# A proposed checklist for assessing Master's and doctoral research proposals

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## Abstract

The study confirmed that most chairs of departments (CODs) in the College of Economic and Management Sciences (CEMS) regard Master's and doctoral (M and D) throughput rates as poor. A proposed checklist for assessing M and D research proposals is advanced. The aim of the research was to establish if a proposed checklist may contribute to improved throughput rates. Inconsistent assessment criteria are used to assess the research proposals of M and D students. Structured interviews with CODs revealed that most departments are using criteria based on previous experience to assess M and D research proposals. These criteria have not been documented. The proposed checklist is regarded by CODs as being potentially valuable for assessing M and D proposals, but they are less optimistic that it could lead to improved throughput rates. The proposed checklist may nevertheless assist prospective M and D students to plan their research in a way that will avoid critical problems. Academic departments should consider testing the proposed checklist for its potential contribution to improve M and D throughput.

## INTRODUCTION

One of the challenges South African universities are grappling with is the poor throughput rate of Master's and doctoral students (hereafter M and D students) (Mouton 2007, 61–75).

Prospective M and D students are confronted with several challenges in completing their research proposals. These include finding suitable topics, defining their research problems and adopting appropriate methodology. The prospective M or D student faces diverse guidelines and publications about these matters, often leading to confusion and despair. Some departments prescribe voluminous books to be read, others provide templates to be completed, and still others rely on students' prior learning about research methodology.

A prospective M or D student should justify that his/her research problem is significant enough to warrant the time, energy and financial resources required, that the method to be used is suitable and feasible, and that the results are likely

to prove fruitful (University of Queensland 2010). The proposal should address whether the methodology that will be adopted will provide relevant information in order to address the research problem.

Research proposals in the College of Economic and Management Sciences (CEMS) at the University of South Africa (Unisa) are assessed differently from one department to another, and are based on widely divergent criteria. The assessors are either the prospective supervisor, a colloquium, the departmental higher degrees committee, the chair of department, an M and D committee, or a leading expert from the relevant field. The criteria have also not been documented and are not applied in a uniform manner.

Ideally, the assessment of proposals needs to be done in a fair, valid and reliable manner. Well-assessed research proposals may contribute to an increase in the throughput rate of M and D students.

The throughput rate of M and D students may also be positively influenced by managing the three phases of the process of completing a dissertation or thesis, namely the admission, supervision and assessment of students. Although M and D students must meet the admission requirements (prerequisites), they are further required to submit an acceptable research proposal before proceeding with their research.

This article focuses on managing final admission by assessing the research proposals of prospective M and D students. The likelihood of improving research proposals may be enhanced by providing students with either a guide, a template to be completed, or a checklist containing the assessment criteria.

According to the literature, providing prospective M and D students with the checklist has several advantages. Making the checklist available to those students in advance will provide them with the assessment criteria and could enhance their chances of submitting acceptable proposals. A checklist could also save students time, compared to other methods of communicating the guidelines, in addition to helping students focus on specific challenges they will be confronted with, when completing their research. A comprehensive checklist should, therefore, enhance the chances of them doing successful research.

A checklist could also enable academic staff to focus on all aspects of the research process, and should contribute to fairness, validity and reliability in the process of evaluating proposals.

A checklist could contribute to an improvement in the throughput rate of M and D students. The checklist may ensure that those students, and their supervisors, thoroughly plan the research in order to eliminate and avoid critical problems once they commence the actual research.

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Items that could be included in a proposed checklist were identified and selected by converting guidelines provided by various sources (listed in the references section) into checklist questions, and combining these with the undocumented criteria used at colloquia in the School of Management Sciences, as well as the author's own experience. Items were included based on their relevance and appropriateness for research in the field of Economic and Management Sciences.

The purpose of the article is to explore possible criteria for inclusion in a checklist for M and D students and to assess the potential value a checklist may have for chairs of departments (CODs) in the CEMS.

A survey was conducted amongst CODs in CEMS at Unisa, to determine how research proposals submitted by prospective M and D students are assessed and to obtain feedback about the potential of a proposed checklist to improve the throughput of M and D students. A draft checklist for CEMS is presented, the essential items are identified, the preferred format is determined, the issue of standardising the checklist is discussed and the potential value of the checklist in improving the throughput rate of M and D students is assessed.

## LITERATURE REVIEW

From a formative assessment point of view, a key premise is that for students to be able to improve, they have to develop the capacity to monitor the quality of their own work during its actual production. This, in turn, requires that students gain an appreciation for what high-quality work is, and that they have the evaluative skills necessary for them to compare – with some objectivity – the quality of what they are producing in relation to the higher standard (Sadler 1989, 119–120). A checklist as part of formative assessment will communicate to M and D students precisely what is required for a research proposal to be acceptable (Baker 2000, 61), and it will also enable them to monitor the quality of their work during their writing. Formative assessment may take various forms and is not limited to the use of checklists and rubrics.

Checklists have been designed and are used in various fields and for different types of academic work. An example of this is the use of checklists for the assessment of manuscripts. The Authors' Quick Checklist for preparing manuscripts for publication (*Biotechnology Letters* 2006, 205) is one example. Although intended for publication in *Biotechnology Letters*, the checklist does contain certain requirements that are equally applicable to prospective M and D students, such as the requirement that the title should be informative and clear, and that all references in the text and bibliography need to correspond. Another

example is the checklist for manuscripts, as proposed by Seals and Tanaka (2000, 52–58).

Checklists are not without their limitations (Seoane 2001). They are tools commonly used by quality assurance (QA) unit professionals in inspections and audits as they perform their customary tasks of verifying and checking compliance with various applicable standards. An analysis of the advantages and disadvantages of checklists reveals that the use of checklists sometimes needs be enhanced by complementary strategies.

Checklists nevertheless have the potential to extract and summarise guidelines contained in various guides, books and other resources. Based on such books and guides (indicated in the reference section), a checklist was compiled for prospective M and D students. The checklist is provided in Table 1.

## RESEARCH DESIGN

The research problem is whether and how a checklist could contribute to the assessment of M and D research proposals submitted to academic departments of CEMS, in an attempt to improve the M and D throughput. The aim of the study was not to test or prove the ability of the checklist to increase M and D throughput – only once it is implemented by CODs can such an evaluation be made. Sub-problems of the study aimed to establish

- which existing departmental structures are responsible for assessing research proposals;

- what assessment criteria are used by academic departments to evaluate M and D research proposals;

- which assessment criteria for M and D research proposals are regarded as essential;

- if a custom-made M and D research proposal checklist for CEMS is needed;

- if a particular preference exists for a specific format of the checklist; and

- what the potential of the proposed checklist for assessing M and D research proposals is.

To address the research problem and sub-problems of the study, structured face-to-face interviews were used to collect the required information. The population was the CODs of the 13 CEMS departments. CEMS consists of three schools, namely the School of Accounting Sciences, the School of Economic Sciences and the School of Management Sciences. Each of these hosts several departments.

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In view of the relatively small population and affordability, a census could be undertaken amongst all the CODs of this college. Ten of the 13 academic departments in CEMS participated in the study and three abstained due to CODs being out of office during the period when the interviews were conducted.

In order to ensure the best possible response rate, participating departments were contacted telephonically prior to an interview to ensure availability at the time of the interview. In order to prepare respondents for the interview, the Bureau of Market Research (BMR) supplied all CODs with the proposed 50-item M and D research proposal checklist (see Table 1). This checklist displays assessment criteria that may used to evaluate M and D research proposals in a fair, valid and reliable manner. A fieldworker from the BMR conducted the interviews with those CODs who were available, and gathered the data.

**Table 1:** Proposed checklist for evaluating M and D research proposals

| Criteria | |
|---|---|
| **Item** | **Topic/Title** |
| 1 | Does the topic fall within the domain of the relevant academic department? |
| 2 | Is the topic of the research project defined concisely? |
| 3 | Does the title adequately anticipate the contents of the research? |
| 4 | Does the title avoid repetitive and non-contributing words, such as 'A study of ...', or 'An investigation of ...', as well as any abbreviations? |
| | **Research problem** |
| 5 | Is the research problem clearly defined? |
| 6 | Does the research problem refer to secondary research (completed theses, scientific journals, textbooks, Internet sources such as www.scholar.google.com)? |
| 7 | Is there a need for the research? |
| 8 | Is the research problem significant or important enough to warrant the research? |
| 9 | In the case of Master's students, and taking cognisance of the proposal, is the researcher able to do research independently? or In the case of doctoral students, will the research contribute to the field of specialisation? |
| 10 | Is the research achievable within the maximum period allowed to complete this qualification? |
| 11 | Do the researcher's capabilities, interests and personal experience of the topic match his/her proposed research? (A CV of the candidate should be attached to the proposal as an annexure.) |

A proposed checklist for assessing Master's and doctoral research proposals

| Criteria | |
|---|---|
| **Item** | **Topic/Title** |
| 12 | Does the researcher have an adequate budget to achieve the goals of the research? (A budget should be attached to the research proposal as an annexure.) |
| 13 | Has the researcher demarcated and differentiated the research from other research on the topic? |
| 14 | Has the researcher explicitly stated the presuppositions, assumptions and objectives of the research? |
| | **Literature review** |
| 15 | Has the researcher provided a literature review, focused on the topic, as a basis for the research? |
| 16 | Based on the literature review, has the researcher exposed both corresponding and contradictory viewpoints on the topic? |
| 17 | Based on the literature review, has the researcher justified the need for the research? |
| 18 | Based on the literature review, has the researcher demarcated and differentiated his/her research from other research on the topic? |
| | **Methodology** |
| 19 | Is the research executable, i.e. are appropriate resources available and accessible? |
| 20 | Has the researcher stated his/her hypotheses either as research hypotheses or as statistical hypotheses? |
| 21 | From the hypotheses, are the variables and their relationship with one another clear? |
| 22 | Has the researcher indicated measures to ensure scientific accountability, such as objectivity, validity and reliability? |
| 23 | Does the researcher remain objective and refrain from expressing his/her personal opinions and values in the proposal? |
| 24 | Has the researcher indicated the data required in order to undertake the research? |
| 25 | Has the researcher indicated where the data are or may be located? |
| 26 | Has the researcher indicated how the data will be obtained from primary and secondary sources? |
| 27 | Has the researcher indicated how a pilot study will be done? |
| 28 | Has the researcher indicated who his/her statistical consultant will be? |
| 29 | Has the researcher indicated which software package (MS Excel, SAS or SPSS) will be used for the analysis of the data? |
| 30 | Has the researcher indicated the target population and/or sample? |
| 31 | If the researcher is going to use sampling, has he/she indicated whether random sampling, systematic sampling, stratified random sampling or cluster sampling will be used? |

| Criteria | |
|---|---|
| **Item** | **Topic/Title** |
| 32 | Has the researcher indicated how the initial data exploration will be done? |
| 33 | Has the researcher indicated what statistical technique(s) will be used? |
| 34 | Is the statistical technique appropriate in view of the hypotheses and the characteristics of the data? |
| 35 | Has the researcher provided a schedule indicating target dates for the completion of the various phases and submission of chapters? |
| | **Editorial aspects** |
| 36 | Has the researcher provided a layout of the chapters that will be used to structure the dissertation? |
| 37 | Has the researcher indicated details of the editor who will be checking the grammar and readability of the dissertation? |
| 38 | Does the researcher display a coherent writing style and provide his/her thoughts in smooth, successive transitions without 'jumping' from one concept to another? |
| 39 | Does the researcher have an academic writing style that avoids referring to the first person, for example 'I', 'me', 'my'? |
| 40 | Does the researcher avoid the use of adjectives such as 'big' and 'huge'? |
| 41 | Does the researcher refrain from expressing his/her own subjectivity and opinions? |
| 42 | Does the researcher use headings appropriately? |
| 43 | Does the researcher use terms consistently throughout the research proposal? |
| 44 | Does the researcher number sections, subsections, figures, tables and equations using a consistent method of numbering? |
| 45 | Is the referencing technique in order? (Has the researcher acknowledged all sources used as text, tables and diagrams?) |
| 46 | Does the proposal contain a bibliography? |
| 47 | Are all the references in the text reflected in the bibliography and do all references in the bibliography correspond with the references in the text? |
| | **Ethics** |
| 48 | Has the researcher provided the signed declaration about the Policy on Research Ethics of Unisa? |
| 49 | Has the researcher indicated how he/she will maintain the confidentiality of all data collected from or about research participants, and maintain security procedures for the protection of privacy? |
| 50 | Has the researcher refrained from plagiarism, piracy, falsification and fabrication? |

**Source:** Own composition based on the literature indicated under References

The criteria outlined in Table 1 largely set the stage for the face-to-face interviews conducted with CODs from the last week of May 2010 until mid-June 2010. To structure the interviewing process, a research questionnaire was specifically designed to address the information needs as reflected in the research problem and sub-problems of the study.

A copy of the questionnaire is provided in Appendix A. Once CODs had had an opportunity to familiarise themselves with the proposed checklist the fieldworker asked them (based on the questionnaire about their departments' and their own involvement with M and D students) their views on throughput rates, existing departmental structures responsible for assessing research proposals, and their assessment criteria for evaluating M and D research proposals. Based on the proposed checklist, they were asked their views on the proposed checklist, identify assessment criteria they regard as essential, their preferences for a custom-made M and D research proposal checklist, their preferences for specific formats of the checklist and the potential of the proposed checklist to help in assessing M and D research proposals.

On completion of an interview, the information was verified, edited, captured and stored for analysis purposes. Finally, all information sourced during the interviews was collated, analysed and interpreted.

The data were mainly analysed using descriptive statistics. In the case of question 4 of the questionnaire, however, index values were calculated for the 20 items cited among the top five most important assessment criteria. The index score calculations were based on the importance scores awarded to a specific criterion, where a weight of 5 was allocated to those criteria mentioned as being most important for assessing research proposals. Similarly, weights of 4, 3, 2 and 1 were allocated to criteria rated as being second, third, fourth and fifth in importance. The frequency of mention for each criterion was multiplied by its corresponding weighted importance, to arrive at a weighted relative importance index score. These scores were computed by equating the highest weighted total score (for the criterion with the highest weighted total) with 100, and then expressing other, lower-weighted importance scores for 'other' criteria as a fraction of the highest weighted criterion.

## RESULTS

This section presents the views of academic departments on throughput rates and explores the existing departmental structures used for assessing postgraduate research proposals, as well as the assessment criteria which are regarded as essential or preferred by academics. The section also quantifies M and D enrolment numbers

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for the participating departments. Finally, the discussion of the survey results is summarised to model a prototype M and D research proposal checklist.

Prior to presenting the results of the research, it is important to gain an understanding of the number of M and D students supervised by CODs and departmental staff. Having an overview of the magnitude of postgraduate student numbers for which the college is accountable, will largely help readers to better contextualise the outcome of the findings presented in this report. Table 2 reflects the average number of M and D students, based on the figures provided by the participating CODs.

**Table 2:** Average number of M and D students supervised

| | COD | | Staff | |
|---|---|---|---|---|
| | **2009** | **2010** | **2009** | **2010** |
| Master's | 4 | 7 | 50 | 50 |
| Doctoral | 4 | 3 | 20 | 20 |
| Total | 8 | 10 | 70 | 70 |

Table 2 does not reflect a marked variation between the number of M and D students supervised by CODs in 2009. For 2010, CODs on average supervised slightly fewer doctoral students than in 2009. The average number of Master's students supervised by CODs in 2010 almost doubled from 2009.

On average, departmental staff supervised approximately 50 Master's and 20 doctoral students annually, during 2009 and 2010. On average, departmental staff supervised 2.5 times more M students than doctoral students in both years.

In support of the abovementioned quantifications it is also important to note that half of the survey participants were professors, 40 per cent associate professors and one was a senior lecturer. On average, the participants had been employed at Unisa for almost 17 years. The gender distribution of the participants was fairly equal, with a slight bias towards males (60%).

## VIEWS REGARDING THROUGHPUT RATES

Participating CODs regarded the throughput rate of M and D students as poor, as reflected by the figures quoted below:

- Poor throughput rate for M and D students:                70 per cent

- Satisfactory throughput rate for M and D students:      20 per cent

- Excellent throughput rate for M and D students:           10 per cent

## EXISTING DEPARTMENTAL STRUCTURES FOR ASSESSING RESEARCH PROPOSALS

Table 3 presents an overview of those units within academic departments which are responsible for assessing research proposals.

**Table 3:** Units responsible for assessment of research proposals

| Responsible unit | n | % |
|---|---|---|
| The prospective supervisor | 2 | 12,5 |
| A colloquium | 2 | 12,5 |
| The Departmental Higher Degrees Committee | 6 | 37,5 |
| The EXCO of department | 0 | 0 |
| The chair of department | 2 | 12,5 |
| M and D committee | 3 | 18,75 |
| Leader of the relevant field | 1 | 6,25 |

It is evident from Table 3 that the majority of academic departments use a departmental higher degrees committee to assess postgraduate research proposals. Departmental executive committees seem the least favoured structure to evaluate postgraduate research proposals.

## POSTGRADUATE RESEARCH PROPOSAL ASSESSMENT CRITERIA

Table 4 reflects the current assessment criteria used by CEMS academic departments to evaluate M and D research proposals. It should be noted that respondents were allowed to select more than one criterion, if applicable. The list presented in the table reflects the predetermined criteria of the proposed checklist (provided in Table 1) used during the interviews, some of which are currently not used by departments.

**Table 4:** Criteria used to assess M and D research proposals

| Criteria | n | % |
|---|---|---|
| Unwritten criteria based on experience | 5 | 38 |
| Criteria according to a checklist | 3 | 23 |
| Criteria specified in a template which the student has to complete and submit | 0 | 0 |
| Experience | 1 | 8 |

| Unofficial template | 3 | 23 |
| --- | --- | --- |
| Matrix developed by the combination of five universities | 1 | 8 |
| Do not use any specific criteria (done informally) | 0 | 0 |

It is clear from Table 4 that in most of the academic departments there are no written criteria for assessing M and D research proposals. Three of the academic departments informally use a template designed by their own staff members, while a similar number use assessment criteria from an official checklist. Only one department uses a prototype assessment matrix that was compiled in conjunction with other universities.

Judging from Table 4, unwritten criteria based on the experience of staff members are the first preference of most departments, followed by criteria according to a checklist and an official template from the 'other, specify' option as second preference.

It was also evident that the participating academic departments use different criteria for M and D research proposals.

## ASSESSMENT CRITERIA FOR M AND D RESEARCH PROPOSALS

### Assessment criteria regarded as essential for M and D research proposals

Table 5 shows that only 20 of the 50 proposed criteria (see also Table 1) were identified among the top five criteria considered most important for assessing M and D students' proposals. Whereas all proposed criteria used to assess research topics/titles were cited among the top five most important criteria, editorial and ethical aspects received very low or no ratings among the most important criteria for assessing M and D research proposals.

It is also evident from Table 5 that the highest index score (index = 100) was recorded for assessment whether the research topic of the M or D research proposal aligns with the field of study relevant to a specific department. Second and third most important criteria were that the research problem has to be significant or important enough to warrant research (index = 36) and the research problem needs to be clearly defined (index = 33). It should be noted that no index scores are displayed for criteria not listed among the five most important criteria among the 50 proposed items (see Table 1).

**Table 5:** Most important assessment criteria (indices)

| Criteria | | Index |
|---|---|---|
| Item* | Topic/Title | |
| 1 | Does the topic fall within the domain of the relevant academic department? | 100 |
| 2 | Is the topic of the research project defined concisely? | 9 |
| 3 | Does the title adequately anticipate the contents of the research? | 7 |
| 4 | Does the title avoid repetitive and non-contributing words, such as 'A study of ...', or 'An investigation of ...', as well as any abbreviations? | 9 |
| | **Research problem** | |
| 5 | Is the research problem clearly defined? | 33 |
| 7 | Is there a need for the research? | 7 |
| 8 | Is the research problem significant or important enough to warrant the research? | 36 |
| 9 | In the case of Master's students, and taking cognisance of the proposal, is the researcher able to do research independently? Or In the case of doctoral students, will the research contribute to the field of specialisation? | 7 |
| 11 | Do the researcher's capabilities, interest and personal experience of the topic match his/her proposed research? (A CV of the candidate should be attached to the proposal as an annexure.) | 4 |
| 14 | Has the researcher explicitly stated the presuppositions, assumptions and objectives of the research? | 20 |
| | **Literature review** | |
| 15 | Has the researcher provided a literature review, focused on the topic, as a basis for the research? | 20 |
| 17 | Based on the literature review, has the researcher justified the need for the research? | 27 |
| | **Methodology** | |
| 19 | Is the research executable, i.e. are appropriate resources available and accessible? | 22 |
| 20 | Has the researcher stated his/her hypotheses either as research hypotheses or as statistical hypotheses? | 4 |
| 22 | Has the researcher indicated measures to ensure scientific accountability, such as objectivity, validity and reliability? | 4 |
| 24 | Has the researcher indicated the data required in order to undertake the research? | 2 |

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| 26 | Has the researcher indicated how the data will be obtained from primary and secondary sources? | 2 |
|----|---|---|
| 30 | Has the researcher indicated the target population and/or sample? | 2 |
|  | **Editorial aspects** |  |
| 36 | Has the researcher provided a layout of the chapters that will be used to structure the dissertation? | 13 |
| 38 | Does the researcher display a coherent writing style and provide his/her thoughts in smooth, successive transitions without 'jumping' from one concept to another? | 4 |
| *Original item numbering retained here for ease of reference | | |

Of concern is the fact that participating CODs, despite indicating the importance of the students' proposed methodology, did not attach similar importance to the data required to undertake the research, to the way the data would be obtained, or to the population and sample. Without a clear description of these aspects of the methodology, the assessor of the proposal is not in a position to judge the viability of the research project, thus defeating one of the main objectives of a research proposal.

## Value of and preference for proposed checklist

Besides having to rate the top five criteria on the proposed criteria list, academics were also asked to indicate whether they regard the proposed checklist as valuable for assessing M and D research proposals and providing students with effective feedback. Nine of the ten respondents confirmed that they value the proposed checklist. However, when probed in terms of the contribution of the current checklist towards improving the throughput rate of M and D students, respondents seemed less positive. Only half of them affirmed that they believe the proposed form could help to improve throughput.

Six of the ten participants indicated that they would prefer to use the proposed M and D checklist for their specific department. Only two respondents showed a preference for using the proposed checklist at school level. No one preferred to have a single checklist for use by the entire CEMS.

## Recommended number of criteria for M and D research proposal assessment

CODs indicated the minimum and maximum number of criteria required to effectively assess M and D research proposals. The outcome of this research finding is presented in Table 6.

**Table 6:** Recommended number of criteria for M and D proposal checklists

| Postgraduate level | Minimum criteria | Maximum criteria |
|---|---|---|
| Master's students | 5 | 5 |
| Doctoral students | 5 | 50 |

Participants were of the opinion that fewer assessment criteria are required for evaluating the research proposals of Master's students, than those applicable to doctoral students.

## Preference for checklist formats

Participating CODs indicated their preferred format of M and D checklists as follows:
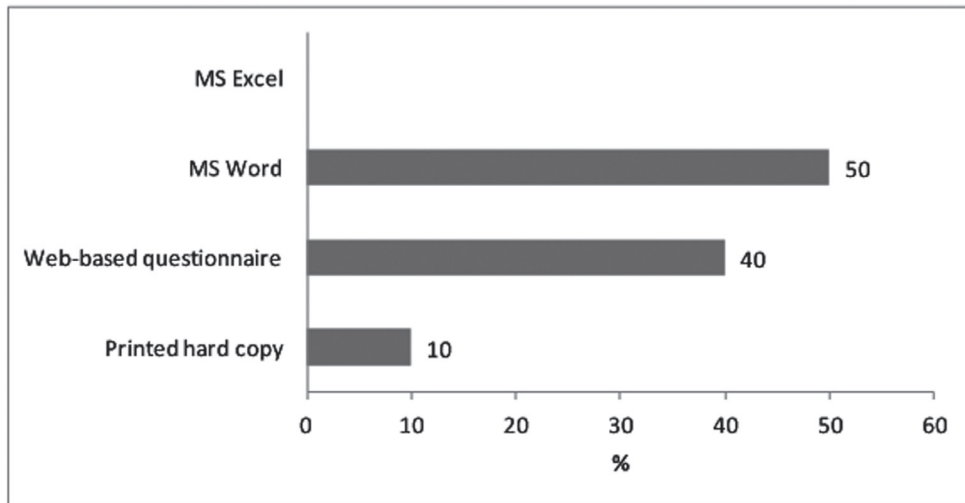


**Figure 1:** Preferred format of checklists

Besides considering the proposed criteria displayed in Tables 1 and 5, CODs listed other assessment criteria that they regard as important for evaluating M and D research proposals. In terms of question 5 of the questionnaire, they recommend the inclusion of the following criteria:

- Some form of data analysis of exploratory research efforts;

- An exposition of the availability of existing data to support research efforts;

- Critical assessment of existing research; and

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- Proof of environmental scanning of the research environment, to support recommended research design and methodology.

## Preference for a custom-made M and D research proposal checklist for CEMS

Figure 2 affirms the need for a custom-made checklist.
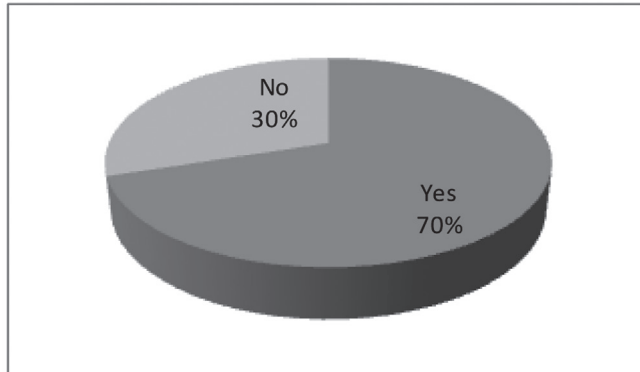


**Figure 2:** Preference for customised M and D research proposal checklist

It is clear from this data that 70 per cent of the academic departments would prefer a customised M and D research proposal checklist.

One of the questions in the questionnaire (question 13) yielded no responses.

## CONCLUSIONS

The primary aim of the research study was to establish whether a checklist could contribute to the assessment of M and D research proposals submitted to academic departments of CEMS, in an attempt to improve the M and D throughput rate as part of managing final admissions to these studies.

The study confirmed that most departments in CEMS regard their M and D throughput rates as poor.

Departmental higher degrees committees are currently the major platforms used to assess M and D research proposals. However, most departments in CEMS use unwritten criteria, based on prior experience, to assess the proposals. In most cases, different assessment criteria are used to assess the research proposals of M and D students respectively.

MS Word is the most preferred format for a checklist for M and D research proposals.

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There is support for the proposed checklist, which is regarded as potentially valuable for assessing M and D proposals and providing students with the necessary feedback. However, the Higher Degrees Committee of CEMS does not enforce a 'one-size-fits-all' approach to all departments, and there is no policy or instruction to force the implementation of any particular approach for the assessment of M and D research proposals. Academic departments clearly have to formulate their own criteria appropriate to their discipline. CODs are at liberty to decide if they wish to implement and test the checklist proposed in this article.

Although most academic departments seem satisfied with the checklist, participants felt fewer rather than more criteria should be applied when assessing M and D research proposals. Despite the preference for fewer assessment criteria for evaluating the research proposals of Master's students compared to those of doctoral students, the criteria are equally applicable except for one difference: the Master's student has to prove his/her ability to do research independently, as opposed to the doctoral student who needs to make a contribution to the subject area.

Topping the list of preferred assessment criteria are the following:

- Does the topic fall within the domain of the relevant academic department?

- Is the research problem significant or important enough to warrant the research?

- Is the research problem clearly defined?

- Based on the literature review, has the researcher justified the need for the research?

- Is the research executable, i.e. are appropriate resources available and accessible?

- Has the researcher explicitly stated the presuppositions, assumptions and objectives of the research?

- Has the researcher provided a literature review, focused on the topic, as a basis for the research?

Matters of concern, however, are that none of the ethical criteria feature among the top priority assessment items of departments, and that the importance of obtaining clarity from the student about methodology is underestimated. This calls into question whether the viability of proposals can truly be assessed. Also, CODs are not convinced that the proposed M and D checklist will necessarily contribute to a higher throughput rate of those students.

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The contribution of the research reported here is that a checklist has been proposed which may be used to assess M and D research proposals as a means of managing final admissions to M and D studies.

## RECOMMENDATIONS

Academic departments need to consider the use of the proposed checklist or a variation thereof in order to manage final admissions to M and D studies. Once implemented it could be tested, refined and customised to better meet the needs of each department.

Academic departments need to find ways of improving M and D throughput rates. The proposed checklist is but one of the ways in which the issue may be addressed.

Future research may involve the following:

• The influence of the use of the checklist in terms of improving M and D throughput will have to be tested, once implemented. However, any customisation by individual departments may negatively affect parallel test reliability;

• The extent to which the proposed checklist may reduce uncertainty and improve clarity amongst prospective M and D students also needs to be tested.

The proposed checklist should enable prospective M and D students to plan their research more thoroughly, in order to avoid critical problems. Academic departments should consider the use of the proposed checklist, which could contribute to an increase in the throughput rate of M and D students if it succeeds in reducing the *number* of students, but improves the *quality*.

