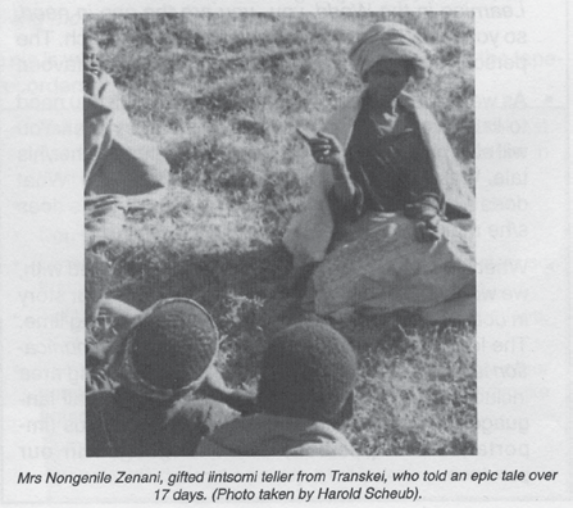
> When you have found a version you are satisfied with, we would like you to write out that version of your story in *both* isiXhosa and English. This will take a long time. The learning area *Language, literacy & communication* is not about just one language. This learning area includes all the language work that we do in all languages. We believe it is important to give status (importance and position) to *all* languages in our province. (Umthamo 2, 1999:23)

The designers' choice of pronouns establishes a clear divide between experts ("we") and novices ("you"), which is reinforced by the modality of this paragraph: it *will* take a long time to write the story in two languages and because this is important, we expect you to do it (thus negating the "softening" effect of "we would like you to"). At the time when these materials were written, the term "learning area" was used instead of "subject" in curriculum documents, so that all languages taught in schools were part of "the languages learning area". The single instance of the inclusive use of the pronoun "we" to include both experts and novices ("language work that we do in all languages") positions readers to identify with the designers' view (and that of the official language-in-education policy) that it is important to promote additive bilingualism/multilingualism. The instructions are followed by the captioned drawing and photograph reproduced below.

Textbox 4: Zozo Figlan drawing

Zozo Figlan telling a story in 1992 at the Weekly Mail Storytellers' Market in Cape Town.

Textbox 5: Mrs Zenani photograph



Mrs Nongenile Zenani, gifted iintsomi teller from Transkei, who told an epic tale over 17 days. (Photo taken by Harold Scheub).

The captions underneath the drawing and the photograph are the only "comments" offered by the designers. It is suggested that each contributes to the affirmation of the local which is such a central feature of the design of the University of Fort Hare materials. In the drawing, the background to the central figure of the storyteller indicates that the source of her stories is the open spaces of rural, traditional communities. Zozo Figlan is a powerful "traditional" presence who is physically dominant in the image. She is dressed in "Afro-chic" for her performance in an urban setting (at the *Weekly Mail* Storytellers Market in Cape Town), with the gaze of each child in the multicultural group at her feet, focused on her. In the slightly blurred photograph above, children also gaze at the storyteller but this story telling is presented to the reader as a very different event. Firstly, it is located in the past: Mrs Zenani "told" her tale – in contrast with Zozo, who is "telling" hers. Secondly, the setting is evidently a rural one in which children wrapped in blankets sit at a respectful distance while they listen. Thirdly, it is the words selected for the caption as much as the image that position the viewer's response: Mrs Zenani is a "gifted iinstomi teller" and she told an "epic" tale. The adjectives amplify the positive attitude of the designers to this event (Martin and Rose, 2003). Finally, there is a quality of stillness and of conserved energy in the photograph of Mrs Zenani, in contrast with the energy expended in the larger-than-life drawing of Zozo Figlan.

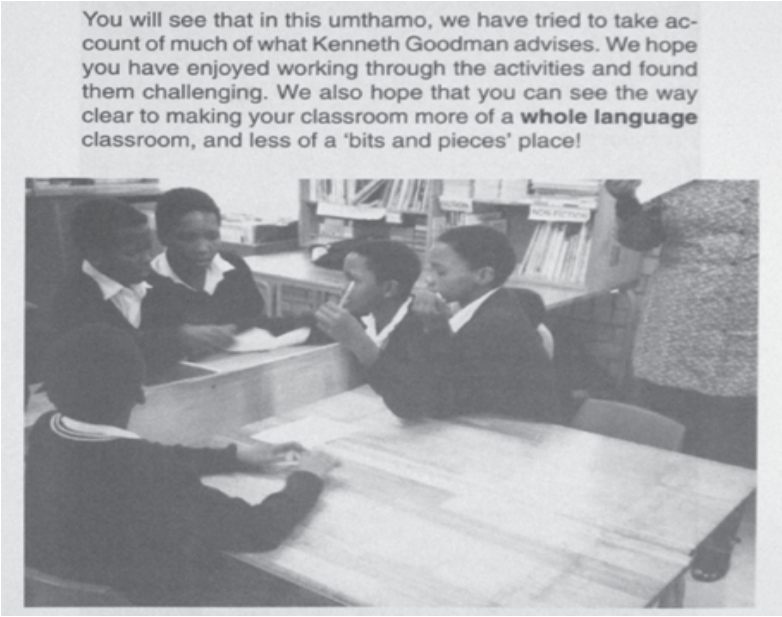
The placement of the drawing above the photograph and its greater sharpness make it the more salient[2] (Kress & Van Leeuwen, 2006) of the two images. It could be argued that its greater salience contributes to the offer of an aspirational image. Teachers who collect and present stories could imagine themselves as people who bring the strengths of the local and traditional past into the local and global present.

In the next unit of *Umthamo 2,* the designers focus on using stories in primary school classrooms. In the margins of five of the pages, there is a small drawing of a teacher seated next to a "display stand" she has improvised by placing a table – designed for learners to work at – on its side with another of these tables on top. She attached paper to the side of the top table that faces the learners. Lawrence (2007:22) describes Eastern Cape schools as "largely severely deprived and operating with inadequate infrastructure, resources and teaching staff". The drawing demonstrates a way of overcoming a resource constraint the designers imagine they may experience in their classrooms.

Towards the end of the unit, the designers include a series of captioned photographs of learners at work. These photographs (and also those of the story collector and her informants) were taken by members of the design team rather than sourced from archives or photographic libraries. As noted by Van der Mescht (2004), the photographs are taken from a "teacher distance" as if the teacher was monitoring learners at work in his or her classroom. The gaze of the learners is directed inwards at their work or at one another or both. The captions tell teachers how to read the photographs and position them to respond positively to these examples of learner-centred classrooms. In the example in Textbox 6, the teachers are positioned by the text immediately above the photograph. The designers have assumed that, before engaging with the module, these teachers' classrooms were "bits-and-pieces" places in which there was no coherent learning programme.

2. Salience, or prominence, is the result of a complex interaction of such elements as size, sharpness of focus, colour contrast, placement in the foreground or background and "culture-specific factors such as the appearance of a human figure or a potent cultural symbol" (Kress & Van Leeuwen, 2006:202).

Textbox 6: *Language, literacy and communication, umthamo 2:* The conclusion to the umthamo


You will see that in this umthamo, we have tried to take account of much of what Kenneth Goodman advises. We hope you have enjoyed working through the activities and found them challenging. We also hope that you can see the way clear to making your classroom more of a **whole language** classroom, and less of a 'bits and pieces' place!

Thinking, speaking, listening, reading and writing (University of Fort Hare,1999)

The material designers' choice of drawings/photographs, language and activities to mediate the knowledge selections combine to challenge readers as teachers to change their practices (or the practices that they experienced as learners). It also encourages them to act in "new" ways in their classrooms and communities. This is evident in each example of mediation discussed in this paper.

However, the combinations in each set of materials constitute the ideal readers (Hall, 1980) of *Learners and learning* and of *Language, literacy and communication* differently, as indicated in Table 1:

Table 1: Ideal readers of the two sets of distance learning materials for language teachers

Readers of *Learners and learning* are imagined as follows:	Readers of *Language, literacy and communication* are imagined as follows:
From diverse backgrounds throughout South Africa and with fairly sophisticated knowledge of English.	IsiXhosa speakers from the Eastern Cape with an interest in preserving traditional culture. Knowledge of English may not be extensive.
Interested in and able to reflect on their own experiences and to use these productively.	Likely to be working in resource-poor environments.
Responsive to general suggestions rather than detailed instructions and able to work out for themselves how to teach well.	Responsive to detailed instructions for activities in and beyond the classroom; affirmed by drawings and photographs of familiar classroom scenes.

Whether or not readers of either set of materials would be likely to act in "new" ways in their classrooms could depend, at least in part, on whether these identity constructions are in alignment with their own and whether they experience them as unhelpful or supportive, liberating or constraining.

CONCLUSION

This paper presented an idea of what critical pedagogic analysis of teacher education materials can offer to material designers and evaluators. Such an analysis enables broad reflection on the questions introduced earlier in this paper. It includes a more focused reflection on how knowledge selections, the organisation of knowledge (for example, sequencing) and the mediation of knowledge (for example, in-text activities, scaffolding of readings, choice of language, images and layout) contribute to the constitution of identities for readers as students and as teachers. To return to Bernstein's definition of pedagogy, material designers for distance education programmes for teachers are encouraged to select and mediate knowledge on the page or screen (pedagogies **of** and **in** materials) in ways that encourage teachers to be producers and not only consumers of knowledge. However, it should also be recognised that pedagogy is "a sustained process" (Bernstein, 1999). One of the many challenges for designers is to decide how best to stimulate teachers' interest in learning and then to scaffold their learning so that they become increasingly agentive as learners and as teachers, which, for some, may involve a considerable identity shift.

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SUPPORTING INDUCTION TO THE TEACHING PROFESSION FOR WOMEN IN MALAWI

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ABSTRACT

Gender parity in primary and secondary education has yet to be achieved in many countries in sub-Saharan Africa, including Malawi. The presence of female teachers is recognised as positively impacting on girls' enrolment and learning success, but in many rural areas in Malawi, there are few qualified female teachers working in primary or secondary schools.

This paper contributes to the current debates on how to address this gap in qualified female teacher recruitment and retention in rural areas. One suggested solution to breaking the cycle of low female achievement in rural areas is the use of distance education to prepare local women to become teachers in their own communities. In the programme reported on in this paper, aspiring female teachers are supported to take on the role of "learning assistants" in their local community primary schools while studying to achieve the qualifications necessary for application to a formal primary teacher training course.

Using applications, interviews and workshop data from the early stages of the programme, the backgrounds and motivations of applicants to the programme are explored. The paper also discusses the implications for the design of this distance learning programme, emerging constraints on the achievement of programme intentions and areas for further study.

Keywords: Learning assistants; Malawi; women; rural schools; teachers; distance learning.

INTRODUCTION

A common factor in countries that have achieved the universal primary education (UPE) and gender parity goals, is a substantial increase in the number of female primary school teachers (Commonwealth Secretariat & UNESCO, 2011). The training and deployment of female teachers has contributed to meeting capacity. Equally important, female teachers have influenced conditions in schools and classrooms in such a way that their presence correlates with increased retention and learning gains of girls, particularly in rural areas where the challenges of girls' education are greatest (Herz & Sperling, 2004; United Nations Girls' Education Initiative, 2008; UNESCO, 2000).

Female teachers can challenge and change school culture and pedagogy in ways that offer girls greater encouragement towards success and achievement. They are able to advocate for girl pupils and to offer role models different to those habitually offered to girls in rural areas. In a Malawian study, both parents and teachers expressed the view that female teachers also play a role in upholding moral standards and "offer personal counselling to girls" (Commonwealth Secretariat & UNESCO, 2011:18). The absence of female teachers, combined with a lack of gender-sensitive approaches in schools is argued to contribute to the perpetuation of female underparticipation and achievement (Gaynor, 1997).

However, strategies for the recruitment of female teachers, particularly in rural areas, are problematic. Firstly, the number of girls who successfully complete secondary education is frequently small. This limits the pool of potential recruits to the teaching profession, particularly when countries are concerned with ensuring quality in teacher recruitment. Secondly, in many countries there is often little interest in becoming a teacher among older girls in senior secondary schools. Teaching is regarded as a low-status profession to those who have opportunities to access other professions and occupations (Casely-Hayford, 2008).