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**Annexure A**

<div align="right">

**Questionnaire no:** _____

</div>

1. Who is currently responsible for assessing the research proposals of master's and doctoral students in your department? (Select 1 or more)

| | |
|---|---|
| The prospective supervisor | |
| A colloquium | |
| The Departmental Higher Degrees Committee | |
| The Exco of Department | |
| The Chair of Department | |
| Other (please specify) ................................................................ | |

2. What criteria are currently used to assess the research proposals of masters' and doctoral students in your department? (Select 1 or more)

| | |
|---|---|
| Unwritten criteria based on experience | |
| Criteria according to a checklist | |
| Criteria specified in a template which the student has to complete and submit | |
| Other (please specify) ................................................................ | |
| Do not use any specific criteria (Done informally) | |

3. Does your department use different criteria to assess master's proposals compared to doctoral proposals?

| | |
|---|---|
| Yes | |
| No | |

4. Given the existing M and D proposal assessment form, which criteria would your department consider as the top 5 **most important** criteria? (select maximum of 5 items)

| | |
|---|---|
| Item number | |
| Item number | |
| Item number | |
| Item number | |
| Item number | |

5. If you were to use another M and D proposal form, list the top 5 <u>**most**</u> **important** criteria that your department would prefer.

1  ..........................................................................................................

2  ..........................................................................................................

3  ..........................................................................................................

4  ..........................................................................................................

5.  .........................................................................................................

6. Given the existing M and D proposal assessment form, which criteria would your department consider as the top 5 **most important** criteria? (select maximum of 5 items)

| Item number | |
|---|---|
| Item number | |
| Item number | |
| Item number | |
| Item number | |

7. Would you prefer to customise the existing M and D proposal assessment form?

| Yes | |
|---|---|
| No | |

7.1 If yes, how many items (minimum and maximum) would your department prefer to use in the M and D assessment form?

| | Minimum | Maximum |
|---|---|---|
| Master's students | | |
| Doctoral students | | |

8. Which **one** of the following formats would your department prefer? (Mark 1 only)

| Printed hard copy | |
|---|---|
| Web- based questionnaire | |
| MS Word | |
| MS Excel | |
| Other (please specify) | |

9. Do you regard the existing M and D assessment form as valuable in assessing proposals and providing students with feedback?

| Yes | |
|---|---|
| No | |

10. In your opinion, will the existing M and D assessment form contribute to a higher through put rate of master's and doctoral students?

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| Yes | |
|-----|--|
| No | |

11. Would you prefer to use a standardised M and D assessment form for:

| Your department | |
|-----------------|--|
| Your School | |
| CEMS | |
| Not standardised | |

12. Please indicate the number of graduates supervised by yourself and your staff during 2009 and 2010.

| | **Head of Department** | | **Staff** | |
|---|---|---|---|---|
| | 2009 | 2010 | 2009 | 2010 |
| Master's | | | | |
| Doctoral | | | | |

13. Are there any other comments related to the assessment of M and D research proposals that you would like to comment on and are not covered in the interview?

..............................................................................................................................

..............................................................................................................................

..............................................................................................................................

14. Please indicate your current rank:

| Senior lecturer | |
|-----------------|--|
| Associate professor | |
| Professor | |

15. Please specify the number of years' work experience you have as an academic at Unisa.

| | years |
|--|-------|

16. Please specify your gender.

| Male | | Female | |
|------|--|--------|--|

17. Department:

..............................................................................................................................

**- THANK YOU FOR YOUR PARTICIPATION -**

# ODL for sustainable development in India

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## Abstract

Open and distance learning (ODL) is considered a significant medium for sustainable development in the information age of advanced learning. India, which is considered as the case study for this article, is facing the challenges of knowledge and information upgrading. In order to meet the demands of globalisation for sustainable development, in 1985 the Government of India established the Indira Gandhi National Open University (IGNOU) by an Act of Parliament at national level.

The aim of this article is to establish a coalition between ODL and sustainable development for the social, economic, vocational and educational strengthening of communities. The article explores the implementation of ODL methodologies that are utilised to empower the rural masses and functionaries in rural India. The author acknowledges that education and training in a non-formal setting can be significant in providing development at grass-root levels; and that ODL methodologies may have the potential to meet the requirements of education for sustainable development (ESD). The article, holistically, suggests the futuristic model(s) of distance training as a transformed form of capacity building. There is a need for a developmental model of education that provides for quality education, and offers the possibility of sustainable development to learners, job seekers and society as a whole.

## INTRODUCTION

The UN Decade on Education for Sustainable Development (ESD) gives international recognition to the key role that education and communication can play in enabling and enhancing sustainable development efforts, and the processes leading towards these. The recognition that education is a critical agent of transformation in terms of changing lifestyles, attitudes and behaviour, in increasing participation in visioning and realising a sustainable world (Sarabhai 2005, 1–2) needs to be strengthened through the use of open and distance learning (ODL) as an alternative means of education. The reliability of the distance education system and the enormity of distance learning systems are significant motivation(s) for learners to engage in higher education to achieve the objectives of ESD. In the past few decades,

> there has been a surge of institutions which have applied distance education to the provisions of higher education. The mode of teaching/learning in distance education is less formalized, diversified and flexible as compared to campus-based education. The recognition of its potential influence on the present and future educational system has been gaining ground in India due to its easier access, independent learning opportunities, lower costs and relaxation in student entry requirements and ability to cover wide geographical area(s). (Kaur 2010, 1)

ODL has now attained pride of place in the world. The burgeoning population, with millions of eager seekers of knowledge, has made it imperative. Indeed, this mode of learning is today accepted not only as an alternative to formal education, but also as an efficient, cost-effective process, enabling vast student numbers to acquire degrees, diplomas and certificates in several areas of knowledge. For long, distance education (DE) was regarded as the poor cousin of the school and university system, and the products from this stream were considered 'second-class citizens' in the realm of academia and in society at large. The pioneering and excellent efforts by the United Kingdom Open University have largely served to neutralise this concept and to accord a respectable status to ODL. The model of this university in fact became the basis for the establishment and administration of many open universities in different parts of the world, including India (Rajagopalan 2007, 3).

India (the case study) is facing the challenges of knowledge and information upgrading. According to the statistics of World Population 2005, India has a population of over 1 080 million, with a literacy rate (as per the 2001 census) which stands at 65.38 per cent for the country. To meet the demands of globalisation for sustainable development, in 1985 the Government of India established the Indira Gandhi National Open University (IGNOU) by an Act of Parliament at national level. A further 13 state open universities (SOUs), one National Institute of Open Schooling (NIOS) and over 100 institutes/centres of distance education in state universities now offer more than 100 programmes in various fields of specialisation.

The local self-government in India is known as *Panchayati Raj*, and traditional democratic institutions of local self-governance are known as *panchayat*s. These grass-roots-level institutions require progressive education and training opportunities for sustainable development. To this end, ODL methodologies are used to empower the rural masses and functionaries alike. In India,

> a non-formal training intervention to reach out to millions of elected members of Panchayats calls for an innovative approach through the distance mode, which can, at one and the same time, address the different learning styles, varied preferences and lack of study skills of such a clientele. They need education and training at regular intervals. Since their number is large, it is not possible for the conventional system

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of training to reach all of them. Given the nature of their work, they cannot afford the physical dislocation caused by formal modes of training. (Aslam 2010, 45)

The article explores the ODL methodologies with reference to India, emphasising their significance in non-formal settings for sustainable development.

## CONCEPTUAL FRAMEWORK

This section explores the meaning and efficacy of the concepts of DE, open distance education (ODE), and ODL, to arrive at a comprehensive understanding.

DE 'evolved over centuries and its one distinctive characteristic was, and still is, the physical separation between the delivering institution and its students. It is important to note that "distance" in DE refers to more than just the geographical distance between the delivering institution and its students, it also includes time, economic, social, educational, epistemological and communication distances' (Heydenrych and Prinsloo 2010, 6). Open education is based on the distance education system. 'Distance' refers to the mode and 'openness' to the philosophy. DE may or may not be open. On the other hand, open education is possible both through DE institutions and through formal conventional institutions. The 'openness' of any education is measured in terms of its flexibility or lack of restrictions, in terms of the number of seats, as well as attendance, class timing, subject combinations etc. The distance teaching institutions which impart education based on these principles are usually known as open universities (WordPress 2011, 1).

DE is a significant mode of education for those in geographically scattered rural areas, far from urban infrastructure. DE is particularly relevant in a country such as India, where adult and female literacy rates are low, where rural communities are excluded due to a lack of educational resources, and where competitive job markets in urban and metro cities demand qualifications such as degrees.

'Open' or 'distance' are terms used to describe alternatives to traditional taught courses, where the teacher and student interact directly through face-to-face contact (Howarth and Shardlow 2000, 111–123; Reviere 2011, 2). ODE models 'definitely play an important role in education by providing access to education for the traditionally disadvantaged, and less accessible, segments of the world's population. To a large extent, open and distance education modes of delivery and learning/teaching were designed to offer maximum flexibility for the educational needs of the target learners' (Reviere 2011, 2). India has developed ODE systems at both school and tertiary educational levels. In order to

take care of flexible and learner-centric schooling needs of the masses in the year 1979, a project was started by Country's Central Board of Secondary Education

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> (CBSE), which has now taken the shape of National Institute of Open Schooling (NIOS). It has approximately 1.5 million learners on its roll, which made it the largest Open Schooling organisation of the world. NIOS has international presence and provides access to sustainable and learner-centric quality school education (from basic to senior secondary level), skill up-gradation, training through open and distance learning and ensures convergence of open schooling organizations. (Paliwal 2008, 1)

At the tertiary level, IGNOU has been established to provide education to wider segments of society.

ODL 'reflects both the fact that all or most of the teaching is conducted by someone removed in time and space from the learner, and that the mission aims to include greater dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of structure' (Moore et al. 2002, 8). ODL is not the same thing as conventional education – the profile of the distance learner is far different; her/his main objective in taking on higher education through the distance mode may also be much different from that of the 17–23 age group of tertiary college students. In a country such as India, which has a huge backlog of adult illiterates, semi-literates and educated unemployed (all in search of new knowledge and new skills, including professional skills), ODL is a god-send. It is against this background that the government of India has planned to raise enrolment in the ODL system from the current 20–22 per cent to 40 per cent during the Eleventh Development Plan (2007–2012) (Gandhe 2009, 2).

## NATURE AND EXTENT OF EDUCATION IN INDIA

In the 'post-independent era in India, even now one-third of the adult population is illiterate, and only 12% of the school eligible age children complete 10th standard' (Pillai 2008, 2). Due to awareness programmes initiated by government to meet the Millennium Development Goals (MDGs), 'the demand for higher education in the country has grown enormously. The growth of enrolment in conventional universities has been 5% in the 9th Five Year Plan. Moreover, the higher education system caters only to about 9 million learners, which constitute about 7.5% of the eligible group (between 17–23 years)' (IGNOU 2010, 1). Can conventional methods cope with the scale of such an educational challenge? Can we [India] make a foray into educational technology by launching an open and distance learning system? (Pillai 2008, 2). If conventional learning methods were effective, we would not be exerting much energy or investing many resources in trying to bridge the many divides which traditional educational systems are partly responsible for. Age-old methods of learning are not enough. There is a

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clear need for 'business-unusual' approaches – particularly in order to reach the un-reached (Khan 2006, 22).

The world stresses the importance of an agenda, in the quest for

> learning for development. Professor Amartya Sen portrays development as freedom, expressed concretely in the widely accepted programmes for bettering the human conditions that includes the UN's Millennium Development Goals, the Goals of Education for All, the Commonwealth objectives of peace, democracy, equality and good governance and sustainable development. Expanding human learning is essential to the achievement of every element in this agenda and knowledge is the path to freedom. Conventional teaching-learning methods cannot cope up with the scale of educational challenges, particularly in highly populated developing countries. (Pillai 2008, 2)

## ODL INSTITUTIONS IN INDIA

In the wake of the UN MDGs, which emphasise ESD, there is a need and a demand for innovative methodologies and programmes in an ODL system that would meet the quality requirements of the large and diverse communities of India, to ensure their overall development. IGNOU, a pioneer in ODL, is among the prime educational institutions not only in the country, but also on the Indian subcontinent (ranked 17th among the universities of the Indian subcontinent by Webometrics ranking of world universities) (Das, Kumari and Saini 2009, 5). Along with the National Open University, the 13 SOUs offer ODL in many states. IGNOU assists the SOUs as regards academic issues. The Distance Education Council (DIC), a unit of IGNOU, formulates guidelines and frameworks for the SOUs. The DIC is also responsible for 'promoting research and innovation in ODL systems; facilitat[ing] training for indigenous capacity building in ODL systems; and creat[ing] databases for SOUs, distance educators and functionaries with ODL systems' (DEC 2010, 1). The courses offered by DEIs must be certified and approved by the DIC.

In the emerging scenario, ODL is probably the only sustainable system for enhancing seamless access to education in the country. IGNOU has continuously strived to improve the credibility and quality of the system. Opportunities stem from

- an ever-increasing demand for higher education and the upgrading of life-coping skills;

- the need for continuous training of a huge workforce in developing countries with large populations, many projects and plans;

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- enhancing access to education by the employed (with low qualifications), as well as drop-outs and adult learners;

- convergence between the open and conventional university systems (and other educational and training organisations) to enhance sustainable access; and

- focusing on disadvantaged groups and less developed regions (see IGNOU 2010, 1–2).

With the United Nations declaring 2005–2014 the decade of ESD, in March 2007 IGNOU established a university-level chair, cutting across disciplines and schools, to develop and promote ESD in India. The objectives of the Chair for Sustainable Development are:

- Promote ESD and its components (the 5Es: Ecology, Economics, Energy, Equity and Employment);

- Undertake field-based action research programmes in seven major ecosystems with a focus on pro-nature, pro-poor, pro-women and pro-employment, under the theme of sustainable development;

- Create education and training material for sustainable development with reference to the above components based on field projects;

- Capacity building in a new branch of science: sustainability science;

- Organise public education programmes. (see IGNOU 2011, 1–2)

The outcome of this programme is aligned with ESD, as its objectives are to 'build the capacity of policy makers, administrators, scientists and educators as well as general public in the science and art of environmentally, economically and socially sustainable development' (IGNOU 2010, 1). Reviewing the sustainability of these courses is still a matter of further investigation. IGNOU's reviews of product ratings regarding academic programmes can be viewed at http://www.mouthshut.com/product-reviews/IGNOU-925009071.

## ODL IN NON-FORMAL SETTINGS

Non-formal education[1] and community development are two other sectors where ODL is increasingly used. Programmes at a distance often reach substantial numbers of women, in societies where women lack equal opportunities for participation in conventional forms of education and training. ODL approaches lend themselves to the teaching of many of the complex issues of the modern

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world, in which input from a variety of disciplines is required (Moore et al. 2002, 9). The non-formal and adult education programmes, offered through conventional systems in India, typically emphasise the acquisition of basic literacy and numeracy skills. In recent years, however, it has been recognised that these programmes must be integrated with a variety of development objectives that enable learners to apply their skills in the process of lifelong learning (Aslam 2010, 47), thus meeting the requirements of ESD *per se*.

Providing ever-widening access to a growing number of individuals, particularly from disadvantaged groups, and ensuring the relevance of educational/training programmes to the emerging needs and requirements of a fast-changing society, is a colossal challenge in India. Among many of its kind, one such challenge was thrown up in 1993, when a historic amendment was made to the Indian constitution to endow *panchayat*s (grass-roots-level democratic institutions) with the strength and prestige associated with institutions of self-government, so that they could play the desired significant role in determining the direction of development (Aslam 2010, 47; Empowerment of People 1997).

In the 'history of Panchayati Raj in India, on 24 April 1993, the Constitutional (73rd Amendment) Act, 1992 came into force to provide constitutional status to the Panchayati Raj institutions. The Act aims to provide 3-tier system of Panchayati Raj that consists of a) village level panchayat b) block level panchayat c) district level panchayat' (Wikipedia 2010, 1). The popularly elected village council (*gram panchayat*) is the basic unit. Village council chairs, elected by the members of the village council, serve as members of the block council (*panchayat samiti*). A block is a large sub-unit of a district. In some states, blocks are coterminous with *taluqs* or *tehsils*. In other states, *taluqs* or *tehsils* are divided into blocks. The district council (*zilla parishad*) is the top level of the system. Its jurisdiction includes all village and block councils within a district (India-Local Government 2010, 1–2).

According to the constitution of India, 1949, *panchayat*s shall be given powers and authority to function as institutions of self-government, with the key responsibility of preparing and implementing plans for economic development and social justice. The Eleventh Schedule added to the constitution of India by the 73rd Amendment Act, 1992, lists a comprehensive range of development activities to be entrusted to PRIs as part of the decentralisation process:

- Programmes for productive activities – agriculture, irrigation, animal husbandry, fuel and fodder, poultry, fishery, small-scale industries including food processing and cottage industries;

- Land development programmes – land reforms, soil conservation, minor irrigation, water management and watershed development, wasteland development, social forestry and grazing lands;

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- Education and cultural activities – primary schools, adult education, technical education and libraries;

- Social welfare – woman and child development, family welfare, care of people with physical and mental disabilities;

- Provisions of civic amenities – drinking water, rural electrification, non-conventional sources of energy, rural roads, bridges, culverts, waterways, sanitation, rural housing and health;

- Poverty alleviation and allied programmes for social and economic advancement of the weaker sections;

- Maintenance of community assets and public distribution systems; and

- Organisation and control of rural markets and village fairs.

As a result of 73rd amendment and the subsequent elections, over three million people (more than one-third of them women) were elected to various tiers of local self-government. A lack of preparedness on the part of these key personnel, who would be the agents of change, was perceived as a major constraint in engineering the process of social transformation. Keeping in mind its limited capacity, it was not possible for conventional training systems to meet the challenge of training these millions of peoples' representatives. Empowering the elected members of *panchayat*s through appropriate awareness programmes therefore acquired the highest priority in the agenda for social action (Aslam 2010, 47; Empowerment of People 1997).

The Ministry of Rural Development is striving to bring about rapid and sustainable development and socio-economic transformation in rural India, through an integrated approach to improving the quality of life of the rural poor, and by ensuring equity and effective people's participation. The need to revitalise *Panchayati Raj* institutions has, therefore, been recognised as an instrument for participative planning and for the implementation of various development programmes at grass-roots level. The ministry is constantly endeavouring to empower *Panchayati Raj* institutions in terms of their functions, powers and finance (see indiainfo 2000, 1). The ministry, assisted by IGNOU, offers an education and training initiative entitled *Empowerment of People – Programme of Education and Training for Elected Members of Panchayats through Distance Mode: A Panchayati Raj Project.* The project integrates the following four activities (see Aslam 2010, 48–51):

- ODL methodologies in training *Panchayati Raj* functionaries;

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- Pedagogical soundness of the content of training;

- Innovative use of media; and

- Intensive contact-based counseling at grass-roots level.

The project aims

> to conscientise the elected members of the Panchayats about their roles and responsibilities in management of development activities at the grass-roots through education and training. The multi-media package produced under the Project includes 23 booklets of self-learning print material (SLPM), and six video and twelve audio programmes. The print material is being translated in a phased manner into major regional languages. Audio-video packages are also being dubbed into regional languages. The distance education material produced under the Panchayati Raj Project received the Commonwealth of Learning President's Award of Excellence by the Commonwealth of Learning (COL) in March, 1999. It was adjudicated as best material among commonwealth countries. (IGNOU 2010, 1)

The Ministry of Panchayati Raj, Government of India, is moreover implementing a 'National Capability Building Framework for Panchayati Raj Elected Representatives and Functionaries' to educate and train them in local self-governance issues. Full information regarding its components, logistics, course material, course design, evaluation and monitoring outcomes is available at http://www.pri-resources.in/OverView/NCBF_Report_02-01-10.pdf.

The 2nd Administrative Reforms Commission's report on local governance emphasises that 'capacity building is more than mere training and improvement of existing skills. It identifies individual development and organizational development as the two major components of capacity building. Individual development focuses on enhancement of an individual's knowledge, skills and access to information, which enables him/her to improve his/her performance and that of his/her organization' (Administrative Staff College of India 2008, 9), in accordance with the principles of ESD. Evaluation and monitoring processes are vital for the successful outcome of training programmes. Some aspects of the programmes for local functionaries, which could be assessed to determine to what extent the potential of *panchayat*s has been unlocked, are the following (Ministry of Panchayati Raj 2010, 34):

(a) How training has enabled more effective community participation, particularly with reference to the conduct of Gram Sabhas, Ward Sabhas and Social Audit;

(b) How training has affected the functioning of Standing Committees in the Panchayats;

(c) How training has catalysed partnering amongst functionaries, Panchayat elected representatives and people;

(d) Efforts undertaken by Panchayats to practice democratic processes in decision making, both in the Panchayat itself and the Gram Sabha;

(e) How training has facilitated designing and approving participative plans;

(f) Taking numerous decisions involved with the implementation process, particularly compliance with statutory procedures;

(g) Improvement in accountability, in terms of responding;

(h) Addressing public grievances;

(i) Participation by ward members in Gram Panchayat meetings and in decisions; and

(j) Participation of Gram Sabha members in decision making of the Gram Panchayat.

The abovementioned areas, if substantially considered and assessed, are effective in realising the sustainability of training programmes at grass-roots level. The Training Need Assessment (TNA) is furthermore required to provide effective training at PRI levels for sustainable development, as stated in Table 1.

**Table 1:** TNA for capacity building on main local development activities at each PRI level

| District | Block | Village level |
|---|---|---|
| Collection of data and dissemination of information | Implementation of rural development programmes in collaboration with *panchayats*, NGOs and other local-level institutions | Resource planning through preparation of an inventory of human, physical and natural resources and assets available in the village |
| Consolidation of plans of action of blocks within the district | Propagation of improved methods of cultivation | Assessment of their potential for development, cost and technical support needed for exploiting the potential |
| Distribution of funds to blocks or *mandals* | Improvement of livestock and establishment of minor veterinary dispensaries | Preparation of village development plan |
| Examination and approval of their budgets | Expansion and maintenance of medical and health services and elementary education | Active involvement in plan implementation and monitoring |

Source: Jain and Polman 2003, 2.

The TNA is significant in that it enables the Ministry of Rural Development, Ministry of Panchayati Raj and collaborative organisations to prepare relevant education and training courses for PRI functionaries. The education and training programmes can then be offered through knowledge centres, called

> Rural Knowledge Center (RKC), Village Information Center (VIC) or a Community Learning and Information Center (CLIC). It is a new institution in the Indian rural milieu. It is a one-stop center of the village where community members can be assisted with information ranging from how to manage pod borer infestation in their pigeonpea crop to what are the government schemes currently in operation in his/her village. These are increasingly seen as vehicles of capacity-building and educational change in rural India. Home to nearly 65 per cent of the country's population, rural areas have little opportunity for the communities to learn life skills. The incidence of poverty, illiteracy and malnourishment experienced in this part of the country is much higher than its urban counterparts. The information needs of the poor rural communities in agriculture, animal husbandry, health, governance and the like had so far been considered impossible to address owing to the vastness of the nation and remoteness of the areas to be created. Success of many ICT for Development (ICT4D)[2] projects, a wealth of institutional knowledge and a long standing in open and distance education, have created opportunities for the country to provide the right kind of information to the needy at the right time. Technology mediated non-formal distance education with a focus on development and supported by rural knowledge centers is perceived as a new paradigm in distance learning. (Dixit et al. 2010, 1–2)

For a comprehensive overview, a list of papers examining ESD (in India), giving a range of perspectives, can be obtained from http://www.ceeindia.org/esf/papers.asp.

## ODL FOR SUSTAINBLE DEVELOPMENT

From the time sustainable development[3] was first endorsed at the UN General Assembly (UNGA) in 1987, the parallel concept of education to support sustainable development has also been explored (McKeown 2002, 2). Education as the foundation of sustainable development was reaffirmed at the World Summit on Sustainable Development (WSSD). The Plan of Implementation recognised education as critical for sustainable development in its own right, but also saw education as a key agent for change and a tool for addressing such questions as gender equality, rural development, healthcare, HIV/AIDS and consumption patterns. The plan also called for synergy among global initiatives in education, in which literacy, gender issues, and quality education play central roles essential for sustainable development. Finally, the plan recommended that the UNGA consider adopting a Decade of Education for Sustainable Development, starting in 2005 (Centre for Environment Education (CEE) 2005, 1).

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ESD incorporates elements of education, public awareness and training, to clarify and bring about sustainable development. Chapter 36 of Agenda 21, adopted at the 1992 Earth Summit in Rio, identifies four major areas of ESD: 'promotion and improvement of Basic Education; reorienting existing education at all levels to address sustainable development; developing public understanding and awareness of sustainability; and training' (CEE 2005, 3).

For the successful realisation of ESD, effective and relevant teaching–learning strategies need to be initiated, introduced and implemented. The

> emergence of knowledge society powered by revolutionary developments in Information and Communication Technologies (ICTs) and their integrated applications in delivery of education in the 21$^{st}$ century has changed the pace of transformation. Now knowledge, rather than labour and capital, is the basic resource to create wealth. The range of media and tools that have become available for transmission, storage and retrieval of data are amazing in terms of their efficiency, versatility, flexibility, economy and productivity. These have enhanced the reach of the word of mouth to such an extent that now omnipresent (anywhere, anytime) education for all and life-long learning for continuous professional development have become a reality. (Garg 2011, 1)

ICT-led initiatives have enormous implications for ODL systems to meet the challenges of societal change as a result of globalisation and the development of the knowledge economy. The appropriateness of technology for educational purposes depends on two important principles: the economics of sustainability and the adoption of innovative practices (Garg 2011, 3; Moore 2002, 42–51).

In developing countries, where the social structure is divided between the rich and the poor, the existence of a digital divide is evident, as is the case in rural India. In addition, challenges exist at the grass-root level in India as regards to how to

> extend access and improve quality of public services including health, education and good governance; offer faster dissemination of technological research to the grassroots level; provide Information and Communication Technology (ICT) based services to the rural population; and integrate the local market with national and international networks. However, the major issues and concerns in meeting these challenges are: limited capacity building of rural masses; low purchasing power; lack of basic infrastructure; non-availability of local content; and lack of coordination among development agencies. (Majumdar 2005, 5)

To meet these challenges, a number of ODL initiatives have been implemented. The Ministry of Agriculture, in support of the National Institute of Agricultural Extension Management (MANAGE), the Ministry of Human Resource Development, in support of the National Institutes of Technical Teachers' Training and Research (NITTTRs), and the Ministry of Information Technology,

in support of the National Informatics Centre (NIC) are collaborating and working to provide capacity-building support for sustainable development at grass-roots level. In order to bring the rural poor, disadvantaged and vulnerable groups into the educational mainstream through ODL methodologies, the M. S. Swaminathan Research Foundation (MSSRF), a non-profit organisation established in 1988 in Chennai, is 'developing and following a pro-nature, pro-poor, pro-women and pro-sustainable on-farm and non-farm livelihoods through appropriate eco-technology and knowledge empowerment' (MSSRF 2011, 1) with financial support from the International Development Research Center (IDRC) of Canada. After

> receiving successful results from the IVRP pilot experiment, the initiative was further strengthened into the Jamsetji Tata National Virtual Academy in the year 2003 by bringing various International and National partners, with an objective to empower the vulnerable remote rural Indian communities by building the skills and capacities through the Open and Distance Learning (ODL) mode, viewing that this education should reach every home and hut, and gives them a better control on their own development i.e., to make better choices, to take better decisions, and to create better livelihood opportunities. (Dileepkumar and Senthilkumaran 2011, 3)

In order to develop capacity in ODL methodologies,

> all the Village Resource Centres (VRCs) are connected through Indian Space Research Organization's (ISRO) uplink and downlink satellite facility under the ISRO's Village Resource Centre programme (ISRO-VRC). The satellite ISRO-VRCs aim at digital connectivity to remote villages for providing multiple services such as tele-medicine, tele-education, interactive farm and fisheries advisories, government schemes and entitlements, weather services and remote sensing applications through a single window. (MSSRF 2011, 5)

Through these technology-driven methodologies to capacitate teachers, facilitators and learners, ODL has the potential to advance ESD in India.

In order to disseminate ODL methodologies for sustainable development in rural India, a Kisan[4] channel was launched by the Union Ministry of Agriculture, and linked with IGNOU. The channel aims to communicate with farmers through educational programmes in regional languages, guiding them on agriculture, rural life, sustainable development, rural artisans, etc. Furthermore, Kisan call centres, Kisan Satellite Channel and Kisan Terrestrial Channel have been established to enable farmers to contact experts in the field of agriculture. Other initiatives which emphasise the role of non-formal ESD include the Promotion of Primary and Elementary Education (PROPEL); the Centre for Education and Development of Rural Women (CEDRW); the Vigyan Ashram; the Lok Jumbish Project: Education for Girls; the Integrated Abujhmarh Tribal Development Project: Sustainable Development for Ethnic Minorities; and the Agragamee Kishipur

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Project, to name a few. These initiatives offer education, awareness and training on diverse issues relating to health, agriculture, environment, self-employment, economic advancement and sustainable development. Through sustaining the source of revenue and livelihood, and improving economic conditions as well as basic education skills, the objectives of ESD are realised.

Green Teacher is another example of bringing in principles of ESD through ODL. The features of this project include the following (see Jain and Pandya 2006, 6):

- 'Openness' which allows learner-controlled learning;

- The course content: designed to suit heterogeneity among learners;

- Multidisciplinary approach;

- Adaptability and flexibility; and

- Cost and resource effectiveness.

An assessment of the project revealed that 'innovative course design of Green Teacher, based on the principles of ESD and quality education, was developed keeping in view the ODL approach ... [it] illustrates the immense potential that ODL has in meeting the challenges of learning for sustainable development' (Jain and Pandya 2006, 9).