Qualified female teachers are frequently extremely reluctant to work in rural areas for extended periods. Overt encouragement for women to enter the teaching profession (feminisation of the profession) gives rise to concerns that this will be associated with a loss of status for the profession and lower earnings (Drudy, 2008). These are complex issues that demand greater attention to the gender realities of rural women when designing and implementing teacher education programmes such as the new distance learning initiative, which aims to support women who are entering the teaching profession in Malawi described here.

The Malawi context

In rural Malawi, the shortage of qualified female primary teachers is acknowledged to be a major factor that hinders progress towards the Education for All (EFA) goals. Primary pupil enrolment increased dramatically following the introduction of free primary education in 1994, but it is unlikely that Malawi will achieve universal primary education or gender equality in education by 2015 (UNESCO, 2011). As in many other countries in sub-Saharan Africa, the gap between goals and the current situation is greatest in rural areas, home to 80% of the population. Here, primary school drop-out rates are high and pupils at all levels perform poorer than those in urban areas (Malawi Institute of Education, 2009). This disadvantage is compounded for girls. Fewer rural girls than boys complete primary school and those girls who do reach grade 10 are less likely to pass the Primary School Leaving Certificate Examination (PSLCE) than their male peers (Republic of Malawi, 2007). At junior secondary level, the pass rate of boys is almost 20% higher than that of girls (Malawi National Examination Board, 2010).

Across the country, females comprise just over one third (38%) of the current primary teacher workforce (Republic of Malawi, 2008), but these average figures mask considerable geographical differences. In 2008, Lilongwe City had 2 011 trained female teachers and 298 trained male teachers, while Nsanje district's qualified primary teacher workforce comprised of 93 females and 485 males. Even in a rural area like Nsanje, female teachers are more likely to be located at a peri-urban area or growth point. Thus, girls in rural schools frequently have no experience of female teachers as role models. Gender discrimination and exclusion of girls can be unchallenged, with gender disparities remaining deeply ingrained (UNESCO, 2010a; UNGEI, 2008).

The reasons for this gender distribution of teachers in Malawi are complex. In comparison to many other countries in the region, female recruitment to the profession is relatively low (World Bank, 2010). Despite efforts to address the gender imbalance, the percentage of females recruited to the standard Initial Primary Teacher Education programme (IPTE) has only been above 50% in one of the last four years for which there are data (details in Table 1). This is not surprising, as expectations of academic success in Malawi are generally lower for females. This is more pronounced in rural areas (Kamwendo, 2010). In addition, the drop-out and turnover rates of female teachers in rural areas are high (Kruijer, 2010). Many female teachers are reluctant to be deployed to rural areas or request transfers away

from rural areas after only a short time. Female teachers tend to prefer living in the cities. They perceive that there are more opportunities for development and career progression in the cities, housing is poor in rural areas (there is little official housing and a lack of other suitable housing) and they are often without basic services (running water and electricity). Most crucially, dominant gender expectations act against teaching in a rural area. For unmarried women, it is often felt to be unsafe to live alone in rural areas and for married women, their husbands' employment often precludes deployment to rural areas (Kadzamira, 2006).

In Malawi, most primary teachers enter the profession through one of two routes. Primary teacher training colleges run a traditional campus based on the IPTE programme with an average combined annual output of 4 000 new primary teachers. In 2010, recognising that the demand for primary teachers would never be met with the capacity of the IPTE programme, the government implemented a new open distance learning (ODL) programme for teacher training in rural areas (Republic of Malawi, 2008). This two-and–a-half-year programme is scheduled to run for three cohorts, each of approximately 4 000 trainees. After an initial four-week induction, trainees spend almost all their time in schools and are paid 90% of a qualified teacher's salary. The programme follows the same curriculum as the IPTE, but with the material adapted for distance learning.

To encourage teachers to remain in rural areas, trainees on this programme must commit to remaining in their placement school (selected by local officials) for five years following qualification. Applicants to both programmes are required to have successfully obtained a full Malawi School Certificate of Education (MSCE), usually taken at the end of four years of secondary schooling. For the ODL programme, the requirement for MSCE credit in English has been removed. (It is too early to assess the impact of the ODL programme on the number of qualified female teachers in rural areas.)

Many previous initiatives in the region have focused on attracting greater numbers of female applicants to teaching and then persuading them to work in rural areas. Tactics include changing the attitudes of newly trained teachers, integrating inexperienced teachers into community life and improving living and working conditions (Casely-Hayford, 2008). Such approaches may improve gender parity in pupil access and outcomes, but they do not offer sustainable solutions to female empowerment through education in these communities. These measures generally favour women from more urban areas who have little interest in long-term teaching

in rural areas. It is suggested that there is a need to rather consider how the education of women in these communities can be reshaped to support the development of their capabilities, including becoming teachers. These women are familiar with the context of their communities and can act as symbols of female agency, challenging the expectations of female life opportunities, which are currently largely limited to domestic or farm work.

The pilot programme reported here (MATSS) adopts such an approach because it utilises distance learning to support females in rural areas to gain the qualifications and confidence to become teachers in their own communities. This disrupts the cycle of rural female underachievement. The programme is congruent with government policies to increase female enrolment in teacher training and the overall number of teachers (Republic of Malawi, 2008). MATSS was designed by the Open University (OU), UK, in partnership with Forum for African Women Educationalists in Malawi (FAWEMA) and builds on the extensive experience of TESSA[i] (led by the Open University, UK) in developing resources and programmes for student teachers in sub-Saharan Africa.

MATSS programme structure

The Malawi Access to Teaching Saltire Scholarship (MATSS)[ii] programme aims to increase the number of qualified female primary school teachers in rural Malawi through targeting and supporting women in rural communities to apply for formal teacher training (IPTE or ODL). It combines distance learning study and practical school experience to provide a pathway to a teaching career for women who may be marginalised from formal learning, not only by being female and rural, but also by their ages and life circumstances. In its initial stages, the programme recruited two cohorts of 500 women each over two years (2011 and 2012) across four districts. These women aspire to be primary school teachers, they have previously studied for the MSCE but failed to achieve the requisite number of subject passes for the certificate (MSCE) and are consequently ineligible to apply for a formal teacher training place.

During their year on the programme, the women are known as scholars. They spend four days each week in a local primary school working alongside a teacher in a Standard 1 or 2 class while also studying for their MSCE in the priority subjects of Mathematics, Physical Science, Biology and English. Distance learning materials have been developed to support both MSCE study and the structured school placement

in the form of a school experience handbook. During MSCE study, scholars are supported by a local tutor. At the primary school, each scholar is allocated a mentor who is encouraged to act as a "critical friend", meeting regularly with the scholar to discuss her experiences in the school, to identify ways of helping her if she is encountering difficulties and to verify the completion of activities in the school experience handbook.

This school experience dimension acts to induct scholars into the teaching profession as para-professionals and aims to serve two functions. Firstly, scholars are positioned to support pupil learning and as female role models for girl pupils. Secondly, through this experience, scholars find out if their commitment to teaching persists when exposed to the realities of classroom life. Previous studies have concluded that many trainee teachers in sub-Saharan African contexts can feel poorly prepared by their college courses for the demanding realities of classroom life. Akyeampong and Lewin (2002:344) suggest that many beginner teachers experience a "reality shock" when they first start as qualified teachers. The period of structured classroom work offered by this programme aims to offer some preparation for this reality, better equipping potential trainees for the future discussion of classroom life (Akyeampong & Stephens, 2002).

Scholars receive a modest bursary to cover travel expenses and personal hygiene and presentation. Towards the end of the year, there is guidance on applying for the IPTE and/or ODL teacher training programmes. The programme is guided by a Steering Group, which includes key stakeholders from the Malawi government (Head of Basic Education, Head of Department for Teacher Education and Development) with development partners including the Department for Internation Development (DfID) and the Canadian International Development Agency (CIDA). All programme material was created and critically read by local teachers and teacher trainers, and developmental testing was carried out with female students and teachers in Malawi. Material includes open educational resources, available on the TESSA website under a Creative Commons, Share Alike licence, allowing users to use, reproduce and integrate with other resources without copyright costs.

PROGRAMME IMPLEMENTATION

To develop the programme framework, the research drew on experience with distance learning programmes (Moon, Leach & Stevens, 2005) and similar projects with learners in the Malawi context (Chakwera, 2009; Pridmore & Jere, 2011), including the complementary basic education (CBE) programme[iii].

The distance learning material (MSCE and school experience handbooks) is informed by situated learning theory in which skills and knowledge are acquired through authentic contexts and by communicating with peers and experts (Lave & Wenger, 1991). Frequent, practical activities are complemented with reflective writing tasks and prompts for discussion with peers and more experienced mentors and tutors. Activities, particularly those in the school experience handbook, encourage scholars to engage in ongoing conversations with their practice and that of the teachers they are working alongside. In each school, the head teacher nominates a mentor (an experienced teacher) to work with the scholars. Mentors support scholars in negotiating the initial stages of the intricate process of becoming a para-professional, extending support beyond classroom practices to include a discussion of the whole school and community concerns (McIntyre, Hagger & Wilkin, 1993; Mtika & Gates, 2011).

Through workshops and guidance material, mentors are encouraged to guide scholars in developing organisational skills, appropriate behaviour and negotiating the boundary between being learners and para-professionals. Wenger (1998) suggests that the experiences of mentors can serve as "paradigmatic trajectories". They provide details of how the school and teaching actually work and set possibilities for the scholars. Guidelines for the selection of the mentor strongly suggested that she should be a qualified female teacher, who offers a socially secure relationship in which the scholar can learn and grow as an emerging professional. This has not always been possible and a small percentage of mentors are qualified male teachers. Other teachers and the head teacher are potential additional sources of professional and practical support. Teachers' families looking after scholars' children were observed and a few head teachers have allowed very young babies to accompany scholars to school.

To support MSCE distance study, scholars are allocated one tutor for Mathematics/ Science and another for English. These are usually local secondary school teachers with experience of teaching MSCE. Tutorial groups meet every week at the local

Teacher Development Centre (TDC) or secondary school to discuss progress, and on alternate weeks, the tutor is present to structure and lead the session. The researchers wanted to recruit female tutors, but the gender imbalance among secondary school teachers is particularly acute in rural areas. As a consequence, only two (out of 40) MSCE tutors in the first year of the programme are women. The MSCE materials follow the specified MSCE curriculum drawn up by the Malawi National Examination Board.

Scholars are always placed in pairs (and often in groups of four to five) at primary schools where there is already at least one female teacher. This both facilitates peer support and attempts to reduce the possibility of gender violence (Leach et al, 2002); scholars lack the authority of teachers and could be open to prejudice and abuse from male teachers or older male pupils.

Participation in the programme is a process that embraces evolving competence in the tools and practices of teaching. Curriculum subjects are understood as sets of social practices undertaken by members of a community, and there is a conscious attempt to highlight scholars' relationships between their own developing subject knowledge (MSCE) and their school practices with young pupils. Scholars are positioned with potential multiple sources of support (both formal and informal) through a network of people in the primary school, community and secondary school or TDC. A representation of this is shown in Figure 1.

The programme launched in two districts in the south region, Mwanza and Chikhwawa, as well as the Dedza and Ntchisi districts in the central region (Malawi has 34 educational districts organised in six divisions). Multiple data sets were analysed to select these districts. These included the number of qualified female teachers, the pupil-to-teacher ratio for trained teachers, the MSCE pass rates of females, the drop-out rates of females in primary education, and adult female literacy (Republic of Malawi, 2009). The district education priorities were considered (UNICEF, 2009) and logistical issues were factored in.

Communication and transport networks across Malawi are not properly developed outside the main centres of population. In addition, the activities of other non-governmental organisations (NGOs) and projects were reviewed to identify possible synergies, partnerships and discussions held with ministry officials before a final selection was made. These four rural districts have low scores in all the Education Management Information System (EMIS) data points considered, and

resident officials expressed interest in supporting the programme. Prior to launch, an extensive series of "sensitisation" activities were held in each zone (local area) in conjunction with the local District Education Office. Such activities served to raise awareness of the purpose of the programme and attempted to confer "legitimacy" with local leaders.