The Centre for Environment Education (CEE) has moreover established Knowledge for Sustainable Development (KSD) units in India to implement ESD and develop knowledge-sharing links. In order to achieve the objectives, the following projects are currently in place:

- Knowledge for Sustainability Forum (KSF), to share information and knowledge regarding the environment and development;

- Distance Learning Programme (DLP), to educate learners in the field of environment and development;

- Kannur Field Activities, to identify the gaps of development in *panchayat*s.

- Goat Village Project, a training programme in goat rearing for economic benefits and the livelihood of communities;

- Dairy Training Programme, initiated at the *panchayat* level for improved livelihoods.

For detailed information on these projects see http://www.ceeindia.org/cee/AR/AR%2008-09-chapter7.pdf.

Examples emphasising the role of *panchayat*s in sustainable development include three: Gendra, Attha and Bari Sirkiri, that

> constitute the mini-watershed (areas varying between 1,000–10,000 ha.) at the headwaters of the Kara river (a tributary of Narmada) in Aliraj pur district of Madhya Pradesh. These panchayats have initiated a voluntary communitarian forest, soil and water conservation initiative. The panchayats adopted the traditional Dhas (voluntary community service) in which, the inhabitants who are predominantly tribal, pool their labour and resources for sustainable development. (Govinda Rao and Raghunandan 2011, 22).

The *Dhas* were empowered and trained in soil and water conservation, to sustain the natural resources in their villages.

The abovementioned projects are examples which show that education and training in a non-formal setting can be significant in providing development at grass-roots level; ODL methodologies may have the potential to meet the requirements of ESD; and *panchayat*s can play a significant role in providing sustainable development for the social, economic, vocational and educational strengthening of communities.

## CONCLUSION: THE WAY FORWARD

Contrary to the above beneficial examples of ODL for ESD, the fact cannot be overlooked that many ODL systems are merely an extension (in the form of digital, electronic or virtual advances) of conventional educational infrastructure. This expansion may not necessarily connect with the un-reached groups of society due to a lack of technological awareness, digital ignorance, educational meagreness or inadequate infrastructure in terms of connectivity. This scenario raises questions that need to be answered. How can ODL assist in achieving the goal of education for all, for sustainable development? How can ODL build capacity amongst deprived populations, to enhance sustainable livelihoods? How can ODL reach geographically remote areas and assist rural communities to be socially and economically sustainable? The answers to these questions lie in the following recommendations:

• 'ODL packages can be delivered through local partners such as NGOs. Such partners can also make a valuable contribution towards content.

• Education for Sustainable Development can make a valuable contribution when integrated into learning for professional development. Moreover, given that professionals can rarely take time out from work to attend classes in a

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face-to-face mode, ODL presents a useful tool for facilitating their life-long learning process and delivering to them information and education that will enable/capacity-build their profession to adopt practices and philosophies of Sustainable Development' (see CEE 2005, 1–2).

- ODL modules must be conceptualised in local/regional languages, for enhanced understanding; they must be able to develop local competences and skills incorporating the local requirements of employment and sustainability; they should incorporate relevant content in the curricula, emphasising the local needs of education and training in alignment with ESD; and methodologies ought to meet the demands of ESD for the continuous and sustainable development of grass-roots communities.

- A continuous training need assessment (TNA) is imperative to upgrade ODL modules for local functionaries. The assessment may serve as a significant means for educating and empowering PRI functionaries as regards delegated responsibilities for sustainable development with advanced forms of learning.

- The annual review of ODL modules and methodologies will be beneficial to identify gaps where improvement is needed. The review may be help in assessing the sustainability, relevance and outcome(s) of ODL modules for sustainable development.

According to Oakley (1991, in Food and Agriculture Organisation of the United Nations [FAO] 2010, 1–2), 'it is generally accepted that strategies and programmes to alleviate poverty and promote economic development cannot succeed unless the poor themselves are able to participate directly in the development process'. Yet there can be no participation without information, and education is the basis for informed and effective local participation. The links between local participation and education are clear and direct. However, the majority of the rural poor have little access to, or opportunity for, formal education. In many areas, extension training and other non-formal education programmes are the only opportunities for education available to rural households. Non-formal educational and training approaches are generally external to the formal educational system (such as primary and secondary schools and universities), and generally do not use conventional pedagogical or didactic methods. Non-formal methods emphasise direct reaming experiences, individual and participatory problem-solving, group dialogue and conscientisation, self-guided education programmes (such as distance teaching), and other non-standard approaches. Non-formal approaches to education are most effective in reaching adults and non-traditional learners. However, many extensionists have been trained in traditional formal pedagogy. For this reason,

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retraining in non-formal adult education methods is recommended, to better serve the educational needs of rural households and of non-traditional learners. Many participatory methods and non-formal educational approaches build on the body of indigenous knowledge and existing social groupings, thereby strengthening local capacities. The role of the trainer in these methods is to facilitate the learning process, rather than to simply instruct. As such, trainers must reorient their personal teaching methods, style, materials, and even their role – from 'teacher' to 'facilitator'. Trainers themselves must learn the conscientisation process, along with new participatory techniques that provide farmers with direct, immediate problem-solving, learning and capacity-building experiences (compiled from FAO 2010, 61–62).

Awareness is growing that in order to achieve sustainable development there need to be policy changes in systems of work, and in the technologies in use, amongst others. What is also receiving recognition is that, for this to happen, there is a need to use education and communication to raise awareness, to build capacity in communities to envision and participate in bringing about change, and to equip societies with the kinds of expertise required to make the change (CEE 2005, 1). There is a paradigm shift towards sustainable development, i.e. education is now a process that is '*life long and continuous* rather than *confined to a specified period.* Institutions have started a variety of in-service courses. Increasingly, adult education programmes are available. Non-formal opportunities and opportunities for community education have increased manifold [...] Distance education is emerging as a major alternative way for learning' (Sarabhai 2005, 1–2). Therefore, the recommendations regarding the use of ODL methodologies for expanding multi-disciplinary approaches to teaching–learning, empowering people, building capacity, linking with extension education for the enhancement of skills, and exploring technology for easily accessible education and multi-sourced training [aligned with ESD] are considered part of the new '*developmental model of education* that will not only provide quality education for all, but also strive towards the economic, social, cultural, environmental and ethical development of the learner and the society' (Takwale et al. 2010, 5).

The UN proclaimed 2005–2014 the World Decade of Education for Sustainable Development. Sustainability is the key goal of the 21st century. It means that future generations should have the same chance of leading a fulfilled life as earlier generations did. At the same time, the opportunity to live a quality life must be more fairly distributed around the world. Sustainable development combines economic progress with social justice and the conservation of the natural environment. Ensuring sustainability is as pressing a task as it is a great and noble one. It cannot merely be decreed from the top hierarchy; it must be

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learnt. In this context, ESD instils the competencies required for building our lives in a manner which is fit for the future (Pillay 2008, 3–4). Whether 'or not expanded educational opportunities will translate into meaningful development – for an individual or for society – depends ultimately on whether people actually learn as a result of these opportunities, i.e., whether they incorporate useful knowledge, reasoning ability, skills and values [...]' (Aslam 2010, 55; World Education Report 2000) in their struggle for development, individual as well as societal (Aslam 2010, 55).

## NOTES

1.  Since the time of the Greeks, there have been two fundamentally different approaches to pedagogy: one is based on telling people what they should know; the other (the Socratic approach) assumes that people have a fair amount of knowledge that can be made explicit and effective through a process of questioning. The two approaches manifest respectively as traditional educational pedagogy and as 'progressive education'. The latter is oriented toward the process of learning, and in recent years has gained favour as the best way of teaching adults (Seltzer, in FAO 2010, 1). Several philosophers and education theorists, notably Mahatma Gandhi, A. T. Mosher and Mohammed Anisur Rahman, developed effective non-formal approaches to training and social reform that have been widely tested and adopted in developing countries (FAO 2010, 2). In many instances, non-formal training has become, explicitly or implicitly, a vehicle for making the poor and powerless aware of their condition, and it is often aimed at empowering the poor and oppressed. The political aspect of non-formal education combines with the Socratic-progressive pedagogic approach to make non-formal education strongly concerned with the process of education (Seltzer, in FAO 2010, 1–2).

2.  The relationship between ODL and sustainable development through empowering marginalised segments of society, is demonstrated in the government of India's initiative 'Every village a knowledge centre'. *Grameen Gyaan Abhiyan* is a rural knowledge movement which works to ICT-enable 637 000 villages in India. It has formed multi-stakeholder partnerships with the different ICT4D models present in the country, with the intention of creating a knowledge revolution in rural areas (adapted from Mission2007 2010, 1).

3.  Some of the major global initiatives on sustainable development include Environment and Development (Rio de Janeiro 1992), the UN Global Conference on the Sustainable Development of Small-Island Developing States (Barbados 1993), the International Conference on Population and Development (Cairo 1994), the World Summit for Social Development (Copenhagen 1995), the Fourth World Conference on Women (Beijing 1996), the Second UN Conference on Human Settlements (Istanbul 1996) and the World Food Summit (Rome 1996) (McKeown 2002, 3).

4.  A farmer.

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# The performance and success of postgraduate business students

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## Abstract

The factors that contribute to postgraduate business student performance and success within an open and distance learning (ODL) environment were investigated. An exploratory research approach was followed in three stages: a structured questionnaire, semi-structured qualitative interviews and a secondary document analysis of the student records. The contributing factors were identified to inform future teaching practices in ODL that may lead to an improvement in student performance, course pass rates and ultimately the throughput rate of qualifications. The contributing factors in this context pertain to formative assessment, student enjoyment of the course, lecturer involvement and attendance of course workshops. Students highly value proactive contact from lecturers in the form of text messages and email communications. Recommendations include a reconsideration of the assessment practices – in particular, the weighting of the contribution of assignments towards the final mark. Offering regular face-to-face sessions with the students – albeit with lecturers or appointed tutors – is recommended. The influence of regular lecturer contact and face-to-face workshops is particularly interesting, considering that the research was conducted at an ODL institution. Additional questions on student learning styles arise regarding the students' fit with ODL, course design and teaching practices in ODL. This could lead to further research in the South African higher education environment.

## INTRODUCTION

Student success is a strategic priority for institutions of higher education in South Africa. The production of university graduates – and especially postgraduate students – is an essential component of the national system of innovation of modern industrialised societies (Council on Higher Education 2009, 1–24). Not

only does student success contribute to the institutional reputation, but according to the current higher education funding formula, government funding is also increasingly being linked to institutional throughput rates (Pityana 2009b). Combined with the government funding formula, the challenges of the schooling system, increasing competition, rising costs, ageing facilities and a general scarcity of academic staff, the importance of student success cannot be ignored any longer. Indeed, interventions from both academics and the institution itself are necessary to determine how student performance can be enhanced, to improve student throughput.

The University of South Africa (Unisa) is the oldest university in South Africa and the only dedicated open and distance learning (ODL) institution in the country. The largest provider of ODL on the African continent, it enrols just over one third of all students in South Africa (Pityana 2009a). Like all South African higher education institutions, Unisa is plagued by high dropout rates and low success rates. A case in point is the fourth-level postgraduate Strategic Management course, which formed the basis for this research project.

In an attempt to contribute to the discussions on student performance and success as contributing factors to student retention, this article reports on the findings of an exploratory research project to identify the drivers of student performance in a postgraduate business course. Furthermore, the research project also involved an analysis of student data to identify the factors that differentiate between successful and unsuccessful students. An underlying assumption that guided this research was that student performance and success in a compulsory course within a qualification (BCom Honours) contributes to the overall throughput rate of the qualification.

A thematic search within this journal on student cancellation and performance from 1979–2006 indicated that reporting on these concepts is not new. However, the most recent submission related to this theme was published in 2008. This latter submission considered students' tensions and attitudes towards formative assessment in ODL. Steyn (2001, 30–48) evaluated the learning materials and assessment system of a postgraduate module at Unisa. However, the current article introduces a new context of student performance, which led us to broaden our literature search; several studies on student performance and retention were identified. These studies focused mostly on on-campus undergraduate students (Kember 1990, 11–24; Tinto 1987; Woodley, De Lange and Tanewski 2001, 113–31; Yorke 1999), mature distance education students (Gibson and Graff 1992, 39–51) (see also Kember 1989, 278–301 and 1990, 11–24; Smith 2004, 28–38; Truluck 2007; Woodley, De Lange and Tanewski 2001, 113–31) and online learning experiences (Kidney and Puckett 2003, 203–212; Roffe 2002,

40–50). Even fewer studies focused on retention in postgraduate distance education students (Carroll, Ng and Birch 2009, 197–209; Geri, Mendelson and Gefen 2007; Koen 2007). Notwithstanding the potential contribution of knowledge about the drivers of student performance, relatively little research has been conducted in this particular context, namely postgraduate ODL-based business studies in a developing country.

We claim that if the drivers of student performance in a postgraduate business course are known, student performance can be driven more purposefully. Furthermore, knowledge of the differentiating factors between successful and unsuccessful students can lead to an identification of focus areas for potential development within institutions and courses. Ultimately, not only would this knowledge contribute to our knowledge of ODL practices, but it can lead to an improvement in throughput, a reduction in student dropout and an enhancement of institutional reputation and funding. The institution benefits and the student ultimately reaps the rewards for his/her efforts.

The research possibilities for academics and practitioners are wide-ranging in a higher education environment characterised by high dropout rates and low success rates. Faced with a plethora of research topics, we asked: What are the contributing factors in the performance and success of postgraduate business students in open and distance learning?

Within the framework of student performance and success at an ODL institution in a developing country, our research adds to the conversation on what contributes to student success and performance.

## POSTGRADUATE STUDENT SUCCESS

In 2005, a total of 54 494 students enrolled for the first time for a postgraduate qualification at South African universities. Between 2000 and 2005, the average growth rate for honours first enrolments was 9.1 per cent (Council on Higher Education 2009, 1–24). The growth in enrolments is in response to the high demand for postgraduate skills in a globalised world. Although a steady growth in honours enrolment numbers can be seen across South African institutions, the rate of completion is low.

Unisa's postgraduate completion rate portrays an even grimmer picture. Strategic Management is a compulsory course in the BCom Honours Business Management qualification. This implies that a high failure rate in this course directly contributes to a low success rate regarding the qualification and a low throughput rate. Only 33 per cent of students who originally registered for the strategic management course passed. Not only is the success rate a cause for

concern, so is the dropout rate: almost 36 per cent of students dropped out in 2009, were not admitted, or chose not to sit for the examination. At the institutional level, for the 2001–2007 cohort it was found that between 36 and 51 per cent of students entering Unisa for the first time drop out by their second year of study. By the third year of study, the dropout rates increase to between 49 and 61 per cent. In subsequent years, the dropout rates reach up to 69 per cent (Subotzky and Prinsloo 2011, 1–26).

Knowing that student performance and success are not novel issues in education, a review of the existing research ensued.

## Performance and success of postgraduate students

The performance and success of postgraduate business students were used as the constructs for the literature review. Within the Unisa context, no previous research project involving a group of postgraduate business students could be found. In broadening the search criteria, a similar study was found that focused on the retention and progression of postgraduate business students at the University of Southern Queensland. Carrol et al. (2009) found that inadequate student support – particularly the lack of proactive contact – impacts negatively on the retention and progression of students. These authors found that satisfaction and retention were not linked in the Carrol study. Even when dissatisfied, some students persisted because they think their study too important to drop out – perhaps because they had clear career-related goals (Gaskell 2009, 193–196).

In the same year, at the Zimbabwe Open University, Chabaya et al. (2009) attempted to uncover the issues affecting the progression of postgraduate students. Although these were not business students, the nature of postgraduate studies at their institution nevertheless remains relevant to our study. Some of their findings indicate that delays in the receipt of the research guide, the unavailability of supervisors, and student non-attendance at timetabled contact sessions were the most pertinent factors affecting student progress. In a Canadian study by Fillion et al. (2009, 223–240) the key role of lecturers was confirmed. Elements most appreciated by students were found to be the lecturer, and course usefulness for everyday life and career purposes.

Again, on a local level within South African higher education, Koen (2007) attempted to explain the retention and dropout of a large group of Master's students over a six-year period. Again, the nature of postgraduate study makes these findings relevant to our research project. Koen's study dealt with factors that promote retention (and, by implication, performance) and with factors that promote dropout. Because, according to Koen (2007), retention in South Africa cannot be divorced from economic and household factors, student selection,

student ability and adaptation challenges, he also examined the impact of those structural factors on student decisions. Koen's study combined aspects of Tinto's (1975, 1988) main variables with a range of context-specific factors such as finances, part-time study, constraining social roles, academic progress, faculty type and degree programme, and household-level circumstances.

## The relationship between student performance, success, satisfaction and retention

An underlying premise in education is that if students perform and are successful in their studies, then the likelihood of them completing their qualifications is higher. In an attempt to confirm this premise, a definition of student success may be useful. Within the ODL environment, and Unisa specifically, Subotzky and Prinsloo (2010) state that student success includes course success, retention, graduation, graduateness and satisfaction. According to these authors, the broad term 'student success' is used to denote all these different dimensions of success. This statement indicates a relationship between performance, success, satisfaction and retention.

In an earlier study, however, Bean and Bradley (1986, 393–412) could not find a conclusive answer to the question whether increased satisfaction leads to improved performance, or vice versa. More than two decades later, the Noel-Levitz organisation (in Wickersham and McGee 2008, 73–83) reported that in higher education satisfied students are more likely to achieve academic success than dissatisfied students. The key to measuring satisfaction lies in determining what is important to the student. Satisfaction is a multivariate condition with a variety of measures, such as programme design, instructional design, instructor behaviour, social conditions and student characteristics (Davis and Venter 2010, 5).

This echoes the views of Benbunan-Fich, Hiltz and Harasim (2004, 19–37), who found that student satisfaction is affected by all aspects of the educational experience, such as satisfaction with course rigour and fairness, with lecturer and peer interaction, and with support systems. Endres et al. (2009, 304–312) found that student satisfaction comprised five distinct factors, namely satisfaction with faculty practices, course materials, learning practices, student-to-student interaction and online tools. Drouin (2008, 267–284) noted that when students were able to interact with their classmates and instructor they felt part of a community, which contributed to student satisfaction and led to student retention.

Building on the view portrayed by Subotzky and Prinsloo (2010), student retention is regarded as inherent to student success. As such, a brief discussion on student retention and dropout is included. It is deemed necessary to describe the views of Vincent Tinto (1975) and David Kember (1989; 1990). Tinto is considered the

main retention theorist. Kember used Tinto's work to develop a model applicable to distance education institutions. Within the South African higher education system, Koen (2007) devised a model that considered postgraduate student dropout at a South African residential university. Lastly, a model devised to address the unique particularities of Unisa will be briefly discussed.

## Student dropout

Tinto's work is rooted in Durkheim's theory of suicide. He applied Durkheim's theory by viewing the college as a social system with its own value and social structures. He then considered dropout from that system as analogous to suicide. Tinto assumed that insufficient interactions with others in the college and insufficient congruency with the prevailing value patterns resemble the conditions resulting in suicide in the wider society. The basic message of Tinto's theories is that an institution that invests in student welfare will be rewarded with good throughput (Koen 2007). In essence, the core of Tinto's (1975) theory is based on two related propositions: the greater the level of academic integration, the stronger the desire to succeed; the greater the level of social integration, the stronger the commitment to stay at the institution.

Although Tinto's work on retention is widely accepted and still useful almost four decades later, it was subject to some criticism. One such criticism is that it did not account for the influence of sub-cultural environments on student behaviour in an institution (Tierney 1992). Another is that it did not consider experiences in distance education, or the case of part-time students (Tierney 1992). This is where Kember's (1989) model made a contribution.

Kember contended that existing models of dropout were not directly applicable to distance education because of the characteristics of that form of education. Kember's model of dropout from distance education includes components of background characteristics, motivation, academic environment, and the social, work and family environment. Kember made recommendations about the ways in which distance education courses might be formatted to reduce student dropout. Academic, social and work integration leads to a decision process weighing costs and benefits, which ultimately leads to a decision to drop out or complete the course. Course completion indicates student success.

In the South African higher education environment, Koen (2007) conducted research to explain the retention and dropout of a large group of Master's students over a six-year period. His study combined aspects of Tinto's main variables with a range of context-specific factors such as finances, part-time study, constraining social roles, academic progress, faculty type and degree programme, and household-level circumstances.

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As part of the objectives of the Unisa Throughput Forum, a modelling task team was appointed in 2010 to develop a framework and strategy for enhancing student success, retention, graduation and satisfaction. Given the dynamic and complex nature of success and retention, and the particularities of the local ODL context, a unique model was developed that incorporated the existing literature (Subotzky and Prinsloo 2010, 1–24).

The conceptual model consists of six key constructs, namely situated agents, capital, habitus, the student walk, domains and modalities of transformation and a broad definition of success.

For the purpose of this article, we will only discuss the student walk construct as it links directly with the scope of our research. The student walk denotes the numerous ongoing interactions between the student and the institution throughout each step of the student's journey through higher education. It involves mutual transformation on the basis of engagement and knowledge. According to Subotzky and Prinsloo (2010), the interactions between student and institution will shape the way the other engages in the interaction. The more effectively one engages with the other, the more effective the interaction will be. In support of the views of Tinto (1987), Kember (1990) and Koen (2007), the conceptual model acknowledges that students are also influenced by non-academic factors (such as personal life circumstances), which also influence success. Most importantly, the model explains success in terms of the required mutual transformation of student and institutional attributes, which rests on the depth and accuracy of relevant mutual knowledge.

The final construct pertains to the broad definition of success. According to the modelling task team, success entails course success; graduation and time-to-completion within the expected minimum time; a positive student experience and high levels of satisfaction throughout all steps of the student walk; a successful fit between students' graduate attributes and the requirements of the workplace, civil society and democratic, participative citizenship; and course success. Course success not only implies graduation, but also includes cases where students pursue the intrinsic reward of study, or where they complete qualifications at other institutions.

## RESEARCH DESIGN

While increasing student performance and success are both critical elements for improving throughput, our focus was on developing an understanding of what drives student performance and ultimately successful course completion in the course being studied. Our research design was exploratory in nature, within the interpretive paradigm. The research process comprised three stages, namely a

structured questionnaire, semi-structured qualitative interviews and secondary document analysis of student records.

The questionnaire was constructed using the major elements of student performance, success and satisfaction literature, and was influenced by the specific course components and interaction with students. The questionnaire comprised five sections. Based on the work of Tinto, Kember, Koen and Subotzky and Prinsloo, the first and fourth sections covered some elements of the study environment at home, along with work and individual characteristics. To accommodate social integration, Section two addressed the communication channels used and the value students derive from these. Academic integration was considered in Section three, where the value of the various course components, the overall assessment of the course and the level of performance in the course assignments were considered. Section four recorded the demographical details. Finally, Section five asked respondents why they chose Unisa (and ODL) and what they would do differently if they were to repeat this specific course.

To compensate for the nature of exploratory research, we also provided for semi-structured interviews to clarify findings from the questionnaire. These interviews were informally structured to receive feedback on the students' experience of studying at Unisa. It also enquired about their experience in ODL, their enjoyment of the course, communication with lecturers, interaction with other students, learning difficulties, suggestions to the course team for future offerings and personal reflection on their overall experience.

Lastly, in an attempt to identify the variables that differentiate between successful and unsuccessful students, we analysed student records. The dataset contained demographic data, historical data (for example, the institution where the student obtained his/her first degree) and performance data (for example, average assignment marks and final course mark).

## Selection and analysis

The questionnaire was administered at the October 2009 Honours study workshops at Unisa in Pretoria, which were attended by approximately 600 of the 946 registered students. Of these, 207 usable responses were received. In determining drivers of performance stepwise estimation was used, which is an application of multiple regression analysis to identify the fewest possible independent variables, while achieving the maximum predictive accuracy (Hair et al. 2006, 249–250). The standardised beta-coefficient is used to compare the contribution to the explanation of the variance of the dependent variable within the regression model, thus making regression coefficients more directly comparable (Norušis 1993).

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For the purposes of this analysis, respondents were divided into the following four categories:

- Below average performers (<45% average) – 48 respondents fell into this category;

- Average performers (45–55% average) – 73 respondents fell into this category;

- Above average performers (56–65% average) – 49 respondents fell into this category; and

- Top performers (>65% average) – 37 respondents fell into this category.

In some reports we used only two categories: low performers (comprising below average and average performers) and high performers (comprising above average and top performers). Top two box percentages (options 4 and 5 on a scale of 1 to 5) and means were used as a measure of comparison.

To consider the potential bias introduced by administering the questionnaire at a face-to-face session, we compared the overall student profile with the profile of the 207 respondents:

- The sample is biased toward females: 63 per cent, compared to 54 per cent for the overall course;

- Black African students are somewhat over-represented: 58 per cent, compared to the 43 per cent registered for the course overall;

- Gauteng-based students were strongly represented: 81 per cent, compared to the 52 per cent they make up of the total student base for the course;

- Students with full-time employment were more strongly represented (81%) than their proportion of the overall student profile (approximately 70%) would suggest.

While the purpose of the qualitative sample was not to achieve representation, it was important to interview a relatively diverse group of students in terms of race, performance and geographical location. The profile of the qualitative interviews is as follows:

- Three black, two white and one Indian student;

- One below average performer, two average performers, two above average performers and one top performer;

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- Two respondents who had dropped out of the same course in a previous academic year;

- Five respondents from Gauteng, one respondent residing outside South Africa.

The student records of the 946 registered students were analysed. Incomplete student records and administrative cancellations (for example, due to non-payment) were removed and 915 usable records remained. Analysis of the student records revealed the following:

- 86 per cent of students of the course obtained their first degrees from Unisa and 13 per cent from other South African residential universities;

- 94 per cent of students chose English as their language of study, with the remaining 6 per cent choosing to study in Afrikaans;

- Most students were African (46.8%), with white students (27.5%), Indian students (20.8%) and coloured students (4.9%) also represented;

- Female students represented a slight majority of 54 per cent;

- By far the majority of students were South African (92.5%), with other African countries contributing 6.7 per cent of students;

- Students tend to be in the 20–29 years age group (50.7%) or in the 30–39 years category (30.4%);

- 18.6 per cent study full-time, while 43.1 per cent work full time;

- The majority are based in Gauteng (51.9%) or in KwaZulu-Natal (20.5%);

- Only 37 per cent of students submitted all three their assignments during the 2009 academic year.

The final course results were also analysed. Figure 1 is a summary of the findings of the course results.

This illustrates the challenge of student performance and success faced by the university even at postgraduate level, with only about one third of registered students successfully completing the course.

For the logistical regression analysis, we used the forward stepwise method. The predictive power of the model is 85.8 per cent – i.e., the model is able to predict the position of a case in the classification table correctly 85.8 per cent of the time.

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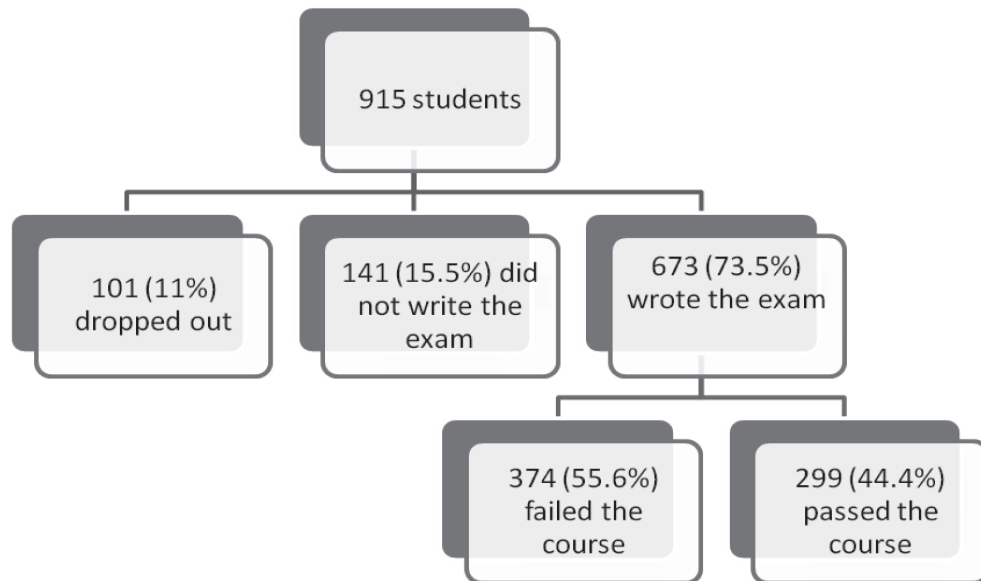
**Figure 1:** Strategic Management course results 2009

The variables in the regression model are indicated in Table 1. This suggests that the submission of assignments is by far the strongest predictor of success, followed by race, language, age and the university where the first degree was obtained (South African versus foreign institutions). These outcomes are discussed in more detail below.

**Table 1:** Variables in the equation

|  | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| Foreign university | -1.614 | .736 | 4.811 | 1 | .028 | .199 |
| Language | -.619 | .241 | 6.609 | 1 | .010 | .538 |
| Race | .563 | .205 | 7.511 | 1 | .006 | 1.756 |
| Age | -.667 | .120 | 31.024 | 1 | .000 | .513 |
| Assignment submission | 1.623 | .113 | 204.681 | 1 | .000 | 5.068 |

The frequencies for the differentiating variables are indicated in Table 2. We report only on selected variables, namely race, assignment submission and workshop attendance. Although the remaining variables also provide interesting results, an analysis thereof is beyond the scope of this article.

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**Table 2:** Summary of differentiating variables

| Characteristics | Categories | % passed | Pearson's chi-square coefficient* |
|---|---|---|---|
| **Study language** | English | 32.3 | 0.028 |
| | Afrikaans | 38.6 | |
| **Race** | Black | 25.2 | 0.000 |
| | White | 40.1 | |
| | Indian | 38.9 | |
| | Coloured | 35.6 | |
| **Age group** | 20--29 | 36.4 | 0.029 |
| | 30--39 | 30.2 | |
| | 40--49 | 21.6 | |
| | 50+ | 15.8 | |
| **Number of assignments submitted** | No assignments submitted | 0 | 0.000 |
| | One assignment | 14.6 | |
| | Two assignments | 31.4 | |
| | Three assignments | 56.3 | |

* A Pearson coefficient of less than 0.05 indicates a difference in proportions at the 95 per cent level of confidence, or higher.

From Tables 1 and 2 it is noteworthy that the more assignments the student submitted, the higher his/her chances of passing the course. Although assignments contribute only ten per cent of the final mark, getting involved in the study process early on and staying involved have a beneficial effect on the final outcome. In addition, most South African students study in their second or third language, English. Afrikaans is the only other option offered at Unisa for Afrikaans first-language speakers. Age also plays a role, as is evident from the declining proportion of students in the higher age group, who pass.

We did not speculate on the possible reasons for the impact of these variables on course results. However, an analysis of these variables may warrant a follow-up research project.

## RESEARCH FINDINGS

In adhering to our research question, we report only on the findings pertaining to the constructs that formed the foundation for this research project, namely

performance and success. Our aim was to identify the drivers of performance and the following section reports on our findings.

## Drivers of student performance

In determining the primary drivers of student performance, the stepwise regression model that yielded the best results had an adjusted R-squared of 0.862 and was highly significant (p value of 0.000). The results of the regression model are depicted in Figure 2.
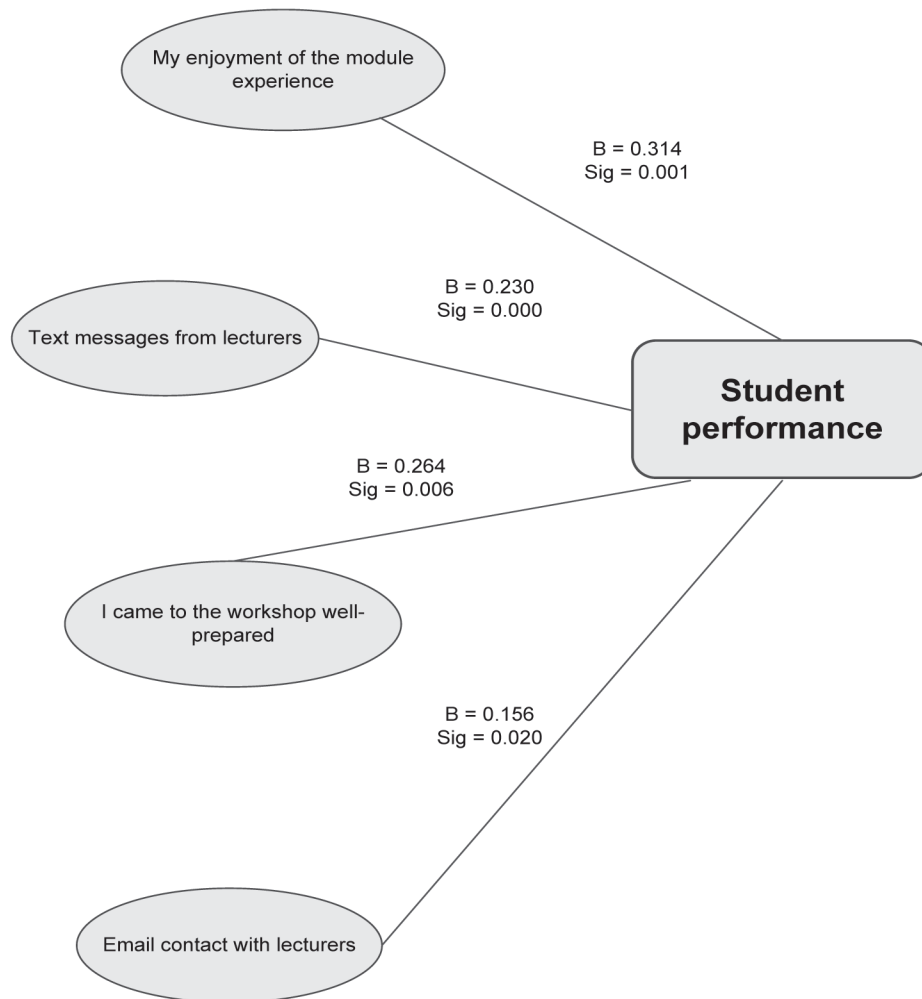


**Figure 2:** Stepwise regression results for student performance

The beta-coefficients suggest that student enjoyment of the course has the largest impact on student performance. '*I can really identify with a lot that [Strategic*

*Management] has to offer. And I can apply it and I do understand it better'* [Interview 3]. Further stepwise estimation analysis of the relationship between student enjoyment and other questions suggests that student enjoyment is most strongly impacted by the overall course design (see Table 3), followed by the students' confidence in their own ability.

**Table 3:** Drivers of student enjoyment of the Strategic Management course

| | Standardised beta-coefficient | Significance |
|---|---|---|
| Overall design of the Strategic Management offering | 0.423 | 0.000 |
| My own confidence in my ability to complete this course successfully | 0.271 | 0.000 |
| I learnt something valuable about strategic management from the DVD | 0.117 | 0.012 |
| The extent to which the Strategic Management course content is applicable to my work | 0.097 | 0.025 |
| Doing the assignments | 0.094 | 0.034 |

The next biggest impact is the extent to which students arrive for study schools or workshops well prepared. This suggests a certain level of diligence and proactive behaviour: '*You have to read every day, I can even show you my study guide for Strategic Management – for this year it is completely dirty now because they taught me that every day I must at least learn something from my book*' [Interview 1]. This behaviour is most strongly associated with the academic integration of students (Kember 1990; Tinto 1988).

Text messages from lecturers and email contact with lecturers also have a significant impact on student performance. Both relate to the social integration of students, as described by Tinto (1988, 438–455) and Kember (1990). It is interesting that personal interaction with lecturers seems far more important than social integration with other students. In addition, active and positive lecturers seemed to elicit a positive response from students: '*Because of my location, I only communicate through email and myUnisa discussion board. Only the lecturers of strategic management are actively participating in discussions. This I really appreciated and a huge thank you to the team. I cannot say the same about the other two courses that I am registered for. There is NO participation by lecturers. This is frustrating because even if you do send an email the chances are that a "standard reply email" is sent back to you, or, they do not reply at all*' [Interview 5].

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## The value of course components

In evaluating the course components, we asked the students about the value of the main components. The course components evaluated include the study guide, the tutorial letters with the assignment model answers, the workshops, the assignment guidance provided by the lecturers and the process of doing the assignments. The top five course components rated by top two boxes ('valuable' and 'very valuable') are depicted in Figure 3. The value of the primary course components, namely face-to-face contact with lecturers and formative assessment in the form of assignments, are emphasised here. This is confirmation of the value of formative assessment, as perceived by the students.
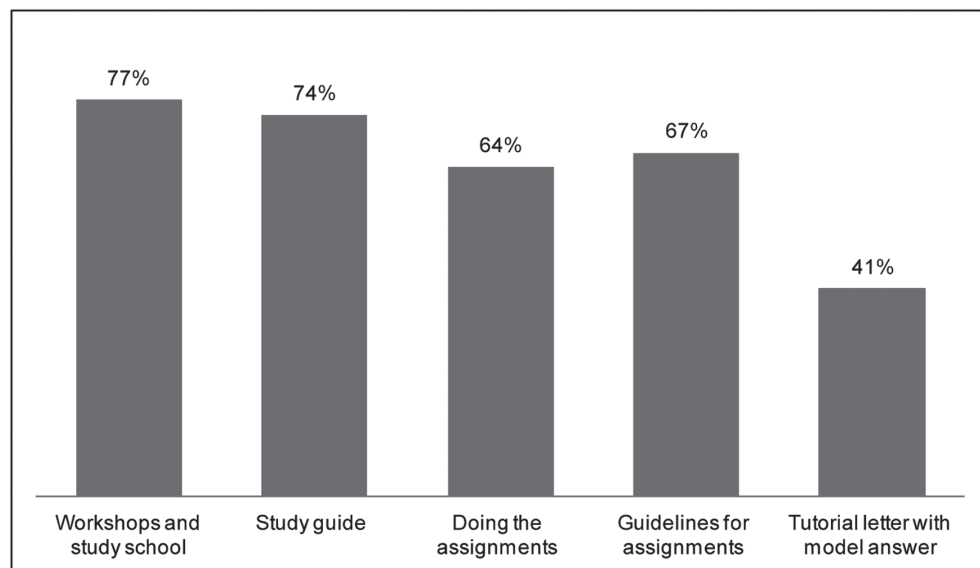


**Figure 3:** The top five course components

While there appears to be a great deal of agreement between students as regards the most valuable course components, top performers appear to value assessment activities somewhat more than other groups. For example, 78.4 per cent of the students who regard doing assignments as 'very valuable' are top performers, compared to the 64.3 per cent of all respondents who regard it as 'very valuable'. Similarly, 78.4 per cent of the respondents who found the assignment guidelines provided by lecturers 'very valuable' were top performers compared to the 67.1 per cent of the total respondents who regard the guidelines as 'very valuable.' In addition, top performers are more inclined to arrive better prepared for study schools and workshops (top two box score of 70.3% compared to 56.6% for the total).

It is also interesting to note that of those students who attended the workshop, 76.6 per cent passed the course.

As mentioned earlier, the more assignments the student submitted, the higher his/her chances of passing the course. It is also encouraging to note that, apart from the empirical evidence, students themselves rated the doing of assignments as valuable. Of the students who submitted all three assignments, 96 per cent passed the course. One of the suggestions on how the course may be improved, was: '*In my view we can have maybe four or five assignments a year*' [Interview 1].

## CONCLUSION

This research project originated from our interest in the factors that contribute to student performance and success. We were especially motivated by an attempt to improve the pass rate of the Strategic Management course, which will ultimately lead to an improvement in the throughput rate of the B.Com. Honours in Business Management qualification. As academics, we have a natural curiosity regarding our profession, our practices and our students. This article reported on the findings of an exploratory research project that identified the drivers of student performance in a postgraduate business course. The research project also reported on the findings of a secondary document analysis of student records, which identified factors that differentiate between successful and unsuccessful students.

Based on the findings of our research project, we identified the contributing factors to postgraduate business student success within an ODL environment. Student performance is driven by personal enjoyment of the course and own preparations for the workshops. Contact with the lecturers has been confirmed as an important driver. Lecturer–student contact strategies, such as regular text messages from lecturers and email contact with lecturers, were noted as important. This is due to the inherent nature of ODL; distance and isolation are thus important to overcome. This confirms the importance of academic and social integration in distance education. Coupled with this is the students' perceived sense of community. Effective interaction between students and lecturers is a driving force for student performance. Furthermore, our findings confirm that positive students experience a high level of satisfaction, expressed through their enjoyment of the course. Enjoyment is another driving force of performance.

Students indicated the high value of the learning experience from doing assignments. This is an important finding, as we also proved that students who submit all their assignments as part of the formative assessment, significantly improve their chances of course success.

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We also identified the differentiating factors between successful and unsuccessful students. Here we again confirmed that students who submit their assignments and attend the workshops significantly improve their chances of course success. Overall, white students still perform better than black students. Black students, older students and students not studying in their first language need more support. What this support entails offers a possible future research topic.

The value of our research to fellow lecturers at Unisa is that it identified the 'at risk' groups, at postgraduate business management level, as black students, older students with lower matric pass rates, and students who do not submit all their assignments. The identified risk factors are now poised for further action, albeit in terms of requiring additional resources to deal with them or a redesign of the course offering to counter the risks. More should be done to encourage assignment submission. This may be achieved by making all assignments compulsory and restructuring so that assignments contribute a greater percentage to the final mark, which could serve to increase the rate of submission of assignments. This implies that at an institutional level, the tuition policy may now provide for a higher final mark contribution of formative assessment. In addition, face-to-face sessions are encouraged – such as tutor sessions or workshops presented by course lecturers. This confirms the importance of a blended learning approach within ODL. Within other ODL institutions – especially those operating in developing countries such as India, Spain and Mexico – an analysis of the heterogeneity of the students may prove useful in identifying risks, and informing future tuition and assessment practices. Addressing these student issues at course level can lead to improved pass rates, improved qualification throughput guaranteeing more subsidies, it can contribute to societal welfare, the calibre of the candidates employed, as well as their potential output.

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# An exploration of teachers' reflections about their problems of practice

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## Abstract

It is important for teachers to develop reflective practices, and to take ownership of their own practices and personal professional learning. Teachers' reflections on these aspects can provide insights into problems affecting teaching. In the research undertaken, teachers were asked to identify problems of practice, and to find ways to deal with these. The data for the case studies that resulted from the research were generated from reflective reports written by the teachers. The results are presented as three accounts or storied lives of participating teachers. The researchers believe that transformative practice can be encouraged through systematic enquiry of the problems of practice they identify. The research also enabled the researchers to refocus their attention on the responsibility of teacher educators to critically examine their own assumptions.

## INTRODUCTION AND BACKGOUND

A review of the relevant literature will convince any reader that the preparation of reflective teachers is an important and recurring theme with a long history in the literature on teacher education and development. In the South African context, the reforms espoused for teacher education in the Norms and Standards for Educators (NSE) policy document (2000) have stressed reflective practice as an integral part in the initial preparation of teachers and in the continuing professional development of educators. In the plethora of education policy initiatives in South Africa since 1994, the shift from the previous view of an educator as a technician whose major role was to implement instructions in the form of syllabi, to a conceptualisation of educators as highly competent, self-directed and reflective individuals, has consistently been advanced. It is in these national and international trends in teacher education and development that the Professional Practice in Teaching Mathematical Literacy module (PPiML

module), with its explicit focus on improving professional practice through teacher research and reflective practice, should be contextualised. The PPiML is a capstone module in a two-year teacher development programme offered in the past three years to teachers reskilling to be Mathematics Literacy educators, and it is here that teachers are required to apply their foundational (content) knowledge in the authentic practice of their schools and to reflect on their professional practice in the light of their teaching experience as well as theory.

This article reports on the detailed analysis of three teachers' research reports, described as case studies that were drawn from a larger sample of 50 such reports. These teachers were enrolled for the Advanced Certificate of Education (ACE) in Mathematical Literacy (ML) programme at a KwaZulu-Natal university. For the last three years, these mixed mode programmes (containing elements of contact and distance education) have been large-scale, offered in total to over 1 200 teachers at various learning centres in KwaZulu-Natal. In order for such programmes to be sustainable it is crucial that they work towards being transformative. The PPiML module in this programme aims to promote transformative practice by encouraging teachers to take ownership of their practice, by recognising and managing the problems of practice which they identify. A key element of this process is the development of teachers' skills in reflection. With this in mind, the study set out to explore the ways in which their participation in a small-scale action research project as part of the PPiML module enabled the teachers' professional development, particularly in terms of their levels of reflection.

## LITERATURE REVIEW

Sztajn (2008, 300) reminds mathematics teacher educators who work with practising teachers of their need to be 'both responsible and responsive to teachers, attending to both teachers' knowledge and to teachers' needs' by acknowledging that the practising mathematics teachers we work with are adults who come to a learning situation with their own sets of goals. She states: 'When mathematics teacher educators and mathematics teachers come together in a professional development initiative, they share one important goal – the improvement of mathematics teaching' (2008, 300), but she contends that it is the teacher educators who have the responsibility of seeking ways to ensure they sustain 'a successful professional development endeavour' by 'finding ways to engage teachers in work that leads to better mathematics teaching' (2008, 300). Sztajn recommends that we give equal value to the format, content and relations of professional development initiatives, in order to provide meaningful professional development experiences to mathematics teachers. While the critical examination of teachers' experiences of all these aspects of the PPiML module

forms part of a larger study, this article focuses on the *content* of the module. As such, the body of literature that shaped this study focused on that which discusses teachers as researchers, particularly drawing on the South African context and on literature relating to reflective practice, with attention to the types of reflection that various writers distinguish.

## Teachers as researchers

With its focus on classroom research and reflective practice, the PPiML module is well aligned with similar professional practice modules in the other ACE programmes at the institution where the research reported in this article was conducted, and with descriptions of teacher research widely reported in the literature (e.g. Baumfield et al. 2008; Hiebert et al. 2007; Reed et al. 2002; Yost et al. 2000). Kraft's (2002, 177) description of 'good' teacher research has been of use in discerning the focus of the PPiML module. Drawing on Carr and Kemmis' (1986) assertion that the goal of action research is to improve in the three areas of practice; understanding of the practice; and the broader context in which the practice takes place, Kraft emphasises that good teacher research must centrally involve self-critical examination of those belief systems that inform and guide practice in the first place. The tenets of good teacher research that Kraft describes involve: (1) a deliberate and systematic examination of practice structured around a cyclical process of planning, acting, observing and reflecting; with the goal of first understanding practice as a prerequisite to improving practice; (2) an opportunity to examine how someone operationalises his/her belief systems in the classroom and the validity of their belief systems; and (3) a process of critical self-reflection through an analysis of personally held beliefs, values and assumptions. Writers addressing the South African context raise our awareness of the demands such research places on teachers, and offer suggestions of practices that would support teachers in this process. For example, Adler (1997, 99) states that 'any and all mathematics teacher development activity in South Africa should include, if not be organized around, a component of inquiry', but reminds us that we need to be more pointedly aware of South African teachers' situational constraints when applying ideas of teacher research from contexts which are very different from ours. In particular, she recommends that we should refer to 'teacher as inquirer', rather than 'teacher as researcher', where 'inquiry is sufficiently broad to allow for a continuum from ad hoc reflection to more systematic informal inquiry, to formal research' (1997, 99). Such a focus, Adler asserts, would allow us to more ably meet teachers where they are in their learning, and would enable us to attend to how we could support teachers' ongoing participation in inquiry as well as

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their ongoing learning about teaching, and especially their contribution to our collective knowledge about teaching mathematics.

Johnson et al. (2000, 184), Welch (2002, 28) and Thomson (2009, 807–808) also draw our attention to the foundational legacy of South African education, which is built on in teacher development programmes that require teachers to engage in teacher research and reflective practice in an attempt to improve current practice. Drawing on Beeby's typology of the stages of development of educational systems, Johnson et al. (2000) recommend a model of teacher development that takes as its starting point 'not the knowledge that the teacher possesses but rather the environment in which any teacher works' (2000, 184). While acknowledging that teacher education programmes need to be located in the work environment of teachers in order to develop the competences prescribed by the NSE policy document, Welch cautions that '[a] difficult balance of challenge and support will be required to help teacher-learners move from where they currently are to positions where they can operate with greater ease at the meta-cognitive level' (2002, 28). As teacher educators working with practising mathematics teachers, we take cognizance of Thomson's (2009) reminder that the teacher-students' lived experiences should be central to our conceptualisation of professional development programmes. She asserts: 'While it is really very easy to ignore the personal struggles of students in any programme, I contend that to do so *in the context of curriculum realisation and teacher education through "distanced" teaching and learning models* is especially dangerous and foolish' (2009, 807, emphasis added). Drawing on her in-depth descriptions of students' lived experiences relating to a part-time distance education module, Thomson gives cautionary advice on two fronts: firstly she asks us to examine the kinds of assumptions we can make about the nature and quality of learning which all these students/practising teachers will be able to engage with, *simply on account of their lived realities.* Secondly, she raises our awareness about the assumptions that can be made about the efficacy of the curricula designed for these students. She asserts that the gravity of students' experiences of formal, university-based professional development programmes, specifically those of 'shame and sacrifice' which she describes, should make us realise that it is 'naïve in the extreme, to imagine that a formal curriculum stands inviolate, and inherently transformative, achieving the "intended outcomes" that it planned would be achieved' (2009, 808). Echoing a sentiment similar to that raised by Gore and Zeichner (1995, 209), Thomson states that a failure to critically examine the intended outcomes of teacher education programmes being offered through part-time, 'distanced' models, has 'the potential to undermine transformation processes and reproduce social relations despite their probable commitment and

intention to do otherwise' (2009, 808). Gore and Zeichner (1995, 209) argue that the advocacy of action research in relation to teacher professionalism can better serve the interests of teacher educators than those of teachers, in that it appeals to teacher educators who have 'wanted to appear more scientific'. In addition, they assert that by linking action research to the notion of an 'extended professional [...] the dramatic effects of action research are diminished as it becomes "enmeshed" with attempts to regulate the development of teachers' (1995, 209) and, furthermore, teacher development through action research can lead to the 'intensification of teachers' work' and 'operate to involve them further in their own regulation and subjectification' (1995, 209). It is our contention that reading through teachers' reflections on their personal experiences of the PPiML module will give us a better understanding of whether and how the module engages the teachers' experiential reality. As such, we will be able to gain better insight into the transformative potential of the module. In the next section of the literature review, we describe the understanding of critical reflection that guided this study.

## Reflection

According to Zeichner and Tabachnick (2001, 72) reflection is the 'new zeitgeist' (spirit of the times) in North American teacher education. They contend that one would probably not find a 'single teacher educator who would say that he or she is not concerned about preparing teachers who are reflective' (2001, 72). This would most likely be true for any South African teacher education programme focused on initial or continuing teacher education; in particular, reflection has consistently been a guiding principle in the conceptualisation of the PPiML module. Despite its popularity, writers generally bemoan the lack of conceptual clarity that characterises reflection. As Kraft (2002, 178) comments, 'reflection is an educational term that has been overused, misused and abused'. Some of the confusion around the concept of reflection can be attributed to the fact that different writers have focused on at least two very different dimensions of reflection: one approach is rooted in the works of the renowned educational philosopher, John Dewey (1910, 1933), and the other is derived from the ideas of Donald Schön (1983, 1987), who popularised the term 'reflective practitioner'.

The PPiML module uses an encompassing definition of reflection which includes 'looking back' on one's teaching (*reflection-on-action*) in order to recapture the moments of on-the-spot experimentation (*reflection-in-action*) so as to prepare for future teaching (*reflection-for-action*). More importantly, the purpose for including reflection as a crucial component of the PPiML module is to promote the tenets of good teacher research, as described by Kraft (2002), which also aligns well with the conception of an educator as a highly competent, self-directed, reflective

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professional – a concept that, from its inception, has been advanced in the NSE policy document.

Many writers draw on Dewey's description of reflection to distinguish between the different types of reflection that individuals can engage in. From these descriptions, writers derive various categories (levels) of types of reflection. Van Manen (1995), for instance, describes three levels of reflection, paralleling the development from novice teacher to expert teacher, while Hatton and Smith (1995) focus on the content of reflective writing and distinguish between four levels of writing from that which is primarily low-level in reflection and mostly descriptive, to that which is critically reflective. In his 'assumption hunting' framework, Brookfield (1995) elaborates on Dewey's (1933) notion of reflective action as involving 'an active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds supporting it and the future conclusions to which it tends' (in Yost et al. 2000, 39) as a means to examine the assumptions on which our pedagogic decisions are based. In the next section, we use Brookfield's framework and the levels of description described by Hatton and Smith as the theoretical framework that informed our data analysis in this study.

## THEORETICAL FRAMEWORK

In adopting reflection as a guiding principle for any programme there is a need to have explicit assessment criteria to evaluate students' engagement with reflection. In the PPiML module, Hatton and Smith's (1995) description of four levels of reflective writing are used to guide teachers in their reflective writing, and to outline the assessment criteria used to evaluate teachers' journal writing. In this article, we use the same levels of reflective writing to analyse the selected teachers' writing:

1. *Descriptive writing* (writer reports on events with no reflection on them at all);

2. *Descriptive reflection* (writer provides reasons for pedagogical decisions based on personal judgement);

3. *Dialogic reflection* (writer explores the reasons for one's pedagogical choices in the light of educational theory); and

4. *Critical reflection* (involving reasons given for decisions or events that take into account broader historical, social and political contexts).

In an inventory of reflective thinking via action research (IRTAR), El-Dib (2007) discerns four categories of *low*; *low-medium*; *high-medium* and then *high* in the various stages of the action research process. His categories complement those of Hatton and Smith (1995) as well as other writers' descriptions of critical reflection as the highest level of reflection.

For Brookfield (1995), critical reflection involves 'hunting' the paradigmatic, prescriptive and causal assumptions that underpin our teaching practices. This process involves questioning the assumptions and practices that seem to make our teaching lives easier, but actually work against our own best long-term interests. Paradigmatic assumptions are the hardest of all assumptions to uncover, because, as Brookfield (1995, 2) explains, '[t]hey are the basic structuring axioms we use to order the world into fundamental categories' and we seldom recognise them as assumptions, even after they have been pointed out to us. Instead, 'we insist that they're objectively valid renderings of reality, the facts as we know them to be true' (1995, 2). Prescriptive assumptions are assumptions about what we think 'ought to be happening in a particular situation' (1995, 3) while causal assumptions, usually stated in predictive terms, help us to see how different parts of the world work and inform us of the conditions under which these can be changed. Furthermore, in this framework, Brookfield states that we should use 'four critically reflective lenses' (1995, 29) to view the assumptions that underpin our teaching through our autobiographies as learners and teachers, through our students' eyes, through our colleagues' experiences and through the theoretical literature. In examining teachers' written reflections, we are using 'our students' eyes' to aid us in critically reflecting on our assumptions about how the content of the PP module promotes 'good' teacher research.

## METHODOLOGY

This study utilised an interpretative research paradigm which, according to Cohen, Manion and Morrison (2000, 22) assumes that people's subjective experiences are real. In this study we were interested in learning about the subjective experiences of three teachers. We chose to use the case study approach in order to capture part of the storied lives of the teachers, with the focus on the teachers' reflections. This narrative case study approach allowed us to focus on the particularities of the teachers' positioning, in order to obtain an in-depth description of the teachers' reflections (Yin 2009, 18).

Data were generated from reports written by the teachers in the PPiML module. Teachers were asked to identify a problem of practice, and to attempt to find ways to deal with the problem. As part of the summative assessment of the

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module, teachers submitted a final report outlining their problem, describing how they went about dealing with the problem, and reflecting both on the success of their interventions and their own professional development in the process. The analysis of the reports can be viewed as content analysis which could be used to cast 'additional light on the source of communication, its author, and on its intended recipients, those to whom the message is directed' (Cohen et al. 2000, 165). In addition, Neuman (2011, 323) states that content analysis is 'nonreactive' because the people being studied are not aware of that fact, therefore 'the process of placing words, messages, or symbols in a text to communicate to a reader or receiver occurs without influence from the researcher who analyses it content' (2011, 323).

The unit of analysis in this article is a conceptual unit referred to as a 'reflective unit' (Bainer and Cantrell, in El-Dib 2007, 30). A reflective unit is defined as 'a single idea or thought about a particular topic or event' (El-Dib, 2007, 30). In a manner similar to that done by El-Dib (2007, 30), the research reports for this article were analysed in terms of the following reflective units: planning (statement of problem and plan of action) and reviewing. For the purposes of this article we omitted a third unit used by El-Dib, namely that of acting.

The planning stage in the PPiML module is characterised by the identification of the problem, how the teacher stated his/her research question, and the plan of action includes all the steps the participant took to deal with the problem. The reviewing stage includes the reflections of the teacher after the implementation of the plan, and reflections for future actions. The research questions addressed in this study are:

1. At what level of reflection do the teachers engage with their problems during the planning and reviewing phases?

2. What processes enhanced or limited the development of their reflective thinking?

## RESULTS

The results of the study are presented as three case studies: Ms Tammy; Mr Mac and Ms Sady. These cases have been constructed using the data generated from the reflective reports.

### Case 1: Ms Tammy

Ms Tammy teaches in an impoverished area, with a class of 83 learners – a challenge most teachers did not want to take on: '*All teachers teaching this class are finding it difficult to teach ... [because of] discipline.*' In the planning

phase Ms Tammy wrote that '*groupwork is the most recommended method of teaching big or small classes*' and acknowledged that the strategy has important advantages in that it promotes collaborative and cooperative learning. However, her problem was that '*learners work in groups during class activities and seem to be understanding, [yet] when they had to do independent work during tests and examinations they performed badly*'. She believed that '*learners taught using this method lack ... independence*', do not develop the '*strands of mathematical proficiency mentioned by Kilpatrick*' and that they needed individual help. She admitted she previously found it impossible to provide individual feedback to all learners, because of the large numbers in her class. She reflected on her insight gained from lectures, lecture notes and conversations with her colleagues: '*After attending [lectures] and reading the module's notes on groupwork I realised that the way I was doing it needs some attention ... I also talked about groupwork with other educators who were doing it the manner as I was.*'

Ms Tammy then decided to use 'individualisation-within-groups' as a method of teaching the concept of functions, to '*find out if work done in [an] eight days period [using the individualization-within-groups technique] ... would allow more time to finish the work as reflected in the work schedule*'. The topic of functions was allocated two weeks of teaching time in the work schedule. The teacher explained individualisation-within-groups as occurring when '*a bigger task was divided into simpler tasks*' and learners worked in groups, but '*each learner did his own part of the task and to arrive at the solution, the work done by individuals were used*'. This technique had been used by a previous student whose work appeared in the learning guide and whose teaching context Ms Tammy strongly identified with.

In her reviewing stage, Ms Tammy conceded that though '*individualization within groups is possible and effective ... it takes too long*'. She also reflected that her personal understanding of 'groupwork' became broader, because previously she '*did not know that breaking a big task to simpler tasks and each learner do his or her part of the task is what effective groupwork means*'. Furthermore, Ms Tammy's understanding of the role played by the teacher in managing discipline problems also deepened, because '*groupwork does not necessarily cause disciplinary problems ... [because] the class may be ... talk[ing] constructively when they are engaged in the lesson*'. She stated that it '*is the responsibility of the teacher to plan appropriately and to make the lesson interesting*'. In terms of her own learning, she remarked: '*I am wondering what type of mathematics teacher I was, one who does not know this*' [referring to theoretical ideas covered in the lecture notes].