The recruitment of scholars is administered by FAWEMA, with support from other NGOs operating locally. Interest in the project exceeded expectations with several thousand women attending information sessions and 1 700 submitting applications. Selection was done against a number of transparent criteria, which included residency in the zone, prior completion of secondary schooling (MSCE), achievement in English at MSCE level and commitment to becoming a teacher.

At the start of the programme, scholars attend a local two-day residential induction meeting facilitated by teacher training lecturers, local and national education officers and gender experts from FAWEMA and other NGOs. These sessions familiarise scholars with the material and programme methodology, and enable them to meet each other, mentors and tutors. Induction leaders emphasise the benefits of peer support and other support mechanisms (Figure 1), as well as the importance of scholars taking responsibility for their own learning, progress and success in the programme.

METHODOLOGY

A longitudinal study placing the scholars at the centre of the enquiry, exploring their experiences of the programme relative to their own development and changing identities, is integrated with the programme. This includes the exploration of resources the women bring to the programme, how these are recognised, utilised and legitimised and how the learning opportunities of the programme are experienced and they lead to changes in the scholars. Including the perspective of tutors and mentors is also important. Data collection is at fixed points during programme delivery. Some of the data is used for reporting to funders and programme evaluation. The findings presented here are from the early stages of the project. They draw on an analysis of the applications of 500 scholars in cohort one, together with semi-structured interviews with a small sample (12) of scholars from two districts (Mwanza and Chikhwara) and with mentors (four) and tutors (four) in two districts (Dedza and Ntchisi). Logistical and resource issues limited the number of such interviews that could be carried out in these early stages.

The programme selection process had multiple stages. The initial application form required[iv] a description of applicants' previous school experience, MSCE results and interest in the programme. Applicants were then invited to attend a recruitment centre to undertake an extended written task in English (one hour). The following items were included in the task:

- Describe a situation in your life where you overcame something difficult.
- What was your strongest subject at MSCE level? Why was this?
- What are the qualities of a good teacher?
- Why are female teachers important?

An oral interview was also conducted in English with female interviewers (FAWEMA and a local NGO) for approximately ten minutes. The interview verified the applicant's identity and involved an unstructured discussion on one topic (from a list) linked to educational experiences and aspirations. Approximately 1 000 applicants went through this process.

The selection process posed several challenges. These included transport, practical issues associated with verifying applicants' residency and prior qualifications, as well as difficulties in the recording and categorisation of applicants' interview responses. It became apparent that interviewers had little experience of note-taking during the interviews and the resulting summaries (in a pre-supplied template) offered little differentiation between applicants. Consequently, a large number of candidates scored full marks on all criteria. Due to their limited reliability and validity, only limited use was made of these interview notes in applicant selection and the research. For the next cohort, aspects of the application process are being refined, but it is perhaps worth noting that this selection process was perceived as innovative for its inclusion of open-ended questions linked to motivation and prior experiences.

Twelve semi-structured scholar interviews were carried out at induction sessions by members of the UK project team. This may have influenced the way that the participants expressed themselves. Interviews were carried out in English and many interviewees struggled to find appropriate words. Furthermore, their responses are highly likely to have been conditioned by the involvement of "outsiders" of the project. Interviewees were selected against prior levels of MSCE achievement and age. Interviews generated detail on the scholars' rationale for participation in the programme and their prior education and life experiences, including the challenges

of completing the MSCE. In addition, they provided insights into scholars' views about the behaviour and attributes of a "good teacher" and how these were informed by their beliefs about teaching and learning. Mentor and tutor interviews were undertaken at schools visited by the project team in the first three months after the project launch. Schools were sampled based on the number of scholars, pupil roll and location, but the project team had little knowledge of the mentors or tutors prior to the visits. Interviews were audio-recorded and full transcripts of the interviews were produced later.

An initial analysis of the qualitative data (applications and interview transcripts) involved critically examining a random sample of individual responses to the four open-ended questions to develop categories. This was undertaken separately by three members of the UK project team, who then agreed on a coding frame to apply to the entire sample of 500 successful applicants. The same frame was used for the scholar interview data to enable them to describe and analyse the data sets within a common conceptual framework.

Findings: characteristics of the scholars

Age: No age limits were placed on applicants to this programme, as older women with family ties may be more likely to stay in their own communities rather than leaving to pursue opportunities in urban areas. Successful applicants covered a wide age range, with several individuals being over 35 years of age and a few under 20 years of age. The majority of scholars are aged between 20 and 30 years (detailed information is given in Table 2).

There is little data for comparison. Coultas and Lewin (2002) found the average age of female trainees in Malawi to be similar (25.9 years), but their cohort mainly consisted of untrained teachers already working in schools who were subsequently undergoing upgrading. The scholars of the current project span a wider age range, but it is not possible to know whether this is due to the nature of the programme or its application process, which paid greater attention to potential and motivation than typical Malawian teacher training programmes.

Educational qualifications: All scholars were required to show evidence of previous MSCE study. The majority of scholars had attempted the MSCE examinations in the last five years (Figure 2). However, there were some scholars who had first attempted the MSCE examination as long ago as 1984. A minority (54 scholars from the cohort of 500) had attempted the MSCE examinations on more than one

occasion. As could be expected, these were almost entirely older scholars (aged over 30).

To obtain a full MSCE certificate requires five or six passes at MSCE (depending on the number of credits), including passes in key subjects – Mathematics, one science subject and English. Although the average number of passes for scholars is close to six (Table 3), they lack passes in the key subjects (Table 4). The high number of passes in English is a reflection of the selection criteria for the programme; fluency in written English was given primacy as a selection criteria. The MSCE examinations, the project material and teacher training are all through the medium of English and it was argued that proficiency in English would give applicants the greatest chance of success.

An analysis of areas of poor prior attainment (Table 4) in the MSCE data reveals that Mathematics is particularly problematic, and this is reflected in scholars' comments. Over 80% identified this as their weakest subject in school. A lack of books and equipment, poor teaching, including a lack of encouragement from the teacher, and teachers without relevant qualifications were all cited as contributing factors to low accomplishment in Mathematics. Many expressed low self-esteem in Mathematics and Science and constructed themselves as low achievers. Nevertheless, the fact that they reached the final years of secondary school positions these females as high achievers in their own communities.