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## Case 2: Mr Mac

Mr Mac is an experienced mathematics teacher who teaches in a semi-urban town which is characterised by the '*laid-back nature of farm life*'. In his planning stage, he identified his problem as the mismatch between the affirming classroom atmosphere he had successfully created, and the results his learners were achieving. He wrote that '*the learners that come to my class enjoy coming here but after they have been taught, I find that the results of the assessment do not correlate with the sense of enjoyment they had expressed*'. He therefore decided to '*check why their claims of wanting to be taught by me did not correlate with their performance*'. As a first step, Mr Mac asked himself: '*Who am I and what am I like?*' He then asked learners questions about the nature of the lessons, the effectiveness of his teaching, and the meaningfulness of the content. Thereafter he examined his assessment tools, which were in keeping with the requirements of the Department of Education. The theories that he encountered during his lectures and the module notes, together with the interactions with his tutor, helped him question what it was he should be doing to help his learners better engage with what they were doing. It was while examining the assessment tools that he began to question whether his assessment practices – in particular, his assessment feedback – could be improved.

Mr Mac then decided to establish '*how the feedback provided could impact on the performance of his learners*' and to investigate how the nature of feedback provided to learners made a difference to their overall performance. He wished to evaluate the learners' progress in developing ML skills, to be able to establish the mathematics in any context and then use those skills to find solutions to problems within that context. He believed that this process of providing feedback would also be '*developing some skill in* [in himself] *that … needed further development*'. Mr Mac did not have an ML class, therefore he '*borrowed a class*' for the project, with the permission of their regular teacher and the participant learners. While carrying out the project, he was constantly aware of the need to cover the syllabus and prepare the learners for the forthcoming examinations.

In the review stage, Mr Mac noted that by participating in the project, '*the provision of feedback to learners*' received the attention it had sorely lacked before. He realised that '*all learners have potential*' and that '*when learners receive meaningful responses to their efforts, they are actually motivated to strive for higher goals*' which he identified '*was lacking in my practice*'. He felt empowered to share the insights gained from his research project with his colleagues, and expressed a hope of engaging in further research, because of the positive experience of the project involvement.

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## Case 3: Ms Sady

The third case that we present is that of Ms Sady, an experienced teacher in a rural area. Ms Sady described the problems at her school as being poor resources, the interrupted supply of electricity, inadequate furniture and limited parental involvement, amongst many others. Her school presently had class sizes of between 35 and 40, compared to previous years where there were 65–70 learners in a class. In Ms Sady's planning stage she explained that she '*decided to use groupwork*' because in prior attempts at group work her class was too noisy, and she '*couldn't manage to control groupwork because of large numbers of learners in one class*'. She wrote:

> Previously when the learners were required to form groups, they tend to waste time getting into groups. Furthermore they only just grouped themselves with their friends, they don't want to form groups with different abilities ... I decided to use groups that include diverse experiences, talent and ability types ... I want to develop what the learners know to the unknown that is what Vygotsky's ZPD said in his theory …. The learners will learn easily from peers, because their level of understanding is closer …. Groupwork will eliminate the learners copying from each other's work because they will do their work together helping each other rather than copying done work without understanding how the one arrived at a solution.

In her reviewing stage Ms Sady noted that she had achieved the aim of her project, because '*after day 3 the learners were able to work as a group without wasting time*' and after they '*wrote the test individually, they were all confident and managed to finish the test on time*'. She claimed that she '*developed positive attitude for working as a group to the learners*'. Furthermore, she believed the learners had learnt '*to trust each other*' and that she had '*promoted friendship to the learners*'.

## DISCUSSION

We use the narratives of the three teachers' work to discuss the levels of reflection revealed during the planning and the review phases. In the process certain constraining or enabling factors of the teachers' development of reflective thinking, are identified.

Ms Sady's descriptions of her problems are at the level of descriptive reflection (Hatton and Smith 1995), because she mainly drew on her personal judgement for the intended use of group work. Her identification of the problem was very broad and she implied that previous problems with groupwork, such as noisy learners, copying, wasted time and low understanding, were due to the large numbers. In the planning stage of her action research project, we believe Ms Sady's thinking

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was at a 'low level of reflection where she just states the problem without giving much thought to its causes' (El-Dib 2007, 29). Had she been more specific at the planning stage, she could have uncovered specific issues related to why groupwork had not worked for her previously. It is in such specificity that action can follow reflection, because the process of specifying and identifying the different issues allows one to disentangle without isolating. Ms Sady, for instance, attributed all the problems of groupwork to a single factor: large classes. There are, however, various organisational and pedagogic instructional issues that could have been examined, such as the clarity of instructions, the thoroughness of planning, how focused tasks are. These need to be addressed, but a teacher cannot take action on these problems if they have not been identified and the identification depends on disentangling the various factors in the situation.

Mr Mac's reflections at the planning stage were in-depth and involved an interrogation of his practices in his quest to explain the disjuncture between his learners' apparent enjoyment of the lessons and their disappointing performance in the examinations. By searching the various possibilities systematically, he did not limit himself to considering a single causal relationship. Introspection and 'talking to himself' helped him to specifically identify his use of assessment tools as a possible area for improvement. In contrast to Ms Sady, Mr Mac's reflections had a high level of specificity, and indicate a high-medium level of reflection (El-Dib 2007, 29), given that he considered the complexity of the problem from multiple perspectives. In order to identify one particular intervention, he had to also disentangle the various issues and consider them separately. Using Hatton and Smith's (1995) typology, his thinking is an example of dialogic reflections, and he drew on the theories of effective teaching discussed in the module notes to identify 'meaningful feedback to learners' as a relevant focus for his professional development.

Ms Tammy's reflections in her planning phase are another example of dialogic reflection, with a hint of critical reflection when she considers her planned action within the new curriculum framework. There was, therefore, an imperative to find ways to improve that strategy in her own situation, in a large class. Furthermore, after surveying the issues she specifically identified the time constraints set out in the prescribed work schedules as an issue she intended to evaluate when using groupwork as her focus. Like Mr Mac, Ms Tammy viewed her problem from various perspectives, in that she drew on '*the module's notes on groupwork*' and '*also talked about groupwork with other educators*'. By proposing a solution she set an indicator of success as the time taken to cover the concept of functions. Her solution therefore needed to work within broader, social and educational constraints, which is why we consider her writing in the planning stage as tending

towards critical reflection. There are indications that she was becoming aware of the assumptions underpinning her teaching, in that she saw her practice through her colleagues' experiences and that she took into account the theoretical literature when she remarked: '*After attending [lectures] and reading the module's notes on groupwork I realized that the way I was doing it needs some attention.*'

In the review stage, which involves 'examining the actions she took and their consequences, questioning the results, and envisioning future actions' (El-Dib 2007, 28), Ms Sady wrote descriptively that the learners were able to work as a group; they were confident and had developed positive attitudes. While there is no indication that Ms Sady engaged in critical reflection (which has as its most distinctive feature, the focus on hunting assumptions) (Brookfield 1995), an analysis of her descriptions reveals some of the paradigmatic and causal assumptions which seem to direct her thinking. One paradigmatic assumption of Ms Sady's was that learners are self-directed and do not need the teacher to create structured learning opportunities. A prescriptive assumption leading from this is her belief that if learners are placed in groups, they should be able to help one another and develop their understanding of the work. This assumption is evident in her comments that '*they will do their work together helping each other*' and '*they will learn easily from peers, because their level of understanding is closer*'. These assumptions simplified her teaching decisions and allowed her to shift the responsibility for the success of group work from herself as the teacher, to the learners. A causal assumption underpinning her project is that if classes are small group work is easy to manage, and if group work is used in large classes, it leads to noisy learners, a lack of focus and time wastage. This causal assumption allowed her to identify large classes as the sole factor mitigating against successful group work, which restricted her examination of alternative solutions to the problem.

Mr Mac and Ms Tammy's reflections in the review stage also bore signs of a surfacing of assumptions from their practice, indicating a progression towards descriptive and dialogic reflection. Mr Mac, who started the process by asking: '*Who am I and what am I like?*' before proceeding to hunt his causal assumption that if learners enjoy learning in his mathematics classes, they should do well in the assessments, ends with the observation that '*[w]hen learners receive meaningful responses to their efforts they are actually motivated to strive for higher goals. This was lacking in my practice.*' Ms Tammy's process of hunting assumptions led her to confront her paradigmatic assumption that all learners learn equally well when engaged in groupwork. She was then able to disentangle many issues which affect the learning that takes place – something she acknowledged by stating that it '*is the responsibility of the teacher to plan appropriately*'.

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## CONCLUSION

In this article we used teachers' summative reports about an action research project to investigate the ways in which they engaged in critical reflection in the planning and review stages of the project. These are the two stages in the research process where the teacher's ownership of an authentic problem of practice and a description of personal professional learning at the end of the process are most clearly evident. As such, teachers' reflections on these aspects provided us with insights into the levels of reflective writing that were engaged in and, more importantly, teachers' reflections helped us to identify particular issues which supported or constrained their engagement in critical reflection in the action research project. It is evident that a broad listing of a problem of practice does not help teachers move forward in their efforts to improve the effectiveness of their teaching. When teachers are able to move beyond the broad listing and actually identify specific issues about the problem, they can then engage in the critical reflection described by Brookfield (1995), which could lead to transformative learning about their teaching practice.

We believe action research projects can promote transformative practice by encouraging teachers to take ownership of their practice, through engaging in systematic enquiry about the problems of practice which they identify. This study has, however, refocused our attention on our own responsibility as teacher educators to critically examine our assumptions concerning the format, content and relations in the PP module, in our efforts to provide a quality professional development experience for the teachers we work with.

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# Epistemology as totality in higher distance education: The integration of e-learning in pedagogy

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## Abstract

The 21st-century digital age has seen a shift in pedagogical perspectives and theoretical frameworks in higher distance education. While many higher distance education institutions are rapidly embracing multimodal ways to reach their students, many issues remain unresolved. One such issue is how to maintain the conceptual integrity of the discipline while accommodating new developments in technology. The aim of this article is to explore e-learning as it affects the tripartite relationship of pedagogy, cognition and technology. To achieve the objectives of this study, a theoretical examination of cognition, pedagogy and technology in the form of a literature study was undertaken. Additionally, a qualitative empirical study was conducted which involved in-depth interviews with open distance learning experts at the University of South Africa. The zone of proximal development was used as the theoretical framework for the study. It is argued that to be effective in the learning experience, e-learning must be firmly rooted in the epistemology, and that it is imperative that the pedagogy continue to transform and evolve as technologies change. It is suggested that a new grounded pedagogical model be developed, incorporating the relevant technological aspects of distance education in pursuit of a holistic epistemological experience.

## INTRODUCTION

While many higher distance education institutions are rapidly embracing multimodal ways to reach their students, many issues remain unresolved. One such issue is how to maintain the conceptual integrity of the discipline, while accommodating new developments in technology which address the collapse of distance in distance education. The aim of this article is to explore e-learning as it influences the tripartite relationship of pedagogy, cognition and technology in higher distance education.

Distance learning is learning conducted in a context in which educator and student are separated in time and space (UNESCO 2002, 8), while pedagogy,

the art of teaching (Whitehead 2005), incorporates the collected practices, processes, strategies, procedures and methods of teaching and learning. The terms 'andragogy' and 'heutagogy' are acknowledged, but in this article the term 'pedagogy' will be employed because of its widely accepted use in the education sector. A brief mention of andragogy and heutagogy is nevertheless necessary to illustrate the move to self-determined learning: Hase and Kenyon (2000) argue that whereas andragogy refers to learning that is determined by the teacher and directed by the student, heutagogy shifts both the determination and the direction of the learning to the student.

This article argues that e-learning is a process that facilitates and opens avenues for effective teaching as a result of its potential to bridge the transactional distance between all stakeholders at the institution, thereby encouraging a self-determined learning process. E-learning refers to methods of teaching and learning that enable students to connect and interact quickly and efficiently, to enter into regular discussions and dialogues and to form virtual communities in cyberspace (Mealy and Loller 2000, 1). Epistemology, a term that refers to the learning experience (Klein 2005), is pertinent in this research, as it is suggested that relevant e-learning tools be included in the pedagogical approach of higher distance education in order to enhance higher-order cognition. The significance of this article lies in the contribution that it can make towards developing an integrated pedagogical model for higher distance education.

The research conducted used the University of South Africa (Unisa), a higher distance education institution in South Africa which uses open distance learning (ODL) as its mode of teaching and learning, as context for this study. Unisa is the fifth-largest mega ODL education institution in the world (Sonnekus, Louw and Wilson 2006) and uses *my*Unisa, an online platform, as its learning management system (LMS) for academic collaboration and study-related interaction. *my*Unisa is used in conjunction with various other forms of learning at Unisa.

The problem that was investigated relates to the low throughput rate at higher distance education institutions (HSRC 2008). Consequently, to enhance the learning process in order to improve the throughput rate, interventions and pedagogies must be developed that are unique to the higher distance education system and address the challenges that exist in this sphere.

## LITERATURE REVIEW

A review of the literature indicated that in order to fully engage and challenge the learner, the task and learning environment should reflect the complexity of the environment in which the learner should be able to function, at the end of

learning. Learners must not only take ownership of the learning or problem-solving process, but of the problem itself. This relates to the concept of heutagogy, defined earlier in this article.

The thrust that underscores the heutagogical approach is a desire to go beyond the simple acquisition of skills and knowledge as a learning experience. This approach emphasises a more holistic development of independent capabilities in learners. Heutagogy, or the study of self-directed/determined learning, is a concept coined by Stewart Hase. It may be viewed as a natural progression from pedagogy and andragogy (Wells 2000, 191) and encourages knowledge sharing. It is learner-centred as opposed to teacher-centred learning and requires self-discipline and meta-cognitive processes. Heutagogy is discussed in this article as it is relevant in the distance education environment. Since learners may choose when they will actively engage in the learning process, they must have the self-discipline and time-management skills to 'keep up' with the expected learning schedule and pace. Since employers expect similar skills, distance education should encourage this expectation and view it as an advantage in the learning process. Freire (1985, 116) indicates that education should comprise more than adapting the student to the lecturer's environment. He further states that education would be lacking if the lecturer were to consider as the good student the one who simply repeats, who renounces critical thinking and merely adjusts to models.

## Theoretical framework

The article used the Zone of Proximal Development as the theoretical framework. This theory refers to the space in which learning takes place (Hedegaard 1996, 179; Wells 2000, 194). Lev Vygotsky, a constructivist theorist, emphasised the role of individual interactions within their socio-cultural environment in the process of constructing knowledge, and called it the Zone of Proximal Development (Knauer and Alexander 2006, 2). It is the distance between the actual developmental level, as determined by independent problem solving, and the level of potential development, as determined through problem solving under guidance or in collaboration with peers (Wells 2000, 191). The student learns by engaging fully in this zone, particularly through dialogue. Vygotsky believed that the objective and outcome of learning was the development of individual consciousness, and that individuals experience self-mastery through a process of reflection as well as interaction with people and objects in the external world (Chaiklin 2003, 40).

In other words, the Zone of Proximal Development is created in the interaction between the student and the co-participants in an activity, including the available tools and the selected practices, and it depends on the nature and quality of that

interaction as much as on the upper limit of the learner's capability (Knauer and Alexander 2006, 2). Genuine personal engagement is key in the dialogic learning process, according to the Zone of Proximal Development theory.

This theory was originally developed to argue against the use of academic, knowledge-based tests as a means to gauge students' intelligence. Vygotsky argued that, rather than examining what a student knows in order to determine intelligence, it is better to examine his/her ability to solve problems (Chaiklin 2003, 40).

Vygotsky further claimed that instruction is good only when it proceeds ahead of development (Wells 2000, 191). It then awakens an entire set of functions in the stage of maturing, which lies in the Zone of Proximal Development. It is in this way that instruction plays an extremely important role in development, and this article looks at multimodal pedagogical tools in advancing this development.

## METHODOLOGY

In order to achieve the objectives of this study, a theoretical examination of cognition, pedagogy and technology in the form of a literature study was undertaken. Additionally, a qualitative empirical study was conducted which involved in-depth interviews with ODL experts at Unisa. The in-depth interviews were analysed using thematic categorisation and were juxtaposed with the themes that emerged from the literature study.

## DISCUSSION OF FINDINGS

The following discussion encapsulates a study of the literature as well as findings of the in-depth interviews that were conducted. The various themes that emerged from the research are discussed below.

### A holistic epistemology

The literature study showed that as educators we should concern ourselves with developing the student's capability, and not merely embed discipline-based skills and knowledge (Dheram 2007; McArthur 2010). We should relinquish any power we deem ourselves to have and emphasise a more holistic development (within the student) of an independent capability.

In support of the above assertion, an interviewee stated the following:

> *It is not always easy to develop higher cognitive skills in students, but it is important that we, as educators try our best to accomplish this by initiating students' independent thinking.*

In this article, it is argued that a holistic epistemology is considered key to developing such wisdom and progressive thought processes.

## Transcending conventional learning

In this research study, dialogue and engagement were accepted as the guiding principles; Vygotsky's Zone of Proximal Development was therefore adopted as the theoretical framework. The Zone of Proximal Development supports the earlier work of Daniels (1996, 172), who asserts that Vygotsky's aforementioned methodology is based on the relation between human beings and the world, as mediated through tools. Daniels (1996, 172) further notes that the degree to which the student masters everyday concepts shows his/her actual level of development, and the degree to which he/she has acquired scientific concepts shows the zone of proximal development.

The literature study showed that students need support or facilitation in order to eventually acquire high-level cognition (upper limit), and reach independent and self-directed learning. This relates to the concept of heutagogy, discussed above.

An interviewee stated:

> During my interactions with students, I have discovered that they need guidance. With adequate guidance and support through e-learning tools they are able to solve problems and think independently.

This demonstrates that e-learning is one of the central components in providing the necessary support and scaffolding (Daniels 1996, 5) for a student's deep learning experience towards self-directed learning.

## E-learning as catalyst in critical pedagogy

In terms of critical pedagogy, termed as such by Paulo Freire (1970, 74), education is viewed as a broad form of knowledge which demands critical educators and not just subject experts in the learning process. Dheram (2007) asserts that critical educators realise the ever-changing nature of the components of the educational context, and that the critical pedagogue realises that the change arises from constant interaction among all the components of the context, in terms of which engagement and interaction are as important to critical pedagogy as knowledge. According to the literature study, critical pedagogy challenges conventional views of the relationship between student and teacher, and argues that academics are transformative intellectuals (Dheram 2007; Edwards and Usher 2000, 48; Freire 1970, 74; McArthur 2010).

Whereas traditional pedagogical approaches emphasise the teacher as knowledge broker and the student as receiver of knowledge, critical pedagogy

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places emphasis on the student as a student within a social context, and knowledge as produced within a social context (Travers 1999). However, according to Giroux (cited in McArthur 2010), academics cannot adopt this transformative role while situated within disciplines:

> Locked within traditional disciplinary boundaries and recycling old orthodoxies, many critical educators risk becoming like shadows dancing on the wall of an obscure academic conference, oblivious to an outside world that is filled with real threats to democracy, society and education.

An evaluation of Freire's theory during the literature study reveals an emphasis on the educator as the propeller towards the conscientisation and dialogue process. In the context of this article, the propeller of the learning process is the lecturer, whom Freire (1985, 54–55) identifies as the person responsible for proposing problems about codified existential situations, in order to help students arrive at a more critical view of their reality.

Edwards and Usher (2000, 48) argue that there is a danger of education as a modernist institution being characterised by the 'spaces of enclosure', which include the book, the classroom and the curriculum. These work to enclose meaning of experience, according to Edwards and Usher (2000, 48), through a fixed and obligatory curriculum. What emerges is a situation in which the student's task becomes one of extracting and re-presenting a singular, prescribed meaning, and the teacher is seen as the 'authority' in terms of interpretation and accuracy, the implication being that there is a single definitive meaning waiting to be found (Clarke, Harrison, Reeve and Edwards 2002). This aligns with Freire's assertion that students should not be objects of the curriculum set out by the lecturer (1970, 53).

The interviewees confirmed the findings of the above claims in the literature study. Amongst the many responses received, one interviewee stated the following:

> *Whilst the lecturer may be an authority in his/her discipline, it is important to reach out and extend him/herself to the student. If this does not happen, then the experience becomes a linear process of information dissemination and not one of dialogue and openness.*

Developments made possible by the use of ICTs (information and communication technologies) in education work in ways that call these spaces of enclosure into question, resulting in a questioning of underlying assumptions about the linear text and the teacher as authoritative bearer of meaning (Edwards and Usher 2000, 48). This, in turn, opens up possibilities for rules to be more diverse and purpose-driven. Hence, Clarke et al. (2002) indicate that a situation is created in which students do not simply interpret meanings, but actively collaborate in creating

meanings, and thus take greater responsibility for their own paths of learning. This assertion was supported by the in-depth interviews, in which a participant stated:

> *Students need to be raised to a higher level of cognition using appropriate tools for maximum reach and benefit. It can be accomplished by using e-learning not only to reach our students, but also to use these tools to teach them in a meaningful way.*

There is thus a shift from meaning to meaning-making, from silos of knowledge to key skills, which is aligned with Anderson's suggestions (in Wilson 2006) regarding Bloom's taxonomy, where *creating*, and not evaluating, is at the apex of the learning process. In other words, the construction of knowledge takes place once the student has been equipped and enabled to engage in higher-order independent thinking; the acquisition of such proficiency thus contributes to lifelong learning aptitude.

Lifelong learning requires critical thinking which, according to Kling (1996, 17) is a readiness to consider alternative explanations, not taking key ideas for granted when it might be reasonable to doubt them. Teaching strategies should be explored that go beyond simply providing students with a number of books or articles to read and analyse, and this article argues that the use of e-learning – especially in an ODL environment – enables critical pedagogy.

An interviewee indicated the following:

> *It is imperative that we develop scholars who are critical thinkers, not just people who are able to regurgitate text books and study guides. However, it is up to the lecturer to assist the student in reaching these heights through a holistic educational experience by using the relevant e-learning tools.*

This leads the discussion to Bloom's taxonomy, a classification of learning objectives within education. The relevance of this taxonomy in this article relates to skills in the cognitive domain which revolve around knowledge, comprehension and critical thinking. The literature study indicated that educators must develop the curriculum with certain outcomes at the fore, by encompassing the six levels in the taxonomy; of these, knowledge, comprehension and application are lower-order skills, while analysis, synthesis and evaluation are higher-order skills (SAQA 2008). Lorin Anderson (a former student of Bloom) reviewed the cognitive domain in the learning taxonomy and amended it by changing the names of each category from noun to verb forms, and rearranging them slightly. The new taxonomy reflects a more active form of thinking, and is illustrated in Figure 1.

The author believes that these cognitive skills may be developed by encompassing the relevant distance education pedagogy, which relates to Lawless' (1979, 337) assertion that it is important to enable the student to develop a learning ability which focuses attention on cognitive strategy. This

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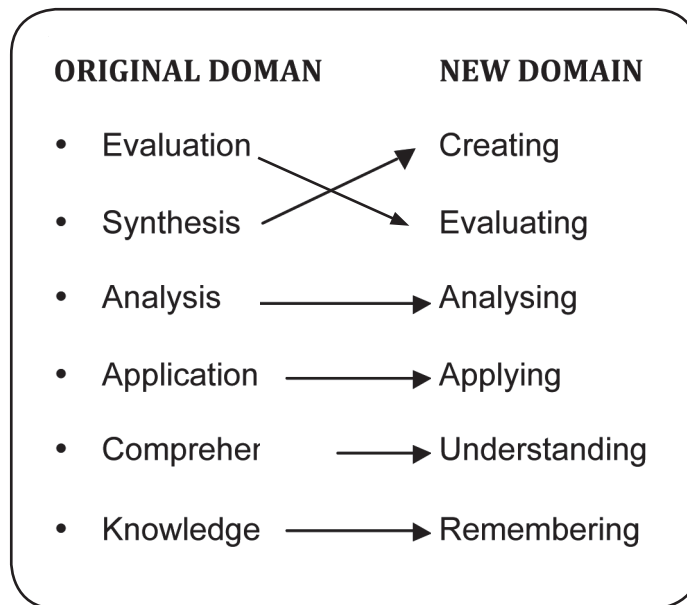
**Figure 1:** Lorin Anderson's new taxonomy – an amendment to Bloom's taxonomy

was reiterated during the interviews, where it was emphasised that it is important for the lecturer to adopt appropriate pedagogical frameworks in order to develop high-order cognitive skills in the higher distance education student. The author contends that e-learning is the catalyst in accomplishing this.

## Re-configuring higher distance education

The findings of the literature study show that educators often adopt a behaviourist rather than a constructivist approach in their instructional design, because they tend to become so focused on the desired outcome that the process by which the outcome can best be attained is forgotten or ignored (Clarke et al. 2010; Stahl 2000, 112). If this is the case in distance education, in which the information diffusion model (Rogers 1983, 125) is used, the literature study shows that educators then fail to support the very learning that leads to the development of higher-level cognitive skills and long-term learning.

According to the literature study, the focus in education in the 21st century should be on managing knowledge, and not on information diffusion (Clarke et al. 2010). This claim aligns with an interviewee's statement as follows:

*Adding and preserving knowledge is a key component in education, and I believe that e-learning can assist us in distance education. We need to move away from the situation where educators were seen as the people who knew everything, and*

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> *students were merely there to absorb the information given to them by these all-knowing experts.*

Stahl (2000, 112) argues that it is crucial that students interact with the instructional content and that activities be developed to promote and support open-ended and self-directed learning. During the empirical study, an interviewee stated:

> *In order to ensure self-directed learning, carefully planned design of the curriculum is required as well as feedback, dialogue and faith in students' capabilities when given adequate guidance.*

As a tool, technology alone cannot teach anything; hence it is the human element that is viewed as an essential component in the education process. Interviewees agreed that the key is to create a set of tools that can be used most effectively to leverage the lecturer's time and energy to aid the learning process.

Stahl (2000, 113) proposes that a cohesive approach to education be followed to support changes in cognition, affect and behaviour; this relates to Bloom's taxonomy (SAQA 2008), discussed earlier in this article. Interviewees argued that in a distance education context, such an approach requires instructional designers to plan cognitively challenging tasks, address the affective issues that stimulate student recognition of the need for change, and provide opportunities for action. Moreover, motivational aspects should also be included in instruction.

However, in order to achieve the aforementioned cognitive abilities in students, the literature study shows that it is essential to create a conducive learning environment in the distance mode – i.e. a community of students. This sense of community may be realised with the aid of e-learning. When we take an epistemological cycle as a totality, we need to recognise that acquiring existing knowledge and the discovery or creation of new knowledge is done simultaneously.

A preliminary step in developing critical thinking is establishing a social environment though synchronous and/or asynchronous means, such as video conferencing, satellite broadcasting, podcasts and discussion forums. Students' questioning of viewpoints and theories, critical analysis and debate can support rich learning experiences as well as group sharing that supports individual responsibility and distributed learning, and this should be encouraged by the lecturer. If active learning is seen as the primary mode of instruction and not merely as a supplement to the lecture, such learning will lead to permanent high-level cognitive development.

The literature study shows that e-learning exerts a positive influence on higher distance education. However, the opportunities and limitations of each technology-supported delivery should be critically analysed, so that higher distance educators may teach using appropriate pedagogical techniques and

students may gain through innovative solutions to the myriad delivery issues faced by educators. This view was supported by the empirical findings with ODL specialists: in-depth interviews indicated that it is necessary to use the various technologies to reach students for two primary reasons: first, to expose students to 21st-century technological diversity; and second, to encourage independent learning, which enhances high-level cognition.

An interviewee stated:

> *It should be a progression of learning. The respective institutions have the responsibility to take the student through the learning process in a systematic fashion and close existing gaps regarding knowledge creation and knowledge building. Technology can certainly assist in accomplishing this.*

Wells (2000, 60–61) encapsulates the above discussion in six salient points as follows:

- *Students need to be part of a collaborative community*. Joint activity requires us to think of the participants not simply as a collection of individuals, but also as a community that works toward shared goals, the achievement of which depends on collaboration;

- *Purposeful activities involve whole persons*. Transformation of the participants occurs as a function of participation in activities that have real meaning and purpose; learning is not simply the acquisition of isolated skills or items of information, but involves the whole person and contributes to the formation of individual identity;

- *Activities are situated and unique*. Any activity is situated in place and time; although there may be common features across activities and settings, each activity should be unique and should enable the immersion of the student;

- *Curriculum is a means, not an end*. If the aim is to engage with particular students in productive activities that are personally as well as socially significant, covering the curriculum should not be thought of as the ultimate goal of education;

- *Outcomes are both aimed for and emergent*. Outcomes of activity cannot be completely known or prescribed in advance; although there may be prior agreement about the goal to be aimed for, the route that is taken depends on the emergent properties of the situation;

- *Activities must allow diversity and originality*. Development involves rising above oneself. Solving new problems requires diversity and originality from possible solutions.

## Proactive implementation of technology

As has been discussed in this article, the use of technology in higher distance education has innumerable advantages. Chickering and Ehrmann (1996), however, state that technology should fulfil certain criteria regardless of the delivery method; these include encouraging contact between students and the university; developing reciprocity and cooperation among students; using active learning techniques; providing prompt feedback; emphasising time on task; communicating high expectations; as well as respecting diverse talents and ways of learning.

The empirical study supported Chickering and Ehrmann's (1996) claims by showing that the use of satellite broadcasts, podcasts, video-conferences, online discussion forums and various online activities enhances the learning process remarkably.

Some of the responses received in support of the above are as follows:

*Students provide feedback after the satellite broadcasts and video conferences through email and telephone calls. The feedback received is mostly positive indicating that the use of technology in the learning process is beneficial.*

*Not only do we reach out to students by way of making contact with them using technology, e-learning also facilitates insights and deep understanding of the content.*

The aforementioned principles, along with the needs of the specific qualification, will help determine the purpose and rationale of integrating the particular technology, and how it benefits the student. According to Maor (2006), if the use and understanding of technology in teaching are seen as separate from teaching in itself, the gap between pedagogy and technology will widen. In other words, if the primary focus of the lecturer is on pedagogy, and technology is seen as no more than another mode of delivery designed to enhance the teaching and learning experience, then technology and pedagogy will be seen as existing separately, with one having minimal impact on the other. However, if elements of technology and pedagogy are considered to be mutually supportive and interdependent, then it would be possible to construct new meaning about teaching in higher distance education, which will result in a bridging of the gap between pedagogy, technology and, eventually, cognition.

## CONCLUSION

The argument put forward in this article is based on the assumption that the value of e-learning lies not in its speedier access to information, but in its capacity

to facilitate communication and thinking, to construct meaning and to build knowledge – a process that will be mutually beneficial to the educator and the student.

The literature study on higher distance education and pedagogical frameworks as well as the in-depth interviews show that learning should be integrated with technology in higher distance education in order to accelerate student performance; that learning should be linked with knowledge construction to optimise performance; and, finally, that learning strategy should incorporate and embrace e-learning.

It is difficult for educators to develop a cohesive, long-term learning strategy if the technology is the point of departure, because technology changes rapidly. It is recommended that a learning strategy be built into the outcomes to incorporate student-centredness and engaged learning, which relate to the underpinning theory of this article, namely that of the Zone of Proximal Development. Freire (1970, 73) argues in favour of participatory, dialogic and reciprocal communication, and this is possible through the introduction of relevant and appropriate pedagogies, using e-learning in higher distance education.

It is argued here that to be effective in the learning experience it is imperative that the pedagogy continue to transform and evolve as technologies change. Therefore, the development of an epistemology that is integrative rather than restrictive in orientation is needed. Good teaching constitutes more than simply introducing and adding technology to the existing teaching and content domain. Rather, the introduction of technology into a curriculum requires the representation of new concepts and the development of sensitivity towards the dynamic, transactional relationship between pedagogy, technology and cognition. It may be concluded that the lecturer's role should be that of partner in learning – one who probes and challenges students to become reflective, critical thinkers (Beldarrain 2006). Edwards and Usher (2000, 49) hold a similar view, asserting that a shift in emphasis is necessary from a pedagogy of transmission, to the pedagogue as creator of a learning environment.

The epistemology proposed on the basis of the study reported on in this article is considered to enable the promotion of new ways of learning that are reciprocal between students and peers, and students and the lecturer. Depending on the nature and scope of the content and the level of students, appropriate technology integration must be sought. This article concludes that e-learning enhances the process of learning and helps to achieve higher-level cognitive objectives.

The proactive implementation of emerging technologies is dependent on the educational institution. Higher distance education institutions must reflect on how their programmes currently utilise technology, and how new, cutting-edge

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computer-mediated communications may enhance the learning experience for their students.

It is recommended that further empirical research studies be conducted by distance education universities, to determine the barriers that impede meaningful engagement and to determine the extent of knowledge-building components that are incorporated into existing curricula. The learning process is a form of re-inventing, re-creating and re-writing, and as educators in the higher distance education process, we should immerse ourselves in the learning process with our students, in that way giving effect to Freirean dialogue (Freire 1970, 53). Technology should not be viewed as the transforming instrument; rather, the lecturer should use technology to bring about change in the learning environment in a pedagogically responsible manner.

Finally, the research conducted and reported on in this article has shown that e-learning is helping to reinvent the very fundamentals of the learning process – from instructional design to the evaluation of results, to who controls the learning experience – towards a holistic epistemological experience for all in the learning community.

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# Inclusion and exclusion in higher education: Paradoxes in distance education

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## Abstract

Distance education has been identified as a tool for opening up access to education. In South Africa in particular, the model has been identified as being able to redress past inequities. In this article, the researcher investigates to what extent 'access' is being given to distance education students enrolled in the B.Ed. (Hons) Education Management, Law and Policy programme at a university, and what the quality of the access is in comparison to its conventional counterparts. The study uses a combination of surveys, interviews and administrative records. The findings reveal that enrolled distance education students on the programme enjoy open access in terms of the university's admission policies. However, paradoxes exist in relation to the use of media, non-instructional support services, the absence of bridging courses, the lack of financial assistance to prospective students without jobs, lack of access to library services, limited access to bursaries for enrolled students, and limited faculty–student contact. Recommendations include: introduction of counselling services, decentralised library facilities, toll-free telephone services, and the release of government funds for bursaries, as is the case for conventional students. It is encouraging that the newly reviewed programme, rolled out in October 2010, contains most of these recommended opportunities.

## INTRODUCTION

The issue of access is not new to debates on higher education. The tiny colleges found in North America in the 1600s and 1700s reflected the fact that at medieval universities, women and black slaves were excluded, and relatively few of the poor were admitted (Shore 1991). But, in recent times, university education has moved from its former position of elitism to massification. Some writers have argued (Tonks and Farr 2003) that it appears that opening the doors to higher education is becoming problematic, due to some of the issues discussed in this article.

The term 'access' can generally be assumed to mean opening opportunities for people to attend college who were once excluded, or giving a second chance to its clients (Holmberg 2001). Exclusion from full-time education may be due

to a number of reasons, such as the inability to afford the costs involved or circumstances not permitting full-time study. In pursuing inclusion, scholars have advised that social inclusion should not only focus on neo-liberal ideas such as numbers and percentages, as those do not necessarily reflect student participation or success, nor do they reveal anything about the quality of the education that is accessed (Gidleya, Hampsona, Wheelera and Bereded-Samuel 2010). The same scholars advise that inclusion should be seen as embracing a broader concept of human rights, egalitarianism of opportunity, human dignity and fairness for all, which may or may not be linked to economic interests.

One of the methods of broadening access to education is distance education, which has a long history. Distance education established its roots as a form of instruction at least 150 years ago (Holmberg 2001). It is now a worldwide phenomenon, with enrolment in this mode of education increasing steadily each year. This mode is now in vogue among many African universities wanting to meet the escalating demand for higher education (Braimoh 2003). Due to its benefits, few political leaders fail to mention the need to increase opportunities for post-secondary education in their country, although the argument is that leaders are driven by economic liberalisation and competition for investment, rather than the desire for, or commitment to, greater social equity (Dhanarajan 1997). Nonetheless, it is a well-educated citizenry that is the foundation of social equity, cohesion and successful participation in the global knowledge economy (International Association of Universities [IAU] 2008).

Increasing access has more than numerical consequences, as making educational opportunities more accessible to those whom it excluded, does not ultimately make the system fair (Herman and Mandell 1999). Therefore, access debates show two faces: invitation and exclusion (Herman and Mandell 1999). One of the important questions is: At whose expense does access come? (Chambers 1997). There are many implications for widening access, one of which is that the student to educator ratio often increases immensely, without corresponding finances being invested. This situation invariably affects the performance of students who drop out of the system in large numbers, thus negating the essence of access (Singh 2001).

Cele and Brandt (2005) assert that there are various forms of access to teaching and learning which include: 'access to space; access to resources; access to knowledge; access to skills and competency; access to dialogue; access to workplace education and access to feedback. These can be grouped into learner invitation (access, admission and placement) and learner hosting (academic provision, service and capacitation)'. Even though the concept of 'quality' is difficult to define, there is no gainsaying the fact that for any higher education

provider to pursue a relevant access policy, this term needs to be understood from the viewpoints of all stakeholders. Such an approach will enable the institution to maintain its integrity, while at the same time meeting the expected needs of the stakeholders involved in the educational process. Having perused available literature on the concept of quality, the researcher is of the opinion that each scholar should formulate a framework on what quality should mean. This should be governed by the purpose of their study – a view also supported by Green (1994). Hence, *quality* in relation to this study implies:

> The conformance of an institution's goals, process and input factors, and evaluation systems to the needs specified by their clients (the government, the students, the financiers and the employers of labour) in relation to what the institution too deems fit as relevant to the specified needs. (Aluko 2007)

## BACKGROUND TO THE STUDY

One of the potentials already identified to redress the question of access in South Africa is distance education, since it provides for the enrolment of large numbers of students (Daves, Goh, Malcolm and Uhl 2004). Higher education is seen as pivotal to economic prosperity, assisting South Africans – personally and collectively – to escape the 'poverty trap' which characterises many communities (Department of Education [DoE] 2001). In view of this need, conventional education institutions in South Africa have, for the last ten years (and in some cases longer) turned their focus to admission strategies that widen access to higher education and facilitate the academic development of students from disadvantaged educational backgrounds (Council on Higher Education [CHE] 2004). However, Gelderbloem (1996) asserts that these initiatives are costly and limited in range, adding that solutions to the problems of access and equity do not lie solely at the door of the university.

Presently, the shape of the South Africa higher education landscape appears, to some extent, to begin satisfying governmental goals (DoE 2004; 2007). For instance, statistics suggest that African student enrolment increased from 40 to 61 per cent between 1993 and 2007. Nevertheless, the question of access and equity in South African higher education cannot be pursued without paying attention to the issue of quality. The former minister of education, Naledi Pandor (2005), stressed that the higher education sector is challenged to promote equity without compromising quality, because, indeed, quality is central to any redress or equity strategy. Though South Africa is one of the few African countries to steadily increase its education funding, often little or no attention is paid to the funding of distance education. Thus, there continues to be chronic tension between widening participation, quality and standards – something which forms a key

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developmental dilemma (Scott 2003). Barnett (1992, 2) describes this tension as 'a possible conflict of interest between expansion and diminishing unit costs' (see Figure 1).
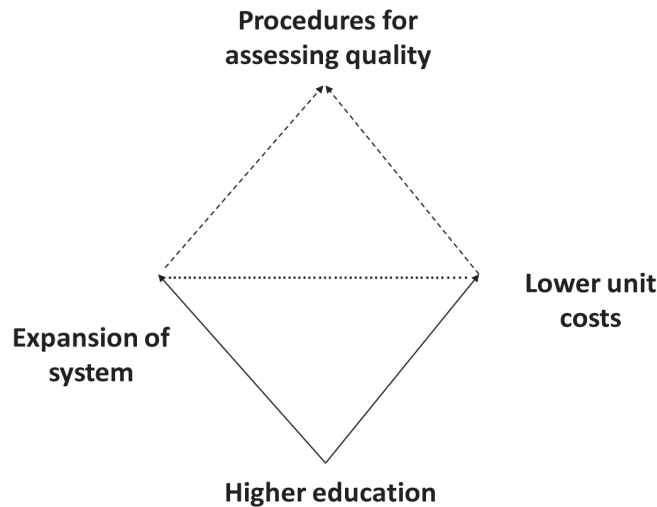


**Figure 1:** The quality gap in higher education
Source: Barnett 1992, 2.

In Figure 1, because education is being pulled in the directions of both expansion and the squeezing of resources (lower unit costs), doubts emerge about the quality of the system's products (Barnett 1992; Green 1994).

The University of Pretoria (UP) is one higher education institution committed to redressing inequality in terms of admissions and access. The university was formerly a pure white Afrikaans institution, but it has purposefully striven towards serving the country and all its inhabitants, and to equip them for the future (Pistorius 2002). Although it is a comprehensive research and contact institution, in 2002 it initiated a distance education initiative in the Faculty of Education after discontinuing its partnership agreement with National Private Colleges. The aim was to support teachers in improving their qualifications, which is aligned with the national policy on teacher education (DoE 2006). Distance education is now a large-scale initiative in the faculty, with about 20 000 students. Through the Unit for Distance Education, the university offers three distance education programmes, one of which is the B.Ed. (Hons) in Education Management, Law and Policy, under investigation in this study.

The research question posed was: What is the extent of access being given to distance education students enrolled on the B.Ed. (Hons) in Education Management, Law and Policy programme at the University of Pretoria, and what

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is the quality of access in comparison with their counterparts studying through conventional methods?

## RESEARCH DESIGN

The focus of the study was the B.Ed. (Hons) in Education Management, Law and Policy programme, which is presented in both conventional and distance modes. To gain a better understanding of the phenomenon under investigation, the mixed-methods approach was adopted. The qualitative instruments included micro and macro administrative documents from the university, one-on-one semi-structured interviews with ten course presenters, four administrative staff members, one instructional designer (students from both modes of delivery use the same learning materials), and telephone interviews with ten students who had discontinued their studies with the university. Other qualitative methods included two focus-group interviews with four tutors (from another conventional education programme of the university) and six module coordinators. The tutors were involved in order to obtain their views on how they perceived their role in the programme they tutored. This enabled the researcher to understand what their possible value might have been to the programme under investigation.

The quantitative instrument was the questionnaire (with open- and closed-ended questions), copies of which were given to 127 distance education students and 45 conventional education students. The researcher included the instrument in order to involve more students. The purposive sampling was applied by the researcher, and the instruments were first piloted on a number of participants, which led to the correction of some of the questions that appeared to be ambiguous. The validity of the instruments was based on the selection of appropriate research methods and instruments, relevant reviewed literature which determined the formulation of questions posed, the choice of relevant participants, an in-depth description of the gathered data, and the distancing of the researcher's personal views. The study took place between 2005 and 2007. However, recent information has been included in order to update the data, where necessary.

## DATA ANALYSIS

Due to the number of interviews, the researcher opted to use *Atlas ti 5.0* (a computer-assisted qualitative data analysis software package). Relevant quotations were extracted and codes were developed based on concepts and themes which were frequently mentioned by interviewees (Hardy and Bryman 2004). Codes were developed manually from the completed questionnaires as
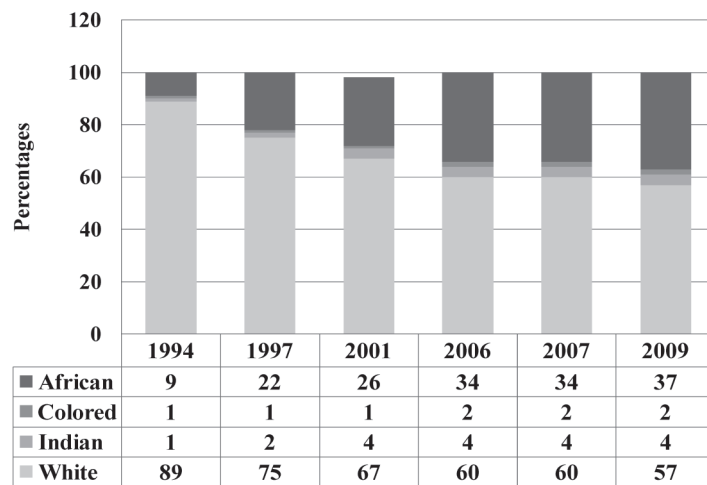
they were few in number. The Statistics Department of the university calculated the cumulative frequencies and percentages.

## MAJOR FINDINGS OF THE STUDY AND DISCUSSION

### The extent of access offered to students

Part of the research question dealt with determining to what extent access is being offered through the programme under investigation, to students who had previously been denied places in higher education. The focus was on three areas: the choice of instructional technology by the university (in view of the demographics of students enrolled in distance education programmes), reasons for the choice, as well as the relevance which the choice of technology has for enrolled students. This discussion also includes related factors that emerged during the course of the study.

Based on the findings derived from both the quantitative and qualitative instruments, we may infer that the call (DoE 2001) to offer access to the majority of previously denied South Africans was gradually being acceded to (Sedgwick 2004). From the university documents which the researcher analysed, it became apparent that there have been many changes at the university, as regards the access offered to students. This becomes important in view of the fact that the university was formerly Afrikaans-only.



| | 1994 | 1997 | 2001 | 2006 | 2007 | 2009 |
|---|---|---|---|---|---|---|
| ■ African | 9 | 22 | 26 | 34 | 34 | 37 |
| ■ Colored | 1 | 1 | 1 | 2 | 2 | 2 |
| ■ Indian | 1 | 2 | 4 | 4 | 4 | 4 |
| ■ White | 89 | 75 | 67 | 60 | 60 | 57 |

**Figure 2:** Race profile at the University of Pretoria
Source: Adapted from University of Pretoria 2005, 2006 and 2009.

Figure 2 shows that the profile of white students at the University of Pretoria decreased from 89 per cent in 1994 to 57 per cent in 2009, while that of African students increased from nine per cent in 1994 to 37 per cent in 2009. The reflected information corroborates similar information in Figure 1, where nationally, the participation rates for white students decreased from 47 per cent in 1993 to 27 per cent in 2007. However, Cloete (2009) argues that the big equity issue for the university system is not trying to squeeze a few more black students into the institutions, but addressing the inequity in pass rates (success rates).

Furthermore, findings from the student questionnaire reflected that 98 per cent of the student participants from both modes of delivery were African, 95 per cent were teachers, 68 per cent were female, 70 per cent were over 40 years of age, and their access to the Internet was two per cent. With the exception of the last aspect of the demographics (access to the Internet, which had increased to 14% by April 2010), all the other demographic factors remained constant.

## The quality of access given to students

Another focus of this study was to assess the quality of access given to students. The researcher considered factors such as the delivery mode used, instructional and non-instructional support systems, the student payment of fees, and library facilities. These are guided by the definition of quality adopted earlier.

- **The delivery mode**

As regards the delivery mode, the findings revealed that since the university decided to venture into deep rural areas, it has, in essence, limited its choice of technology (Bates 2005) to the print medium, in order to offer equal access to students entering the programme. Students from both modes used the same learning materials, which were first developed for use in the distance education programme. According to one of the interviewees, the main reasons for this decision on the part of management included the quality of the materials; the fact that the same module coordinators were responsible for both modes; and also that students would be sitting for the same examination and would be awarded the same certificates at the end of the process. In the researcher's opinion the decision by management proves the quality of the materials developed for the distance education programme.

Although the students could identify with the choice of media some gaps still exist, which Hellman (2003) refers to as the 'digital divide'. This despite the fact that the university, for its part and within the available means of bringing all students to the same level, included all information in the tutorial materials that it felt would be needed by the students to cope with the demands of the

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programme. Nevertheless, module coordinators and many course presenters felt there was a difference between students from the two delivery modes: the contact students all had better exposure to modern facilities such as computer technology; some distance students were privileged to work in schools with certain of these facilities, while others were able to access university libraries located close to them. The distance students with access to aids made up one per cent, compared to the conventional education students who all had access to the campus library and the Internet.

- **Non-instructional support systems**

The researcher investigated both instructional and non-instructional support systems. 'Non-instructional support', in this context, refers to toll-free telephone support and counselling, and academic advisory services for enrolled students in any given programme. Researchers have continually stressed the importance of both types of support systems, since their absence can have terrible consequences for enrolled students (Raphael 2006).

The findings from this study revealed that only contact students had access to non-instructional support such as counselling, while the majority of distance students responded negatively to the presence of these services. Invariably, some of the distance education students identified areas in need of counselling, which were 'career counselling, studying, time management, and how to write examinations and complete assignments'. Regrettably, these areas have already been identified as challenges for distance education students (Mostert 2006). On the other hand, the majority of the contact students indicated that they had better access to academic advising services, which resulted in them being better motivated. A complicating factor was that the distance education students were expected to phone in to access such support, which meant additional expenses for them. As a result, they rarely phoned in with academic enquiries.

- **Instructional support systems**

One of the instructional support systems to encourage distance students to complete their programmes on time is the tutoring system – it provides students with individualised instruction and improves their completion rates and achievement, although these factors depend on the nature of the course, the tutors and the students (Moore and Kearsley 2005). But findings from the investigation showed that none of the six modules under investigation from both modes had the benefit of tutors, which signifies a gap between theory and practice.

It did, however, appear that the course presenters employed by the Distance Education Unit seemed to play the role of tutors. The researcher suggests that this

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could not have been as effective, since the majority of them mainly had contact with the students during the contact sessions, which took place twice a year. Module coordinators expressed doubts about appointing capable hands due to the experience required at postgraduate level, but Moore and Kearsley (2005) suggest that institutions could put in place a process of training the required tutors.

- **Cost to students**

Prospective students who had no job, and could not pay tuition fees, were not admitted to the programme. This shows that access to the programme was restricted to those who could afford the fees. Commenting on this dilemma, Pityana (2006) praised the vast improvements made in the area of access, but nonetheless lamented the fact that many are still excluded from the higher education sector. Interestingly, the picture is not entirely different on the international scene. For instance, USA Funds (2007) expressed the fear that despite the enormous investment of public resources, financial barriers to higher learning persist for many academically qualified low-income students.

The need for financial support leads to a discussion of a loan scheme for which students enrolled at South African universities may apply. Findings from this study reveal that 85 out of 152 students (56%) from both delivery modes were on the loan scheme (interestingly enough, almost all other students who did not indicate financial difficulties were on it too). Only ten students had access to bursaries, while only two could afford to pay their fees. In a sense, the students were forced by circumstances to make use of the loan scheme. As could be expected, students responding to the questionnaire complained about the high fees involved in tertiary education. This constraint, amongst other factors, often signals a low probability of students completing their degrees, as well as low motivation (Qurashi, Morton and Antosz 2002). Some student-participants indicated that the situation was stressful, discriminatory and de-motivating – in particular, they knew of several students who had had to withdraw from their studies due to financial difficulties.

At the time of this investigation, the 2007 national budget reflected the fact that a major share was allocated to education, and according to the then Finance Minister (South Africa Information 2007), R700 million was set aside as bursaries to encourage young people to train as teachers. However, little or nothing was allocated to distance education students. Unfortunately, the same picture is reflected in the current budget (2011).

- **Library facilities**

The last of the support mechanisms mentioned here is the extent of the library facilities provided by the university. It is the responsibility of institutions of higher education to meet the needs of all their students, irrespective of their location (Association of College and Research Libraries [ACRL] 2004). This study revealed that the university made a concerted effort to meet this need by including in student packages all information that it regarded as necessary for their success. Nevertheless, one cannot ignore the fact that the contact students, and some of the distance students who had access to libraries, had an advantage. A particular instance noted was the inability of distance students to access a law library (not found in the rural areas), and most of them had no access to the Internet.

## LIMITATIONS OF THE STUDY

First, one might need to be cautious in generalising the findings from this study to all aspects of programmes other than the one under investigation, or to other dual-mode institutions. This is because of the diverse contexts in which dual-mode institutions find themselves. Second, although telephone interviews are a good method of data gathering when interviewees are removed by space, it is not possible to interact fully with participants, as would be the case in a face-to-face interview, thus making it impossible to read people's emotions or body language.

Furthermore, part of the researcher's main reason for choosing a mixed-methods approach was to gain an in-depth understanding of the phenomenon under investigation. This would have enabled the researcher to further probe certain aspects. However, the majority of students avoided answering some of the open-ended questions, answering only the closed questions, which they probably considered to be easier.

Lastly, the number of enrolled students on the contact mode for the same programme was too small compared to that of its distance counterparts. However, the Statistics Department of the university used non-parametric tests to ascertain the reliability of the exact probabilities, and to strengthen the evidence of the statistically significant relationships between the two groups (Cohen, Manion and Morrison 2000).

## RECOMMENDATIONS

The present decision of the government to introduce bursaries to teacher education because this has been identified as a crisis point is laudable, but a similar gesture should be extended to distance education provision. This need is

particularly relevant in view of the expenses involved, which in-service teachers who wish to study further have to bear, while claiming that their salaries are low. Ironically, most African students are enrolled in education courses (CHE 2009). The government should increase the subsidies provided to distance education programmes, and also make bursaries available to enrolled students, as is the case for their contact counterparts. Even though there is a loan scheme in place, the burden of repaying the loan should not be ignored.

Since the university participating in this study has begun making incursions into the rural areas, practical and workable approaches should be adopted in terms of a tutoring system. Tutors should be made available for all modules. Module coordinators should identify and train tutors for the distance education programmes. Such tutors do not have to be concentrated on the campus alone, but could be former students from both this university and other universities, who meet specified requirements and live in areas where the students reside. Such potential tutors will understand the terrain of the rural areas, and the demands of living there.

As a matter of urgency, attention should be paid to student counselling. Even though all necessary information on matters such as time management and writing assignments is contained in tutorial letters, there is no denying the fact that distance students require extra motivation in order to combat isolation. The present staff complement cannot cope with rendering this added service, without neglecting some aspect of their regular duties. Therefore, a separate department or call centre should be dedicated to counselling distance students, which would go beyond merely allocating some members of the administrative staff to take calls. In addition, the gesture of some counsellors being present at contact sessions for distance students should be practised. In order to cut costs, these counsellors could be employed on a contract basis.

Unfortunately, some of the recommendations mentioned above would be dependent on the availability of funds. For instance, money will be needed to extend library facilities to students in rural areas. One suggestion is that the university could collaborate with identified universities running similar programmes, to save on costs. Government organisations could be approached to open call centres for distance students, which would take care of both their academic and relational support needs. Telephone operators could be trained to serve as counsellors in addition to performing other roles.

In terms of further research, there is a need for a repeat of this study, but on a larger scale in order to make the findings more generalisable. A comparison could be conducted between two or more different universities running the same programme. However, this would require a team of researchers to work together,

as the workload would be too heavy for one individual. Such a comparative study would expose the researchers to quality assurance issues in different settings, which might contribute to the generalisability of the findings.

There is a need for research into the possibility of establishing an effective tutoring system for students in rural areas, as well as the extension of library services to those regions. Finally, further research is needed in the area of ensuring the quality of a programme, especially in a rural setting in an African context (Aluko, Fraser and Hendrikz 2008).

## CONCLUSION

The findings of this study confirm those of other research studies, which indicate that South Africa has identified distance education as a tool for redressing past inequalities in higher education. Although equal access is currently a particular national focus, it appears that little is being said or done in terms of financially supporting distance education, to broaden access to higher education. Also due to the University of Pretoria's decision to make incursions into rural areas it has had to settle for the print medium, because so few distance education students have access to the Internet. Inevitably, there remained gaps in the provision of distance education programmes, such as varying contact exposure by some distance education students to information and communications technologies (ICTs) – in particular, as regards access to the Internet. Furthermore, some students were fortunate in that they lived in close proximity to the library facilities of the university.

In addition, the results of this investigation highlighted the importance of tutors (outside the course presenters) who are only available to distance education students during contact sessions (Aluko 2007).

In conclusion, it is important to note that since the time of this investigation, the university in question has reviewed the programme, and the upgraded B.Ed. (Hons) in Education Management, Law and Policy programme was rolled out in October 2010. Most of the recommendations and suggestions listed above have been incorporated into the new programme. In the South African educational landscape, thousands of teachers wish to enhance their qualifications, but cannot attend universities in urban areas as residential students, nor take leave to travel away from their homes and schools to attend lectures (Fresen and Hendrikz 2009). Thus, distance education is highly relevant to opening the doors of learning, which brings with it the concomitant need to monitor the quality of access to higher education which is provided in this mode.

## NOTE

1. South Africa demographics are divided into four major racial categories: African (a term used for blacks), white, coloured and Indian. These terms are used throughout the article.

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# Student perspectives on videoconferencing in teacher education at a distance

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## Abstract

This article presents the findings of a small-scale study exploring student views on videoconferencing (VC) as a teaching tool in teacher education at a distance. The context of this study is group discussion classes which were held for the first time via VC in the Department of Teacher Education at the University of South Africa. The use of VC specifically for group discussion classes has not yet been the subject of significant research. The study aims to expose academics to new ways of presenting group discussion classes, especially for students who cannot afford to attend classes at the main campus. The study used a questionnaire to gather students' views on communicating with their lecturers via VC; collaborating with remote students via VC; and the possibility of replacing face-to-face group discussion classes by VC. The article highlights some key findings on these issues and raises possible topics for future research.

## INTRODUCTION

Videoconferencing (VC) may be described as the transmission of image (live video) and sound (audio) back and forth between physically separate locations (Raffelini 2006). According to Berge and Collins (1995), VC offers people who are absent from the meeting place an opportunity to participate virtually without commuting. In a videoconference, participants are able to communicate in real time by exchanging image and sound via the Internet or private networks, using a camera and a microphone (WebVideo4U 2005). The participants are able to see and hear two or more distant locations in real time, and share data and applications from wherever they choose (Wainfan and Davis 2004). VC is made possible by specific technological equipment that creates an appropriate communication infrastructure (Wikipedia 2008). It aims to provide the high-quality transmission of video and sound between distant locations (Wikipedia 2008).

Following the above definition, it appears necessary to distinguish between videoconferencing and webcasting. Webcasting is a one-way transmission service used to broadcast events in real time via the Internet (Haga and Kaneda

2005). This means audio and video are broadcast to different distant locations via the Internet, but without the possibility of two-way communication between participants.

These days, VC is widely adopted so that individuals or groups at different locations can participate in meetings, conferences, seminars etc. Commuting costs are reduced substantially, administrative arrangements are simplified and time is used optimally. Given the right circumstances, VC is conducive to the creation of a friendly face-to-face communication environment, where physical presence is accompanied by facial expressions, body language and visual contact. Key factors to the implementation of a videoconference facility are the netting of the distant locations, the software, the layout of the venue and the technical support (Mattheou, Mouzakis and Roussakis 2001). As Baltes, Dickson, Sherman, Bauer and LaGanke (2002) maintain, VC supports better-quality verbal and non-verbal communication than other technologies such as audioconferencing or computer-mediated communication.