Family experiences of education can be highly influential in a trainee's choice of teaching as a career, and other researchers have thus explored the educational attainments of trainees' parents (Coultas and Lewin, 2002). This was not an explicit line of investigation in the current study, but scholars' mothers' experiences emerged as a theme in scholars' backgrounds. Many described their mothers struggling to care for several children without partner support, mothers suffering abuse from partners and other family members, illness and low levels of maternal qualifications. A minority drew directly on this experience to rationalise their interest in the programme and their determination to be economically active and independent.

"My father died in 1991 and we have raised in a difficult life because my mother dropout from school in standard 2, so had no chance to get employed and she did not know how to run a business." (sic) (C052) 4

All applicants had left school at least a year previously, so their activities and employment prior to the programme were scrutinised. The researchers were interested in perceived potential return to the individual while in their current occupation or employment. The extent of this perceived return was linked to a view of teacher training as a stepping stone to teaching or to employment in other potentially more lucrative sectors. Data on the previous occupation of the scholars is fragmented with more than half of the cohort responding "none" or failing to answer this question. Interview data leads the researchers to suggest that many of the women who did not respond are involved in farming, house-work and domestic labour. There were small differences across the districts; for example, in Ntchisi district there were no scholars already engaged in education-related work and over 90% of those who responded described themselves as farmers or working in the home. However, in Mwanza district, 12 scholars were already engaged in education-related work. This included "nursery teacher'' and "volunteer teacher".

It is difficult to draw conclusions from this data beyond noting that few of the scholars have had any employment in the regular waged sector, and that the majority was engaged in farming and/or domestic work before starting with the programme. For these failed MSCE candidates, there are scarce opportunities for further training or education and limited openings for formal employment in rural areas.

Motivation for teacher training: The majority of scholars expressed extrinsic motives for joining the programme. These motives were focused around meeting materialistic needs, a wish to be financially independent and to be able to support dependants.

> "I think it's better to work so that I should assist my family, my relatives." (Respondent C15)

Many mentioned the desire to contribute to their local community or country by supporting children's learning and reducing the pupil-to-teacher ratio:

> "So it is my ambition to help the villagers and village head men to help all the children who don't like to go to school... we want to empower all the children surrounding us." (Respondent MO25)

Approximately a third of the responses included a gender dimension. These individuals wanted to act as a role model for girls in their local community:

"Assist girls to work hard at schools in order to go to university, not only boys." (Respondent M133)

"They can give courage to the ladies." (Respondent M138)

This extended to a desire to contribute to the development of their local communities and country:

"Because it helps to reduce women's ignorance in the country." (Respondent C004)

"The second thing is that it helps for the country not to have a gender bias." (Respondent C053)

Good teachers and teaching: Scholars inevitably bring with them a view of teaching formed from their own experiences. These experiences could include interacting with teachers in different roles as learners, parents of school learners and, for a few, working as volunteer teachers (in schools or in non-formal education situations with the youth or adults) or in other education-related roles. These ideas form the basis of what "teaching is 'supposed' to be" (Akyeampong & Stephens, 2002). Scholars placed considerable emphasis on the personal behaviour, personal qualities and moral values of teachers. Many described a teacher as someone who needs a smart, clean appearance and to be dedicated, punctual, reliable, resourceful, tolerant, hard-working, honest and "of good character" (Respondent C027). At a classroom level, there was an emphasis on commitment to learners through caring and parenting: "... good women teacher is able to teach girls how to do their own cleanliness." (Respondent C013)

Scholars' responses indicated that they perceived that nurturing learners was key to being a good teacher. Many emphasised the importance of the relationship between learners and teachers. A good teacher was described as caring and friendly to learners, which creates a comfortable atmosphere in the classroom:

"A good teacher should not be fearful to learners." (Respondent M96)

"... to make sure when children making wrong that they be loved." (sic) (Respondent C15)

Teachers with such qualities were held to be role models for learners and more widely, in the community: "... to set a good example to friends." (Respondent C013)

Many scholars felt that female teachers were more likely than male teachers to possess these qualities and that they would be more capable of advising learners. Women were believed to be more accustomed to hard work and less likely to be distracted by drink and to enter into inappropriate relationships with learners. Their presence could reduce the gender differentiation and shift dominant cultural views about what it is to be "feminine" in schools: "... because a system of women abuse can be slow down in the schools" (Respondent C108).

Experience of childcare and knowledge of children was frequently cited as a skill that women would bring to teaching. There was a perception of teaching as an extension of childcare and activity in the domestic sphere.

> "She teach pupils like her children." (sic) (Respondent C072)

> "Women easily understand children because most women are mothers so they have a spirit of love for children." (Respondent C099)

A small minority of the scholars argued that studying and working in schools would prevent women from engaging in other types of "undesirable activities".

> "They can improve their education standard instead of going to the wrong places like bars and doing sex with married mens; they can be busy with teaching." (sic) (Respondent C070)

Experiences of learning: Applicants' writing revealed experiences of high levels of poverty and frequent interruptions to their learning. Barriers and constraints to learning included illness, economic issues and parental expectations. Experiences of bereavement (usually parental), illness (usually parental but occasionally themselves), pregnancy and husbands' behaviour all inhibited regular school attendance. Similarly, economic hardship (often as a result of poor harvest) interrupted schooling for many of the scholars. For some, there were insufficient family funds for school fees, clothing and study material and for others a need to be engaged in income-generating activity instead of attending school. For some, gender expectations and prejudices had impacted on their schooling:

> "Parents they encourage you to get married instead of school." (sic) (Respondent C072)

"My parents believe that a boy have a right to go to school not a girl." (sic) (Respondent C057)

Many scholars expressed negative experiences of school. Teaching approaches, particularly in secondary schools, were felt to have been inadequate, insufficiently engaging or inclusive, with unattractive conditions in school classrooms. Many experienced an absence of encouragement or interest from teachers, physical punishment and inappropriate behaviour from male teachers. While these conditions and teacher behaviour affect both boys and girls in schools, the lack of value associated with girls' education and dominant male behaviour, including sexual harassment, suggest that the impact on girls was greater. Many had experienced a feeling of failure at their grades in crucial public exams (MSCE, JCE or the primary leaving examination). However, for some, this had been mitigated by success at a later date. Threaded through these scholars' stories was the lack of possibility for agency in their own educational experiences and low self-esteem regarding educational attainment.