This article looks at VC as an important method for information communication in distance education. In the study reported in this article, VC was used to facilitate group discussion classes at various regional centres. The study therefore sought to investigate the pedagogical and social experiences of students who were exposed (for the first time) to group discussion classes conducted via VC. More specifically, the goal of the study was to investigate the students' views on

- the communication/interaction with the tutors (lecturers) via VC;

- the collaboration via VC with fellow students located at a distance;

- the possibility of replacing face-to-face group discussion classes with VC.

This study was guided by the following questions:

1. How do students feel about the possibility of communicating and interacting with their lecturers via VC?

2. How do students feel about the possibility of communicating and collaborating with students in other regions or remote areas via VC?

3. What were students' views on the possibility of replacing face-to-face group discussion classes with VC?

The motivation for the study was the desire to strengthen support strategies and provide improved support to students enrolled in distance learning institutions. Students' views and evidence from research in this field were studied in the hope

that the results would help to strengthen efforts towards developing methodologies and models to support the implementation of hybrid learning environments in distance education.

## LITERATURE REVIEW

### Studies on VC: What makes it successful?

The introduction of the videoconference facility to the education system a decade ago was seen as a panacea to address numerous problems facing higher education – in particular, distance education – across the world. Heath and Holznagel (2002) and Amirian (2002) point out the unique ability of VC to promote interaction in the classroom. These authors assert that synchronous communication via VC between students, experts and peers, and among locations, offers opportunities for students to develop a high level of interaction. These authors add that via VC students can develop questions, work in teams on authentic tasks, and interact synchronously to gain an understanding of sources and interpret information. The authors conclude that interaction is the key component for successful teaching, as in any classroom. A number of studies support the widely held belief that VC is uniquely able to foster interactivity in a learning situation (Cavanaugh 2001; Heath and Holznagel 2002; Irele 1999; Kunz 2000; Twigg 2001).

These studies show that presenters (tutors) are most successful when they design the instruction to be highly interactive. The student-to-student and student-to-tutor interaction must be designed into instruction and must be continuously fostered by the teacher (Heath and Holznagel 2002).

In a well-researched VC literature review, Amirian (2003) found that interaction is critical to any VC-based learning situation. She argues that VC should be used in ways that make full use of its unique qualities, stating that 'interaction is the key component of this use of the technology to support a more social learning, negotiating meaning through interaction' (Amirian 2003). Sharing Amirian's point about interaction, Irele (1999) found that as regards remote learners, in a VC-based learning situation, a combination of media increases the chances of positive learning outcomes by increasing the range of learning styles that can be accommodated. The obvious conclusion from this statement is that there are times when VC alone is not as effective as multiple technologies and techniques. Also weighing in on the importance of VC being able to accommodate different learning styles are Heath and Holznagel (2002) and Alhalabi, Anadaptuam and Hamza (1998). In their literature reviews these authors note that using several technologies to meet different instructional needs and learning styles results

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in a richer, more effective instructional experience. According to the authors both synchronous and asynchronous communication types are ideal in distance education, because they produce interactivity. An essential challenge of a distance learning course is promoting and sustaining interactivity.

For Sherry (1996) interactivity takes many forms; it is not just limited to audio and video, nor solely to tutor–student interactions. It represents the connectivity students feel with the distance education lecturer, the facilitators and their peers. Sherry (1996) states that without connectivity, distance learning degenerates into the old correspondence course model of independent study. The student becomes autonomous and isolated, and eventually drops out. The author further argues that effective distance education should not be independent and isolated from learning, but should rather be a combination of authentic learning experiences.

Kunz (2000) also stresses the importance of interactivity in VC. This author evaluated nearly 200 VC-based classrooms to arrive at a set of recommendations for making VC effective. One of the findings was that 'more active involvements of the participants' (Kunz 2000) is critical. In another comprehensive review of case studies illustrating innovative VC-based projects in colleges and universities, Twigg (2001) is equally emphatic on the importance of interactivity. In an examination of what the author calls 'groundbreakers and pacesetters', it emerges that leading teaching and learning institutions rely to some extent on the effective use of technology. The author further notes that these providers, 'rather than trying to replicate a teaching model online', instead create 'an environment in which students interact and wrestle with learning materials directly (or in teams), under the tutorial guidance of a mentor' (Twigg 2001). The author concludes that the goal 'is for students to become engaged in active "doing" in the learning process, that is, move beyond merely reading text' (Twigg 2001). Twigg (2001) also names 'an array of high-quality, interactive learning materials and activities' as one of five key features that improve learning in VC-based situations. The arrays include the assessment of knowledge, skills level and learning style, individualised study plans, continuous assessment and varied human interaction.

It is worth noting that the studies consulted in this article, all of which emphasise the importance of interactivity, focus almost exclusively on VC. Real-time student-to-teacher and student-to-student interaction, both visual and verbal, is a feature unique to this technology. Most other widely used distance education technologies, such as online courses, e-mail and other asynchronous learning systems, simply do not provide the degree of interactivity available with VC. Therefore, the author of this article cannot emphasise too strongly the importance of interactivity in the videoconference setting.

## Limitations of VC

The literature cited in the previous section points to effective interaction as the key to successful VC in education, although the required theoretical underpinning for this aspect of constructivist thinking is not always fully provided (Bates 2005; Fardanesh 2002; Offir and Lev 2000; Smyth 2005). Yet interaction in the VC medium is not without its challenges: despite having only one remote site linked to the main campus, there are difficulties in establishing an effective tutor–learner relationship and effective interaction for learning at a distance. Multi-site VC exacerbates these issues: even the addition of a third site has been found to add significantly to complications, both technological and educational (Payne, Gooday, Coutts, Duncan and Wolfe 2006). Where many individuals are involved, the camera may not identify the presenter (tutor) readily in an interactive setting, and so others may need to rely on voice alone, which is limiting. Without a tutor present, the sense of interactivity at remote sites may be reduced, and while some students can be highly engaged and involved in their learning it is possible for others, even at the same site, to be inactive and inattentive for long periods, with impunity. Reserved students may find it easier to disappear in the remote setting than in a normal classroom setting. The quality of interaction in a VC setting is also questioned as it may often be of a social or didactic nature, rather than requiring cognitive interaction to promote higher-order thinking. As has been noted, social interaction is vital to support learning, but it may not be enough to promote learning (Abbot, Austin, Mulkeen and Metcalfe 2004; Bates 2005; Knipe and Lee 2002).

Two decades ago, Garrison (1989) raised a fundamental point by questioning whether distance education should be understood in the same terms as face-to-face classroom education. The simple answer is 'no'. Garrison argues that although VC provides participants with the ability to watch, hear and communicate with one another simultaneously, such interaction is more impersonal than it would be in a conventional face-to-face teaching process. Participants do not share the same three-dimensional space, as they can see only what the camera shows. Besides this, the non-verbal contact among participants is usually vague (Garrison 1989). Another significant factor that creates more difficulties is the fact that the participants cannot evaluate their visual contact – they can only have visual eye contact within non-physical conditions (Angiolillo, Blanchard, Israelski and Mane 1997).

Organising VC as opposed to arranging a normal classroom is rather complicated. This is a serious issue and many factors should be considered: (a) the planning and organising of VC; (b) human communication; (c) specialised education in relation to the continuous development of technology; and (d) the

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high cost of such technological tools (Ferguson and Wijekumar 2000). The fundamental problem of VC is that in cases where live technology fails there is often no obvious fall-back alternative which can be employed immediately.

Issues around the limitations of VC also need to be seen in the light of the wider literature base, which points to the need for training tutors to make the best use of VC and the need for them to adjust and plan for its structures. The learner in the videoconference setting has numerous needs and faces challenges created by distance. Simply transferring live classroom approaches to the videoconference room is seen as inadequate (Badenhorst and Axmann 2002; Burns 2002; Martin 2005; Mehrotta, Hollister and McGahey 2001; Smyth 2005).

VC also does not enhance the element of student flexibility, which distance education is purported to foster. This is because technological logistics currently at least require distant students to be present at a site, at a set time, to access locally the programmes coming from a distant provider (Bates 2005), unlike some online courses which permit users to access materials wherever they wish. While this may have particular advantages, for example in terms of peer support for distant learners, it obviously restricts the autonomy of the learner.

Studies conducted to evaluate the effectiveness of the educational use of VC indicate that it does not yet meet participants' expectations (Motamedi 2001). Other studies claim that participants in the distant classroom are not as satisfied with the learning process during VC as are learners in the local classroom, with the main technological appliances of VC (Knipe and Lee 2002). According to some reports, certain learners find conventional face-to-face teaching more satisfying than VC (Delaney, Jacobs, Iedema, Winters and Barton 2004).

## METHODOLOGY

This section of the article briefly discusses the context of the study, the characteristics of the participants and the derivation of the measurement instruments used.

### The context of the study

The research was conducted at the University of South Africa (Unisa), more specifically in the Department of Teacher Education, one of the biggest departments in the university. Unisa was selected because it offers distance learning programmes and has a large student body. Second, the university relies on print-based material and technology to communicate information to students. The study focused on students' experiences of VC as a teaching tool, especially for group discussion classes. At Unisa VC was introduced in 1990 as a method to

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contact students in a distance learning environment. The student support system is boosted by discussion groups and the use of technology. However, lecturers still prefer face-to-face teaching rather than using technology, in particular VC. Despite this, VC is used by a few Unisa departments.

A decade after VC had been introduced at Unisa, visual communication was included in the student support policies of the institution (Unisa 2002). However, at that stage it was still not considered a mainstream support medium. During 2004, after a restructuring and institutional merger exercise initiated by the South African government, the new Unisa planned to integrate visual conferencing into its student support. From 2007 to 2010 an average of 600 VC sessions per year were held at Unisa, with an average of 70 departments using the system. However, the technology was used solely for postgraduate guidance, oral examinations (for supplementary examinations and special needs learners), the interviewing of job applicants, the training of staff in remote centres, or discussions about collaborative agreements. Only a few departments used the technology for group discussion classes. At Unisa the VC system, which is fully interactive, uses ISDN lines and allows two-way visuals, audio and data. The system includes cameras (a video camera and a document camera) to take pictures of participants and of documents; monitors on which students can see the lecturer and vice versa; additional preparation monitors for lecturers; omni-directional microphones; and modems connected to hubs and then to ISDN telephone lines connecting nine regional sites and transferring the audio, visual and data elements. Although not used by all departments, the presentation sites are also equipped with video machines (one machine to record sessions and one to play videos to students during a videoconference); and a multimedia computer to display illustrations, present electronically prepared presentations, or play a sound clip and video. A variety of platforms may be used to transmit the audiovisual data signals, and new ones are being developed. However, the concept of seeing and hearing someone in real time over a distance stays the same.

## The participants

The research study targeted 65 undergraduate distance education students who enrolled for the module in teaching method (subject didactics) of Life Sciences for a Bachelor of Education degree. The subject didactics module was selected because its student numbers were low in comparison to other modules. It should be mentioned that videoconference rooms at Unisa can only accommodate between 20 and 100 students across the nine regional centres. This alone poses a challenge, especially for more popular modules. In this study, two regional centres with relatively higher student numbers were linked to the videoconference

centre at the main campus. A survey was therefore conducted to determine how many students had access to e-mail, facsimile, cell phone or telephone facilities. The lecturer responsible for the VC class e-mailed handouts to those students who had access to the Internet, and at the same time e-mailed notes to the learner support staff at regional centres. These notes were then distributed to students. Learner support staff also phoned students to remind them about classes and inform them where to pick up the class notes they needed to study, in preparation for their videoconference class. Student attendance was not mandatory, but the lecturer in charge of teaching recommended that students attend in preparation for the final examination.

## Data collection instrument

The study focused on students' experiences of VC as a teaching tool, especially for group discussion classes. A questionnaire was used for data collection. Questionnaires were distributed to all the remote sites and the person in charge of each site invited the students to complete the questionnaires before VC sessions (ex-ante) and after VC sessions (ex-post). Completed questionnaires were collected by the researcher. Participants were informed about the study in advance via e-mail and SMS. Participants received no reward for their participation, but could freely express their opinions of VC as a teaching tool.

The questionnaire consisted of two parts: the first, designed to elicit socio-demographic data from the students, contained closed questions (multiple-choice or yes/no questions). The second part was designed to explore students' views on VC as a teaching tool to facilitate the group discussion classes. These were also closed questions, but students had to choose their answers from a five-point Likert scale. The answers ranged from 'strongly disagree' to 'strongly agree'. The answer 'unsure' was added for participants who might not have experienced the situation described in the question. Of the 65 questionnaires issued, 58 were returned. Therefore, the findings of this study are based on the responses of 58 participants.

## FINDINGS

The questionnaire was completed by 58 students, resulting in a response rate of 89.23 per cent. Of those who responded, 62 per cent were women and 38 per cent were men. The average age was 27 years (71.9% of the respondents were born in 1979).

Table 1 offers a brief outline of the views of the students who participated in the VC, as well as an analysis of the data. The statistical analysis of the data was

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conveyed with SPSS 14.0 for Windows. The author compared the ex-ante (before the VC session) and ex-post (after VC session) evaluation. Students' views were coded using a Likert scale (strongly disagree – strongly agree [1–5]), and the averages were calculated for each question of both ex-ante and ex-post evaluation. The averages were compared via t-test, with statistical significance $p<0,05$. Ex-ante Cronbach's α (Alpha) = 0,962 and ex-post Cronbach's α (Alpha) = 0,954.

**Table 1:** Students' views on VC

| QUESTIONS | | PHASE | RESULTS | | |
|---|---|---|---|---|---|
| | | | N | Mean | S.D |
| 1 | It would be helpful to be able to communicate with my lecturer via a monitor or PC. | Ex-ante | 58 | 3.16 | 1.461 |
| | | Ex-post | 58 | 3.48 | 1.501 |
| 2 | It would be helpful to be able to attend the group discussion classes via a monitor or PC. | Ex-ante | 56 | 2.59 | 1.385 |
| | | Ex-post | 58 | 3.14 | 1.504 |
| 3 | Talking to my lecturer in person (in the classroom) is exactly the same as watching him/her on the monitor or PC screen. | Ex-ante | 58 | 1.97 | 1.256 |
| | | Ex-post | 58 | 2.05 | 0.847 |
| 4 | It would be helpful to be able to communicate with other students via a monitor or PC. | Ex-ante | 58 | 3.40 | 1.555 |
| | | Ex-post | 58 | 3.72 | 1.361 |
| 5 | It would be helpful to be able to collaborate with other students via a monitor or PC. | Ex-ante | 56 | 3.16 | 1.437 |
| | | Ex-post | 58 | 3.60 | 1.426 |
| 6 | If I were able to attend the group discussion classes via the monitor or PC, there would be no reason to attend at the campus. | Ex-ante | 58 | 1.83 | 1.094 |
| | | Ex-post | 58 | 2.29 | 1.377 |
| 7 | I would prefer to attend the group discussion classes via the monitor or PC screen and not to attend at the campus. | Ex-ante | 58 | 1.86 | 1.083 |
| | | Ex-post | 57 | 2.07 | 1.147 |
| 8 | I would prefer to communicate with other students via a monitor or PC and not to attend at the campus. | Ex-ante | 58 | 1.93 | 1.122 |
| | | Ex-post | 55 | 2.18 | 1.263 |
| 9 | Interacting with other students face-to-face rather than via a monitor or PC is very important for me. | Ex-ante | 57 | 4.37 | 0.899 |
| | | Ex-post | 57 | 4.35 | 0.73 |
| 10 | I make friends on campus but it is more difficult via a monitor or PC | Ex-ante | 58 | 4.14 | 1.263 |
| | | Ex-post | 58 | 4.24 | 1.159 |

Closed questions, Likert scale (1: Strongly disagree; 2: Disagree; 3: Unsure; 4: Agree; 5: Strongly agree)

The next section presents the discussion of the findings.

## DISCUSSION OF FINDINGS

The objective of this study was to investigate students' views on: (a) the communication or interaction with the tutors (lecturers) via VC; (b) the collaboration with distant fellow students via VC; and (c) the possibility of replacing face-to-face group discussion classes by VC. The analysis of the findings indicates the following:

### First inquiry (questions 1–3 in Table 1)

These questions seek to address the fundamental question posed earlier in this article: How do students feel about the possibility of communicating and interacting with their lecturers via VC? In addition, by administering the questionnaire before the VC session and after the VC session, I wished to investigate whether their original views were influenced by their participation in VC and, if so, to what extent they were influenced.

Although the students were neutral regarding the possibility of communicating with their lecturers via PC (3.16), their initial attitude towards conducting the group discussion classes via VC was negative (2.59). After the VC session, there were more positive views on conducting communication via VC (3.14). This finding refutes the perception that there are difficulties in establishing an effective teacher–learner relationship at a distance if more than one site is linked. However, one cannot effectively deliver a straight lecture to 50 locations via VC. Rather, VC is ideal for truly *interactive*, point-to-point and small numbers of multi-site instructional sessions, or for several dispersed classes that collaborate. It is better for shorter classes, while some types of content are more appropriate for VC than others. In addition, effective VC requires that tutors adapt not only content but also technique to account for the distributed, highly interactive nature of the pedagogical situation. Therefore, we might speculate that the engagement (interactivity) that occurred during the VC influenced the perception held about VC. The student-to-student and student-to-tutor interaction was designed into the instruction and was continuously fostered by the tutor. Heath and Holznagel (2002) argue that presenters (tutors) are most successful when they design the instruction to be highly interactive. In other words, VC both *supports* interactivity and *demands* it, therefore straight lectures do not represent the best use of VC for educational purposes. However, the students did not agree that watching the lecturer on-screen is the same as being in a classroom (1.97) – an attitude which did not change considerably after the VC session (2.05). The students'

preference for a combination of videoconference sessions and conventional sessions becomes apparent here. This finding supports Cavanaugh's view that distance education programmes are more successful when they 'combine an individualized approach with traditional classroom instruction' (Cavanaugh 2001). The author argues that because distance education produces 'achievement at least comparable to traditional instruction in most academic circumstances' (Cavanaugh 2001), the technology is useful for expanding educational options.

## Second inquiry (questions 4–5 in Table 1)

These are the sub-questions to the fundamental question raised in the previous section in this article: How do students feel about the possibility of communicating and collaborating with students at other regions or remote areas via VC? This question was augmented by a further probing which investigated whether students' original views were influenced by their participation in VC and, if so, to what extent. In the same way, the questionnaire was completed before and after the VC sessions.

Looking at Table 1, the students were positive about communicating with fellow students at remote sites via VC (3.40) and neutral towards collaborating with them (3.16). However, their participation in the VC made them more receptive to the idea of both communication (3.72) and collaboration (3.60).

## Third inquiry (questions 6–10 in Table 1)

Questions 6 to 10 in Table 1 are sub-questions which support the fundamental question asked earlier in this article: What were the students' views on the possibility of replacing face-to-face group discussion classes with VC? In the same way, the questionnaire was completed before and after the VC sessions. The aim was to investigate whether students' participation in the VC influenced their stance and, if so, to what extent.

The students' attitudes towards replacing face-to-face group discussion classes with VC were negative (1.83) and did not change considerably after their participation in the VC (2.29). The finding suggests that the physical presence of lecturers in the traditional classroom is a very important factor. Students made a clear distinction between having the lecturer physically in the classroom and being taught via a monitor. This finding is also in agreement with some limitations of VC, raised earlier in this article and mentioned in studies conducted by Gurrison (1989), Motamedi (2001) and Delaney et al. (2004).

Students were equally negative about communicating with fellow students via VC (1.93) and that perception did not change much after the VC (2.18). Surprisingly, their participation in the VC changed their initial perception,

expressed in the second inquiry (questions 4 to 5 in Table 1): they became more negative towards VC. Surely, this requires further investigation.

Like Irele (1999), we can conclude that there are times when VC alone is not as effective as multiple technologies and techniques. This statement argues for blended learning approaches, where real-time VC should be combined with closely related technologies such as e-mail and blogs, individualised learning objects, collaborative work project spaces, web searches and e-portfolios. While VC technology can play an important role in adding immediacy to distance education delivery, when used alone it does not appear to provide as rich an environment as one in which various tools and techniques are blended to create more engaging and effective learning experiences (Irele 1999).

Before the VC session, the students stated that interacting face-to-face with their fellow students on campus was very important (4.37) and that they found it easier to make friends on campus than via a monitor or PC (4.14). Their views did not change after their participation in the VC. The students recognised that friendship established by way of physical interaction on campus was the most important element of their university life.

## CONCLUSIONS

Lecturers (tutors) appear to play an important role in the context of face-to-face instruction. Their physical presence in a classroom cannot be replaced with communication via a screen in real time. The students were initially neutral about the possibility of communicating and attending group discussion classes via VC, and they did not consider watching the lecturer (tutor) on-screen to be the same as being in class. Participation in the VC appears to have influenced the students' views, making them more negative. This area requires further investigation.

Students were more willing to communicate than collaborate with fellow students in remote sites via VC. However, their attitudes were more positive after participating in the VC.

Although the students regarded the new method of conducting group discussion classes as appealing, they were opposed to replacing the traditional face-to-face group discussion classes with VC. Their participation in the VC did not change their stance.

The findings cited here strengthen the view that the new learning environment should consist of a combination of new educational technologies and traditional pedagogic approaches. We have to focus our efforts on developing methodologies and models which would support the implementation of hybrid learning environments.

It is necessary to present some brief reflections on this study and on possible future research. It is important to point out one methodological limitation of the study reported here, namely that the author did not record the views of the instructor who presented the VC. This information could have provided a more comprehensive picture of the use of VC as a teaching tool for group discussion classes. Again, the study failed to capture both the views of students on site and at a remote site.

Based on these shortcomings, the author believes it would be worthwhile to do a comparative study of both local and remote students' views on VC as teaching tool for group discussion classes. A comparison could then be drawn between the views of these two populations. In order to obtain a more complete picture of VC, the author believes it would also be helpful to know the instructors' views on the perceived effectiveness of and satisfaction with VC. Such a study would give a complete picture of the limitations and benefits of VC.

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# Choosing the best from blended and online e-learning

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## Abstract

Blended learning should incorporate the best of contact and online learning, allowing flexibility while retaining connectedness. Therefore, designing effective instruction requires research-informed choices. The Community of Inquiry (CoI) survey is a well-validated instrument measuring social-, teaching- and cognitive presences in e-learning that reflect the quality of e-learning courses (Garrison, Anderson and Archer 2000). We compared the CoI results of two blended postgraduate courses: one predominantly online and the other mostly in contact mode, taught by the same lecturer. The end-of-course deliverable for both courses in research methodology was a research proposal. Both courses utilised the learning management system (LMS), while students with insufficient Internet access communicated via email or telephone. Both courses included the two-tiered double-blind electronic peer review of assignments. One group had weekly contact sessions, and the other only an initial welcoming session. We discuss using peer review for formative feedback as a particularly beneficial strategy to facilitate teaching effectively in such large classes, and the limitations thereof. The CoI survey showed the strengths of the online environment, with very strong teaching presences due to good organisation, comprehensive online supportive documentation, and automated feedback. High cognitive presence was due to peer review; strong constructive alignment between objectives, activities and assessment; and in the online class due to the constructivist teaching practice of fostering student ownership of outcomes. In both classes social presence was the weakest, although the contact class scored significantly higher on this presence. Low social presence did not compromise course completion in any group.

## INTRODUCTION

Distance learning is often inevitable, due to the distributed location and work circumstances of students. Paper-based distance education does not offer the best

solution, as graduation rates compare poorly and are about half that of contact education (University of Pretoria 2006, 95). Distributed students experience many constraints that emanate from feelings of disconnectedness (Rovai and Wighting 2005), causing them to lose heart and abandon their studies. There is a strong need locally to incorporate e-learning to replace paper-based distance education for students who have access to the Internet. The quality of e-learning would be as dubious as paper-based education, if courses consisted of passive content with no individual support or interaction with lecturers or peers (Holmberg 1989). The pedagogy for successful e-learning differs greatly from that encountered in traditional classroom education, in order to harness the power of the medium (Coppola, Hiltz and Rotter 2002; Pelz 2004).

A recent large-scale meta-analysis published by the United States Department of Education (Means, Toyama, Murphy, Bakia and Jones 2009) shows that students receiving blended learning perform better than students receiving either classroom- or online-only tuition. Blended delivery courses can be flexible, consisting of differing proportions of contact time to online time to accommodate the subject requirements and student preferences, if designed purposefully (Vaughan 2010). Research has shown that a blended delivery mode can retain the best of contact and electronic learning worlds, giving distance students the required flexibility, while retaining the connectedness characteristics of a classroom.

While the University of Pretoria is officially a contact institution that endorses blended learning, some courses for distributed students contain such a small contact tuition component, that the delivery closely resembles fully online e-learning. Such courses require attention to the concomitant quality assurance and pedagogy that characterise e-learning.

The key to successful web technology-enhanced distance learning is to foster students' connectedness and provide an opportunity for them to become part of a community that supports them in their quest for new knowledge.

## LITERATURE

### Blended learning

The United States (US) has seen phenomenal growth in the number of online higher education courses, while the number of blended or hybrid courses has remained relatively constant (Allen, Seaman and Garrett 2007). There is evidence that blended delivery is not a developmental transition stage between classroom delivery and fully online course delivery, but a specialised delivery mode with

its own merits. Though some rate fully online courses as a superior delivery mode (Allen et al. 2007), it is still beyond the reach of a significant portion of higher education students in southern Africa, due to limited Internet availability (Roycroft and Anantho 2003).

While Garrison and Kanuka (2004) posit that little learning takes place in the lecture mode of teaching, there are many ways of delivering e-learning. On the one end of the scale e-learning enhances contact teaching, as an enhanced delivery course can consist of mainly contact lectures supported with web-based learning material and administrative information (Lotriet, Jorissen and Nagel 2008). When courses include online discussions, assessment and assignments, the proportion of web-based activities increases up to a point where classroom activities become optional, and at the extreme, e-learning is fully online (see Figure 1).
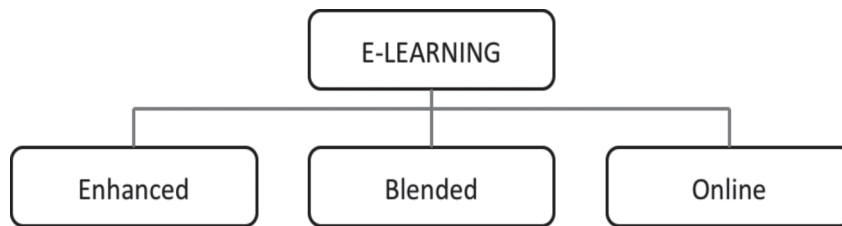


**Figure 1:** A continuum of e-learning (Garrison 2004)

According to Garrison and Kanuka (2004, 95) 'blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences'. At the University of Pretoria (UP), Lotriet and colleagues use the term 'blended learning' as synonym for multi-modal delivery, and they do not restrict the term to denote a blend of face-to-face lectures and learning management system (LMS)-delivered content and activities. Because many UP students do not have sufficient Internet access, this model encourages lecturers to use other technologies and delivery modes, like CD ROM, SMS technology, situated site visits, third-party software, narrated PowerPoint presentations, podcasts and email in innovative ways to engage students outside the classroom. Pretoria University therefore encourages the development of unique and innovative blends of delivery modes for each class (Lotriet et al. 2008), adhering to the concept that blended learning should integrate 'the strengths of synchronous (face-to-face) and asynchronous (text-based Internet) learning activities' (Garrison and Kanuka 2004, 95). The decision of which activities to deliver in each mode should reflect the situation analysis; particularly suiting access to the Internet in the particular group of students (Lotriet et al. 2008). Lecturers have to make informed decisions

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regarding the teaching of certain skills, particularly as 'writing can be a highly effective form of communication that encourages reflection and precision of expression. When thoughtfully integrated with the rich dynamic of fast-paced, spontaneous verbal communication in a face-to-face learning environment, the educational possibilities are multiplied' (Garrison and Kanuka 2004, 95). The problem is how to gauge the value of each innovative practice, and how to evaluate the contribution of new technologies and approaches towards student success (Ice and Nagel 2010). The biggest challenge in e-learning is to foster the engagement of students (Vaughan 2010).

For many local teaching situations, moderated online discussions that characterise e-learning are not feasible tools to mediate online interaction, particularly in very large classes with too few facilitators, or with distributed students who do not have sufficient Internet access (Swan et al. 2010). Lecturers of such classes have to implement other tactics to engage students, such as peer review.

## Peer review

Structured peer review is a useful way of engaging students at a high cognitive level. At the same time it reduces the instructor's dominance or sage-on-the-stage role, in favour of a more student-centred guide-on-the-side facilitating role (Arbaugh 2010; Mazzolini and Maddison 2003). While it is necessary to provide ways for adult learners to share valuable experiences and insights (Rossman 1999), peers can provide more extensive comments than facilitators or assistants had time for (Gehringer 2001), and students benefit from peer feedback (Boud, Cohen and Sampson 1999). Management of peer review documents using other document distributing systems in conjunction with the LMS has been a bone of contention, and has limited its widespread implementation. Gehringer (2001) initially solved the problem by successfully using email in addition to the web-based LMS to track and distribute documents. 'The other problem was maintaining a uniform standard of review. Two things solved the issues: using comprehensive rubrics for students to use as checklists. Further, we used a two-tiered approach, as the original author could evaluate the comprehensiveness of his reviewers' comments.' He also implemented a system of 'Review of review: students assess the reviews for being careful and helpful to contribute a grade of 25 per cent of total. This ensures careful and thoughtful reviews' (Gehringer 2001). Conducting formative assessment contributes to the sustained evaluation of students' own work – a practice that will equip them for the rest of their postgraduate studies, leading to life-long learning (Boud 2000).