DISCUSSION

Increasing the number of female teachers in rural areas in developing countries demands innovative measures to attract and retain community teachers. The programme described here is one response to these challenges, aiming to offer authentic situated learning experiences with high levels of support to rural women as they start to become members of the teaching profession. Crucially, while the project is aligned with global aims (Millennium Development Goals 2 and 3, UNDP 2013), it takes into account specific contextualising factors in Malawi and harnesses existing systems. However, the key to success in such a programme is developing an understanding of participants, their motivations, aspirations and prior experiences of learning and an understanding of the positions of those supporting them – their tutors and mentors – to inform materials and the design of support systems.

This programme attracted large numbers of applicants with an appetite for resumed study to achieve the MSCE and a professed desire to progress to becoming teachers. The initial work shows that many of the scholars construct themselves as failing in particular school subjects (especially Mathematics) and have negative experiences of secondary schooling. But many see themselves as agents challenging societal expectations and they want to re-invent their identities. There are few developing-world studies examining factors that influence teaching as a career choice and

even fewer that investigate trainees from more marginalised groups and their learning trajectories to becoming professionals. A recent study of secondary school trainee teachers in Malawi indicated that teaching is frequently a profession of last resort for those who have failed to gain university admission (Mtika & Gates, 2011), confirming similar findings from an earlier study of primary teacher trainees (Coultas & Lewin 2002). In these studies and others (Towse et al, 2002), teaching was seen as a "stepping stone" to a higher-status professional activity. The scholars of this programme were much less likely to hold such views about their future roles, and as women in rural communities, few possibilities have been open to them to develop their capabilities.

Scholars perceive teaching as an essentially pastoral activity. Appearance and personal behaviour, particularly nurturing, are foregrounded as characteristics of a good teacher, underpinned by academic qualifications (MSCE) and competency in English. Descriptions of good teachers contained little reference to the practice of teaching or classroom learning, and lesson planning was the only teaching skill mentioned. The social construction of the primary school teacher held by many scholars was synonymous with the constructs of "female" and "mother". There is much in common here with the views of beginning teachers in other environments in sub-Saharan Africa, but with a greater emphasis on pastoral care for pupils (Akyeampong and Stevens, 2002; Coultas and Lewin 2002; Towse et al, 2002).

Such views are influenced by participants' own experiences of schooling and family life. A significant number of scholars drew on their experiences with childcare or care of ill relatives to align themselves with their future role as teachers. Holding such views allows these women to visualise themselves as teachers without overtly challenging prevalent cultural expectations of themselves as women in their communities. Their multiple responsibilities in their own communities are not reduced while participating in the programme.

The material prepared by the programme adopts a highly participatory approach, seeing the learner as agentive (Bruner, 1996) and encouraging interactions with peers, relatives and friends. There is a large number of activities as well as self- and peer assessments. However, scholars' participation in activities and the meanings they construct will be highly influenced by their relationships with their tutors and mentors, and the views of learning held by these tutors and mentors and what they judge to be important (McCormick & Murphy, 2008). For the programme team, this mediation of the approach to learning by tutors (and mentors) poses critical

challenges in achieving programme aspirations.

The mentoring dimension of the programme can be deeply challenging for mentors, not least because the programme material suggests new perspectives and ideas on learning that mentors may find unfamiliar and possibly threatening. Interview descriptions of the mentoring process revealed a hierarchical relationship between mentor and scholar. For example, some mentors insist that scholars write out answers to activities in draft for correction before completion in the actual workbook. Furthermore, the presence of the scholars as "learning assistants" may in itself threaten the identity of the teachers/mentors, particularly if they have become accustomed to being the sole adults in their classrooms[v].

The MSCE assessment framework is a key influence on the learning and teaching process, but the tutors – their views on pedagogy learning and knowledge – will also influence the way the curriculum is implemented and valued, as will their relationships with the scholars (McCormick & Murphy, 2008).

Various factors make the programme's approach to learning problematic. Firstly, the selection of the curriculum topics is challenging, because tutors are often dismayed to find that the material does not cover all aspects of the syllabus, and may use additional materials to supplement those in the programme. This can cause information overload for the scholars. Secondly, the majority of tutors have little experience of distance learning, and struggle with this role. Many want to conduct tutorial sessions in the same manner as teacher-led transmission of knowledge. Thirdly, the project team is keen that the scholars are not perceived as "failures" or deficient in their knowledge, but should rather be treated as mature learners with extensive funds of knowledge to draw on. For many tutors, this attention to individual needs (characteristic of distance learning tutoring) is in conflict with their customary "teacher-centred" pedagogic practice.

CONCLUDING REMARKS

The programme is still in its early stages and, as yet, there is only limited data on the scholars' experiences to inform the development of the programme and to assess its success. Although distance education is not widespread in Malawi and few participants have any prior experience of it, the programme has been widely welcomed by participants, local leaders and key education stakeholders. Harnessing the flexibility of distance learning, the material aims to develop scholars' skills,

knowledge and confidence as they juggle study with work and family duties. Initial data from the first cohort of scholars indicates they feel strongly that their presence is important to girls and to pupils generally, although many lack confidence in particular areas of study and in their ability to succeed academically.

The analysis to date indicates several areas where there is emerging non-alignment of project design and implementation. One such area concerns gender dynamics at a local level in the practices of tutors and mentors. Emerging evidence suggests that the prevailing attitudes of some members of these groups may be sustaining conditions that limit female empowerment. There is non-alignment between the learning approach inherent in the distance learning material and the practices in tutorials and mentor sessions.

Thus, a key part of programme is to increase researchers' understanding of the tutors' and mentors' histories of participation and learning brought to the programme, together with their views of the scholars. Without this, it will be difficult to disrupt tutors' practices and support them in rethinking their teaching styles and expectations for the scholars. This has implications for the types of learning activities these distance education tutors are requested to carry out with the scholars and the forms of guidance and induction for this group. Similarly, for mentors, there is a need to support them to think critically about their practices. Historically, distance learning programmes in Africa have given little attention to the perspectives of tutors, particularly with regard to issues of gender and poverty. Distance learning offers a path into teaching to groups previously under-represented in the profession, particularly women in rural areas. However, a successful programme requires different thinking. This different thinking includes pedagogy, teaching and learning in relation to learners' identities to make any sustainable shift in the learning outcomes for females in these rural communities. This refers to both women on the programme and the girls in schools.

For the funder of the project, the key success indicator is the number of scholars who progress to qualified status and who, once qualified, remain in their local communities. Researchers are aware that there is a need to continue studies to understand the contribution it is making to their understanding of distance learning (material and support design). One should scrutinise the social and learning experiences of the scholars, their future activity and the influence of their presence in the participating primary schools. One should also consider the impact of programme participation on other role-players – mentors and tutors, and their practices.

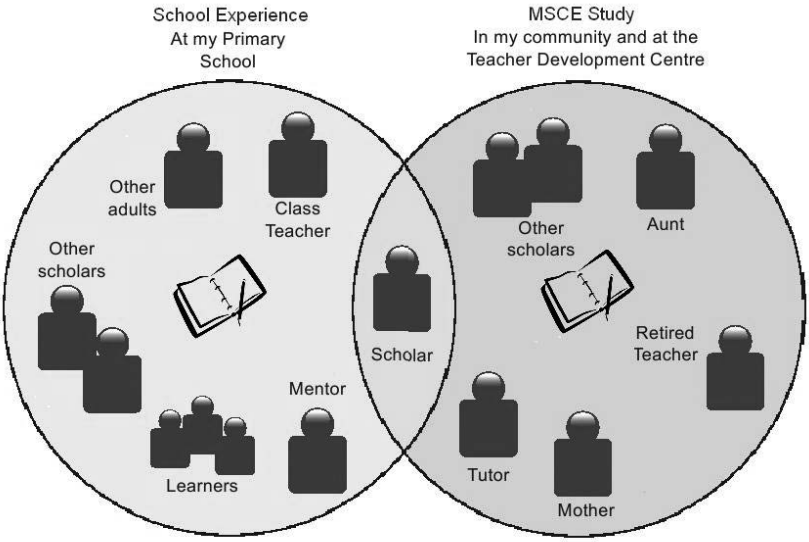

Figure 1: Support for scholars in the MATSS programme

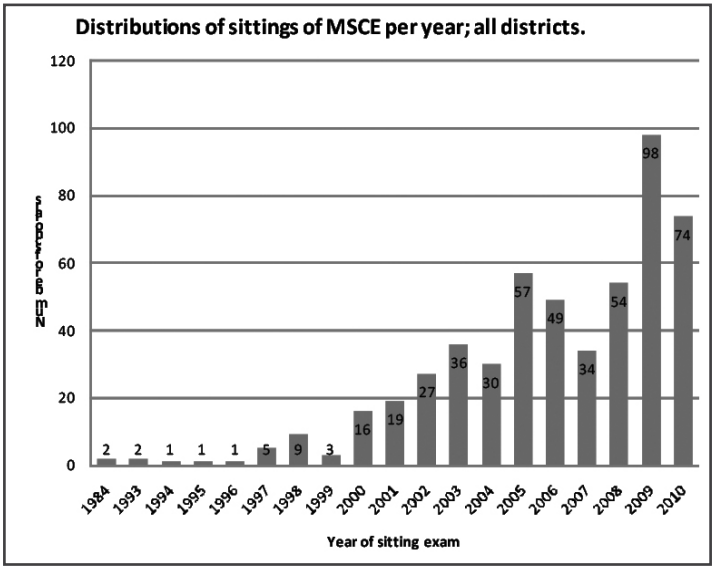

Figure 2: Date scholars sat MSCE examination

Table 1: Female teacher trainee recruitment

Cohort	IPTE 1	IPTE 2	IPTE 3	IPTE 4
Year	2005/6	2006/7	2007/8	2008/9
Female intake	1276	1272	2,166	1,521
% female	45%	45%	55%	40%

Table 2: Age distribution of scholars across the four districts, 2011

Age band (%)	Chikhwawa	Dedza	Mwanza	Ntchisi	Total
<20	3%	2%	1%	8%	3%
20–24	49%	44%	41%	48%	45%
25–29	24%	38%	29%	31%	31%
30–34	13%	12%	17%	7%	13%
35+	6%	3%	8%	0%	5%
Data not available	5%	1%	3%	7%	4%
Grand Total	100%	100%	100%	100%	100%

Table 3: Scholar MSCE passes in each district

District	Number of subject passes	Average passes per candidate	Average passes in the key subjects per candidate
Chikhwawa	668	5.6	1.9
Dedza	735	6	2.0
Mwanza	822	6	1.8
Ntchisi	536	5.2	1.7

Table 4: Passes in key subjects per district

District	Biology	Physical Sciences or Science	English Language[1]	English Literature	Mathematics	Total
Chikhwawa	55	19	108	0	42	224
Dedza	71	24	111	1	40	247
Mwanza	67	21	139	1	43	271
Ntchisi	47	13	91	3	27	181
Total	**240**	**77**	**449**	**5**	**152**	923

Table 5: scholar prior occupations

	Business related	Education-related	Office/ Admin/ secretarial	Farming/ agriculture/villager	Family/ housewife/carer	Sales/ shop work	Domestic work	Student	Other	None	Blank (none given)	**TOTAL**
Total	16	19	3	97	50	4	2	13	4	47	234	4896

1 Prior to 2010 there was only one MSCE for English.

ENDNOTES

i. www.tessafrica.net

ii. MATSS is a joint programme from the Open University, UK (TESSA), and FAWEMA (Forum of African Educationalist Women in Malawi) with other local partners and is funded by the Scottish government as part of the cooperation agreement which was signed between Scotland and Malawi in November 2005, outlining four key areas of engagement: civic governance, sustainable economic development, health and education. http://www.scotland.gov.uk/Topics/International/Africa/Malawi.

iii. Run by GTZ, this programme uses unemployed secondary school leavers to support the learning of children who have dropped out of primary school.

iv. Numbered quotes are from the scholar application forms. Other quotes are from interview data.

v. Experiences of mentors on the programme are being explored in another strand of project investigation, to be reported in 2012.

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