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## THE COMMUNITY OF INQUIRY

Over the past decade, the Community of Inquiry (CoI) framework has been refined as a process model for designing online instruction, based on a social constructivist pedagogy (Arbaugh 2010). The CoI survey is a well-validated instrument used to gauge the quality of e-learning courses (Diaz, Swan, Ice and Kupczynski 2010), and it has been successful in measuring the quality of both fully online and blended courses (Vaughan 2010). The CoI framework proposes that successful learning takes place when there are three presences in a class, namely social-, teaching- and cognitive (Garrison, Anderson and Archer 2000). Figure 2 shows how these presences all contribute to students' learning experience, while they overlap to some extent, thus supporting each other.
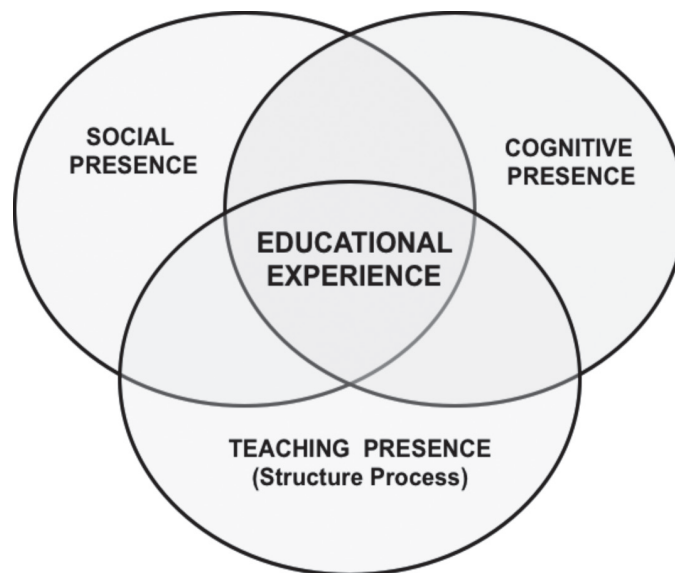


**Figure 2:** The Community of Inquiry framework (Garrison 2000)

## Teaching presence

The three elements of teaching presence are:

- Design and organisation (setting curriculum, activities, assessment) and presenting the course;

- Facilitation (shaping constructive discourse, all participants share in this function);

- Direct instruction (focusing on and resolving issues).

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A lecturer contributes to the teaching presence by doing instructional design and organisation prior to the course, and offering online facilitation and direct instruction during the course (Arbaugh 2010). 'Teaching presence is a means to an end to support and enhance social and cognitive presence for the purpose of realizing educational outcomes' (Garrison et al. 2000, 90). Therefore, teaching presence does not stand alone. When students purposefully construct knowledge which results in deep learning, it also signifies a high level of cognitive presence.

## Social presence

> Social presence is defined as the ability of participants in the Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people'. The primary importance of this element is its function as a support for cognitive presence, indirectly facilitating the process of critical thinking carried on by the community of learners. (Garrison et al. 2000, 89)

Social presence indicates that students feel they belong to a community where they can express themselves freely. It consists of the following elements:

- Affective expression (expressing emotion, self-projection);

- Open communication (learning climate, risk-free expression);

- Group cohesion (group identity, collaboration).

The value of social presence lies in students' satisfaction with their course and in ameliorating the feelings of loneliness and disconnectedness that cause them to lose heart and abandon their studies (Richardson and Swan 2003). Research also showed that 'by increasing social presence through the use of collaborative software, it is possible to lessen the negative impact of increasing group size' (Roberts and Lowry 2006, 28) – an aspect that has implications for the growing size of online classes in the present context. Both teaching and social presence have a causal effect on cognitive presence (Garrison, Cleveland-Innes and Fung 2010).

## Cognitive presence

Cognitive presence relates to the development of higher-order thinking skills (Shea et al. 2010). The CoI framework identifies four phases under the cognitive presence, which correspond to the Practical Inquiry model (Garrison et al. 2000). The first event in the development of cognitive presence is a triggering event, which can be the presentation of a question or problem that needs resolution (see Figure 3). The second stage is an exploratory phase, where people seek more

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information to clarify the stated problem. When information and ideas start to amalgamate it heralds the third stage, namely integration, during which plausible explanations are formulated. In the fourth stage, ideas are tested and applied directly to the problem at hand, leading to resolution. Sustained reflection and discourse enable students to develop cognitive presence.



**Figure 3:** The Practical Inquiry model (Garrison 2000)

The research questions asked in this study are: Can a course taught with minimal contact sessions to a very large class offer acceptable learning and teaching quality, leading to successful outcomes? The second question is: Is the CoI a suitable instrument to examine the quality of blended and online courses in the context that this university presents them?

## CONTEXT OF THE STUDY

### The courses, students and lecturer

Economics and Management Sciences is one of the largest faculties at this university. Currently, 2 361 postgraduate students are enrolled in this faculty. While some professional qualifications like Accounting follow industry-prescribed curricula and standards, and their students generally continue with postgraduate studies directly after completing their first degree, students in many other academic departments work for some time before returning to university

for part-time postgraduate studies. Many postgraduate students received their degrees from other institutions. The immense responsibility to equip vast numbers of students with divergent academic backgrounds and research skills with the ability to conduct high-quality research rests on their study supervisors. In 2007, one department conceptualised a generic Research Methodology course without academic credit as the initial part of Master's and PhD studies in this faculty. In this course, groups of students mastered the requirements for conducting independent research in a structured way. As deliverable at the end of the course, students produced research proposals that would frame the rest of their postgraduate research and studies. During the methodology course students identified their own research topics, and initiated an academic discourse with their allocated study supervisors. This course, which had no classroom component, also accommodated distributed students from elsewhere in Africa.

Over the past three years student numbers have been growing steadily. In 2008, 86 students in EBW801 (Master's and PhD) completed the course, and in 2009, 162 students. Due to the sheer size of this last class, it was decided to split the 2010 enrolment into February and August intakes. The two cohorts drew on the same content on the LMS, but a new lecturer facilitated the second intake. From the 2010 first intake of 103, 101 students completed the course with an average grade of 66.5 per cent, of whom 26 students obtained distinctions. Only three students had to do additional work to finish the course. In this study, we investigate replies by the first 2010 group, compared to the 2009 class.

The lecturer of the 2008–2010 first semester classes also taught a similar Research Methodology curriculum during the first semester to a B.Com. Honours class. The 82 students in this course all completed this component of their studies successfully.

Course delivery was similar, as both degree courses utilised the LMS as a repository for learning and support material, online assessment, plagiarism prevention, administrative information, announcements and assignments. Both classes engaged in electronic peer review of peers' research proposals. The only real difference between the two classes was that the distributed Master's and PhD students had no contact lectures after an initial welcoming session, whereas the Honours students attended 13 weekly lectures of two-and-a-half hours each on campus. In the research we compared the results of the CoI surveys of the 2009 and 2010 distance cohorts (Master's and PhD). We also compared the two 2010 courses, where one was nearly fully online and delivered to distributed students, while the other was delivered in a blended mode, with a strong face-to-face component.

All electronic course activities for the distributed students performed double duty (Boud 2000); they kept students actively engaged and on-task, while automating most of the lecturer's facilitation and feedback functions. The LMS hosted most of the course activities, as described below.

## Communication, facilitation and feedback

At the outset of the course, the distributed Master's and PhD students (course code EBW) met on campus one Saturday for a single morning's orientation and information session. Attendance was not compulsory, but the computer session that included logging in to the LMS and conducting an electronic information search involving the library's e-resources, was beneficial to those requiring hands-on assistance. This welcoming session had tremendous inspirational value, according to the students.

Inadequate Internet connectivity and bandwidth in parts of Africa restricted access to the LMS for some of the distributed students, necessitating the communication of important information via email. African students were also unable to upload their bulky examination projects via the bandwidth-intensive LMS, and opted to use email instead. Connectivity was also the reason why students could not review peer documents online – a functionality afforded by other proprietary software programmes we investigated. Hence, email played an important role in the peer review process, as explained later. After personally replying to between 15 and 20 weekly student emails per course, the lecturer captured those issues and concatenated his replies in a weekly email digest, distributed via a listserv. This information was also incorporated into the design of the forthcoming year's class notes and templates. Every Monday he sent a general weekly email about the work allocation for the coming week. Although learning material and activities were delivered in the LMS, the Honours students did not communicate online with one another. The lecturer dealt adequately with questions and answers during the lecture slot on Monday nights, with further information and reminders supplied by email, including a summary of the coming week's preparations and work allocation.

*Peer review*. Both classes conducted double blind electronic peer review at two stages of their research proposals; participation in at least one round was compulsory. The lecturer also used a custom-built electronic programme to manage, track and distribute documents for peer review, the process of which was managed as follows:

- Authors submitted draft documents via Assignment tool in the LMS;

- Lecturer removed identifiable information and allocated a serial number to each document;

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- Lecturer distributed each document to two reviewers via email;

- Reviewers evaluated the documents allocated to them using a rubric and the 'track changes' and 'comments' functions in MS Word;

- Reviewers submitted the evaluated documents via the Assignment tool in the LMS;

- Lecturer returned evaluated documents to authors via email;

- Authors perused the comments they received from their reviewers;

- Authors evaluated the comprehensiveness and value (usefulness) of reviews using an attached evaluation form and submitted the completed form via the LMS Assignment tool;

- Lecturer returned evaluation forms to reviewers via email (Nagel and Kotzé 2010, 47).

It was necessary to adhere strictly to deadlines preceding the distribution of documents for peer review; there was no room for individual postponement. Students did, however, have two opportunities to participate in peer review.

*Groups and discussions:* Students self-enrolled into speciality groups that corresponded to each academic department in the faculty. Although students had access to their own group discussion forums, they hardly used those. Peer reviewers were selected from students with a similar speciality, based on these groups.

*Quizzes:* Students in both courses had to complete a number of compulsory online assessments in the LMS. These assessments encouraged students to study certain fundamental sections of content on their own, and provided automated feedback on their progress. Minimum knowledge levels, as measured in the quizzes, provided criteria for the selective release of subsequent content to different students, thus adapting the pace to individual students' progress.

*Turnitin:* Although students had online resources to help them use Refworks™, an open source online reference management programme, it was not enforced and many still made referencing mistakes. Furthermore, students had widely differing ESL writing skills, and some had inadequate knowledge of academic writing and source attribution. Students had to submit each assignment first to Turnitin™, an anti-plagiarism software programme that they accessed from a link in the LMS. The Turnitin™ similarity reports indicated all text that was similar to other online text sources, and calculated the percentage of similarity in order to exclude plagiarism. The lecturer encouraged students to peruse the similarity reports and improve their paraphrasing and referencing skills, before

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submitting their final assignments in the LMS Assignment tool. In order to automate corrections of other writing faults and common mistakes, the lecturer provided an electronic document template.

***Document checker:*** The lecturer developed an electronic template that functioned like a document checker. It automatically identified the writing, grammar, formatting and citation errors most commonly found in academic writing. It went beyond the language- and grammar-checking functions of the word processor. Students could use this template for writing different versions of their proposals, and to review their allocated peers' writings.

## METHODOLOGY

In this study we used a design research protocol (Reeves 2005), where our complex and ill-defined problem was how to design effective postgraduate distance-learning courses using the electronic delivery modes at our disposal. This study builds upon and verifies the foundation study of the 2009 class (Nagel and Kotzé 2010). (At present, we have extended the study longitudinally to the same course in 2010, and have added a similar course delivered in a different mode.) At the conclusion of the courses, we provided the 34-item CoI survey instrument (Díaz et al. 2010) for voluntary completion in the LMS. We added items to capture biographical data as well as students' experience of the peer review process and document template. The CoI survey and questions concerning peer review used a five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), whereas students responded with 'true' or 'false' to questions about the document checker. Students could elaborate in open-ended questions on the value of peer review and of the document checker, and could make suggestions for improving the course. We used a mixed methodology to analyse quantitative and qualitative data (from open-ended questions and interviews with the lecturer) to crystallise (Tobin and Begley 2004) findings from different sources. In addition to standard descriptive statistics and the calculation of the CoI survey averages, the data from different cohorts were compared using the Kruskal-Wallis test (BMDP Statistical Software) to calculate the significance of the differences between classes.

## FINDINGS AND DISCUSSION

Having access to CoI results from two consecutive identical courses, provided the authors with an opportunity to gauge the sensitivity and replicability of the instrument with the available numbers of students. Data from two consecutive

offerings of the same course to comparable students, and a concomitant delivery of the same course to a different group of students (albeit in a different delivery mode), all facilitated by the same lecturer, provided us with an opportunity for meaningful comparisons. We compared data from the different cohorts, in order to uncover whether the absence or presence of face-to-face classes influenced students' experience of the learning community. As we had ascertained the pivotal role peer review played in a previous study (see Nagel 2010), we wanted to confirm those findings in a longitudinal study and sought to explore whether it was generalisable to a different class.

## The CoI survey

We compared the results of the 2009 and 2010 cohorts of distributed (EBW) students, and here discuss the findings in relation to the qualitative data. The response rates of these cohorts were 39.5 and 41.7 per cent respectively. We found nearly identical scores over the two years, suggesting that the same factors influenced the two cohorts of the same course, and that the sample was representative and adequate in size to capture the CoI presences in the class, as the instrument provided reliable data. The response rate for the Honours students was 47 per cent.
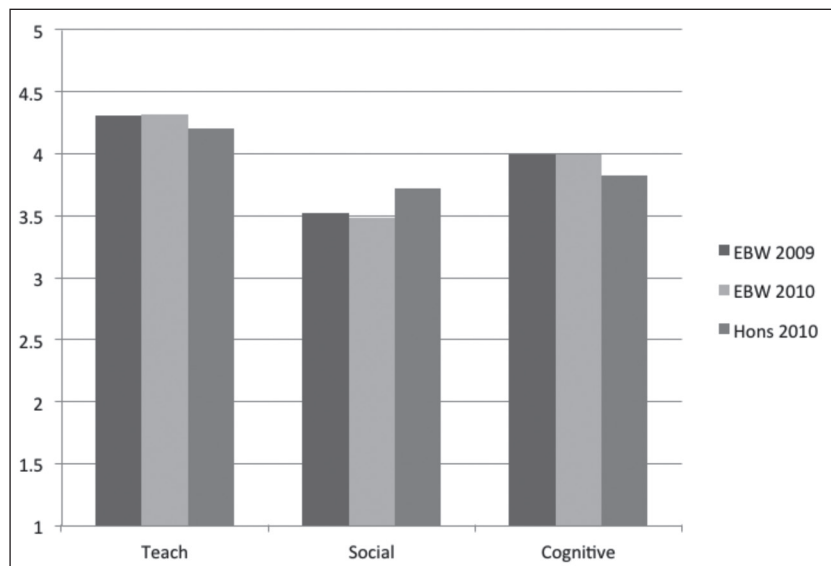


**Figure 4:** Comparison of the mean scores for the CoI presences

If we compare the average scores for the three CoI presences in three classes, as shown in Figure 4, it is clear that 'teach' was the strongest presence in all

three classes, with 'cognitive presence' slightly lower. 'Social presence' was the lowest in all three groups, even in the B.Com. Honours class, which had had face-to-face interaction with the lecturer and their peers. The CoI profile for this class followed the same pattern as the distributed students, also with 'teaching presence' as the highest and 'social' as the lowest. In the Honours group attending class every week, where their lecturer answered all their questions and they had unlimited opportunity to engage in conversation with their peers, the social presence in their class was significantly higher compared to the distributed students' classes. The low social presence in the distributed class challenges literature on the importance of social presence as a prerequisite for successful e-learning, as in all these classes practically all the students completed their courses successfully, notwithstanding the relatively lower social presence. The history of the course shows that attrition is highest in the dissertation-writing phase in later years.
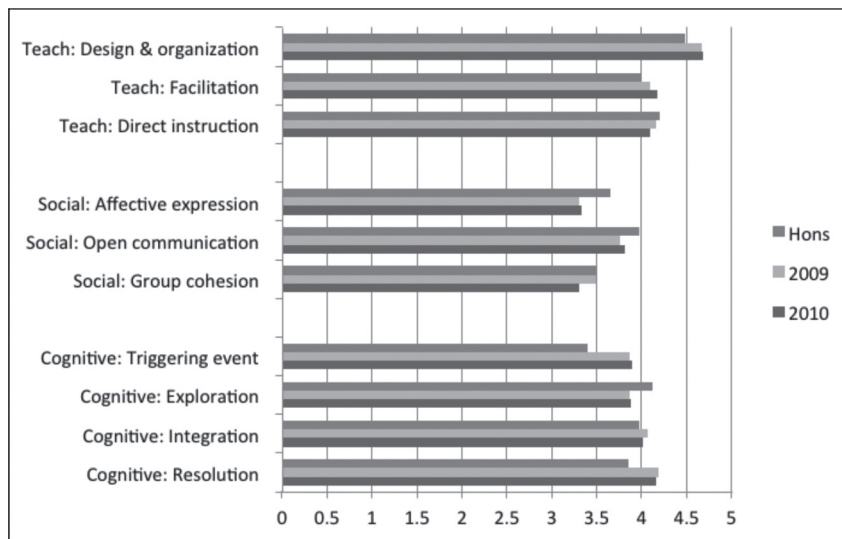


**Figure 5:** Mean values for CoI elements in three cohorts

## Teaching presence

As seen in Figure 5, in the 2009 distributed cohort, 'design and organisation' was the strongest element within the teaching presence, confirming previous findings (Nagel and Kotzé 2010). The responses gathered from the 2010 cohort and the blended contact class followed the same pattern, confirming the results. There were no significant differences in the mean scores between the 2009 and 2010 EBW cohorts in any elements, which came as no surprise as these courses

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were in all aspects identical, save for the size of the class (reduced from 162 to 113). In 'teaching presence' there was also no significant difference between the distributed online class and the class in blended mode, with contact.

## Social presence

As regards social presence, Figure 5 shows that the three constructs that comprise Social presence were the weakest in both the 2009 and 2010 distributed cohorts. These results echo the qualitative findings. The lecturer deliberately avoided using the discussions board in the LMS and rather used email for the following reasons: (a) He found the layout of the Discussions tool in this particular LMS confusing, and considering the divergent computer literacy of the students, he did not attempt to teach them online how to use the tool effectively; (b) Students with poor connectivity had better success using email to submit large documents than in the LMS; (c) Email formed an integral part in the document distribution cycle for peer review; (d) The large size of the classes prohibited the use of moderated discussions.

No deliberate attempt was made to incorporate affective expression in the courses. Students' queries were addressed *en masse* at the end of the week, via email and incorporated into the following version of the class notes. Students did, however experience some measure of openness of communication due to the double-blind nature of the peer review. They felt free to express sincere opinions. A sense of belonging was also fostered through the peer review, as students thought their reviewers understood all facets of their assignments and were capable of making an informed judgement on their work. This form of learning facilitation, conducted mostly by peers, corresponds to the 'guide-on-the-side' style, whereas the lecturer's emails to the class matched the 'sage on the stage', both being teaching presences that also contribute somewhat to social presence (Arbaugh 2010). The contact blended class (Hons.), however, had a significantly higher social presence score for affective expression and open communication, compared to that of the distributed students. This illustrated that students were able to form distinct impressions of some of their peers in class and had more opportunity to express themselves. In total, their social presence was still lower than the other presences, which is an indication of a lack of deliberate design to foster social presence, or of utilising class time for such interaction.

## Cognitive presence

The strength of cognitive presence signifies students' ability to construct and confirm meaning as a result of convergent thinking (Richardson and Ice 2010). Figure 5 shows that all four elements of the cognitive presence were strong in all

classes. Resolution is the ultimate event in the Practical Inquiry model (Figure 3), which forms the core of 'cognitive presence' (Garrison et al. 2000). The distributed group of students particularly experienced a strong resolution phase. According to research (Richardson and Ice 2010; Shea et al. 2010; Vaughan and Garrison 2005), the discourse in moderated online discussions sometimes fails to progress beyond the third (integration) phase. The strength of resolution in the present courses might be attributed to two factors: the extensive two-tiered peer review process, and an instructional design model that situated all course activities as precursors to the final project. Yet, this does not fully explain the finding. It is meaningful that the classroom blended group (Hons.) had lower scores for triggering events and for resolution, than the distributed students. This difference might be accounted for by the fact that the distributed students chose their own research proposal topics, which the Honours students could not do, as theirs were allocated by the departments. The higher degree of ownership that the distributed students took of the triggering question explains this group's superior feelings of resolution when their own questions were resolved at the end of the course. This finding also emphasises the importance of a constructivist approach to online learning, where students take ownership of their learning and construct their own knowledge (Bangert 2004; Dalsgaard and Godsk 2007).

## Peer review

Students were practically unanimous in their appraisal of the value of the peer review process, as experienced in this context: 94 per cent of the Honours students and 92 per cent of the 2010 distributed students replied that they would be able to produce a better document in future, due to the peer review process. Of the 2010 class of distributed students, 92 per cent would recommend using this process in future. This was confirmed by 94 per cent of the Honours students. Figure 6 shows that practically nobody disagreed with the statement that their peers added value to their document through the review process. There were, however, more 'agree' than 'strongly agree' responses. Our findings are consistent with those of other researchers, who noted that students are successful when they learn cooperatively, as they learn from their peers and deepen their understanding of the course content (Boud et al. 1999). Peer review is a sustainable method of producing formative assessment in a large class (Boud 2000), as students feel it is a worthwhile experience (Boud and Tyree 1995). Receiving formative feedback helps to facilitate the teaching presence.
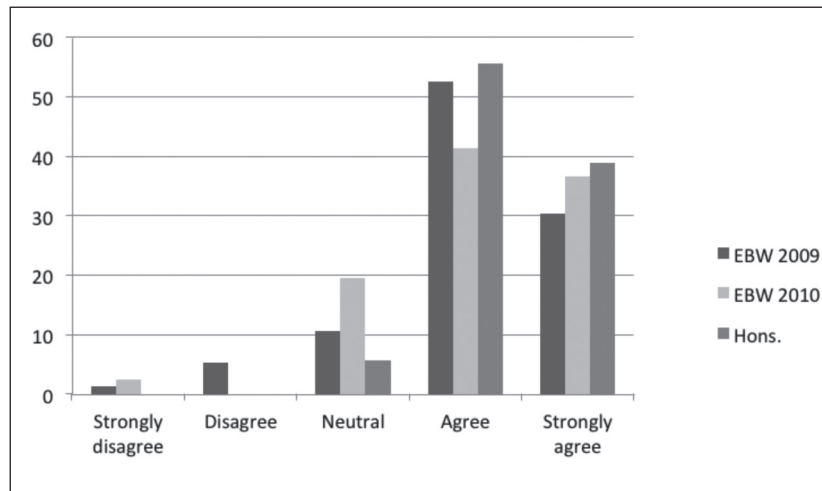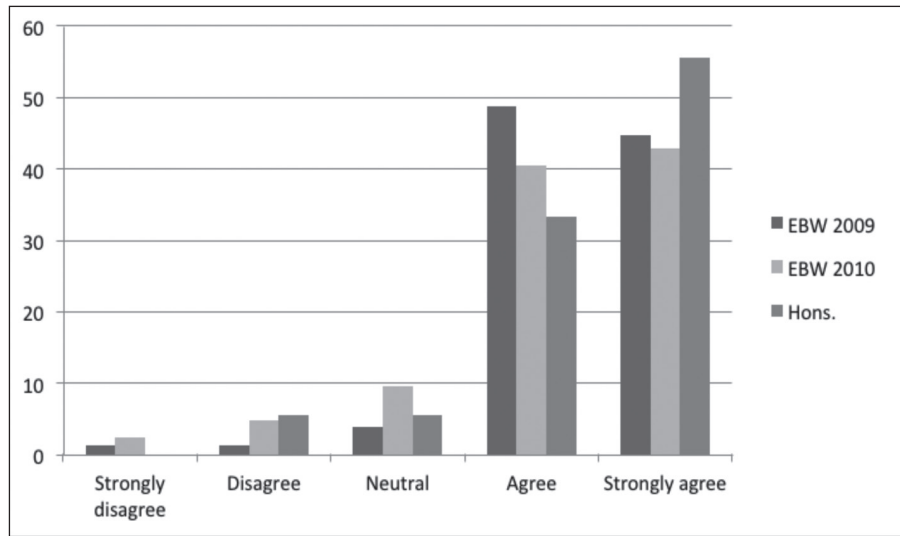
**Figure 6:** Percentage responses to: My peers added value to my own document by reviewing it

In general, students thought their peers added critical value to their proposals, as they wrote more relevant commentary than an assistant would have done (Gehringer 2001). A few students complained about lazy reviewers who scarcely read their paper and added practically no comments. Allocating two reviewers per paper solved this issue to some extent, as did the second tier of evaluation by the original authors of their reviewers. This second tier of review penalised incomplete first-level reviews, and ensured careful and thoughtful reviews, as suggested by Gehringer (2001). The majority of students found that their peers contributed to their understanding of the topic and provided them with new insights and perspectives on their research proposals, while highlighting areas needing clarification.

The vast majority of students across all classes thought that it was worthwhile to review other students' proposals, as shown in Figure 7. This finding reveals the ability of asynchronous technologies to enable collaborative learning (Garrison and Kanuka 2004). Students learnt from working through good examples of how others approached their research problems, and from those who made mistakes, thus illustrating the benefits of creating a forum for other adult learners to share their insight (Rossman 1999). Sensitising students to good and bad practice through relevant examples relieves the lecturer from having to give tedious and ineffective feedback (Boud 1995). These findings are congruent with research elsewhere (Turnitin PeerMark webinar, 26 April 2011), that the greatest benefit of peer review is in the *doing*, rather than the *receiving*. Reviewing others' papers

contributed to teaching presence. Furnishing formative feedback to peers created a measure of social presence, as students formed impressions of co-students in their courses.



**Figure 7:** Percentage responses to: Reviewing my peers' proposals was worth-while

The only issue that surfaced in the content analysis of the Honours students' post-course open feedback, was that some would have preferred more communication and clarification between authors and reviewers. The distributed students had divergent experiences of peer review: some recommended greater control of the quality and fairness of the reviews, requesting even more than two reviewers per document and greater clarity regarding the allocation of grades for the process. Some students suggested having another contact session halfway through the course, based on the benefits of the initial contact session. In hindsight, students thought that some explanation and discussion of the peer review process at such a session would help and motivate them to make better use of those opportunities. These qualitative responses crystallise the low social presence score in the course. From the student comments it also surfaced that they had a limited perception of the size of their class or, by implication, the extent of the lecturer's workload.

The absence of a reliable and comprehensive automatic document distribution system that allows students to perform the reviewing activities offline, and the amount of time and effort required to administer the review process manually to such large cohorts, threaten to derail the future use of this beneficial activity.

## The document template
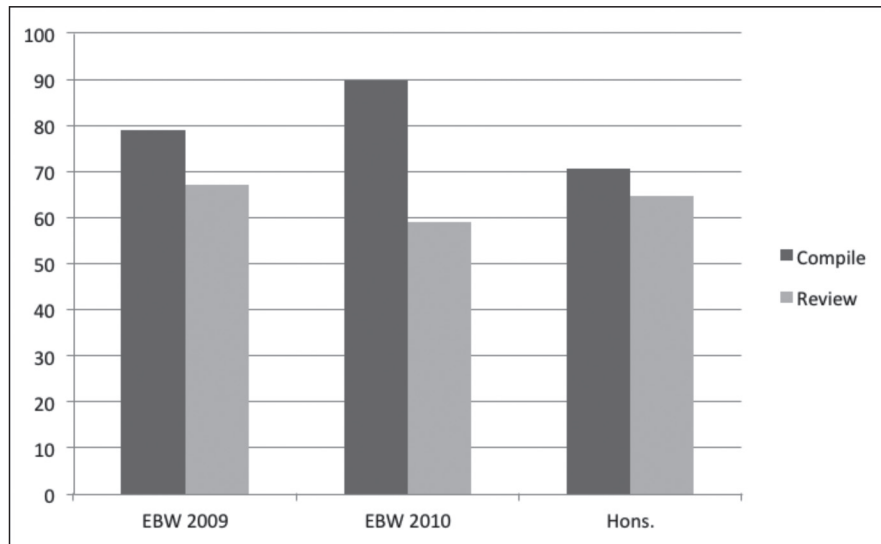


**Figure 8:** Percentage of students who used the document template

Figure 8 shows that between 70 and 90 per cent of students used the document template to write their documents, whereas only around 60 per cent used it for checking peers' documents. Open-ended feedback indicated that some students spent much time trying to make the tool work, with the main barriers being insufficient computer skills. Numerous students who only had computer access at their workplaces experienced compatibility restraints between the programme and their office computer networks. Those who struggled to compile their own documents did not attempt to use it for reviewing. There was less discrepancy in the more junior (Honours) class, indicating greater familiarity with and access to computer technology. The content analysis indicated that students found the template extremely valuable for correcting careless mistakes and technical errors in their documents. The value of this instrument is that it supported and scaffolded students in the development of their writing skills. In terms of teaching presence, it provided automated facilitation.

## CONCLUSIONS

As regards the limitations of the study, we confess that large-scale statistical validation of the instrument in a local context is not feasible at present, as only small numbers of students are enrolled in suitable e-learning courses. Therefore, the interpretation of findings from this study is based on the assumption that the

constructs in the instrument are universal and applicable. The explanation of any significant differences we found depends on the researchers' interpretation of international research, and is informed by the qualitative data from the case studies. After investigating more parameters in future, some of the findings might be reinterpreted.

Regarding the first research question, the CoI proved an extremely valuable instrument with which to benchmark courses and receive student feedback on the success of the design, delivery and facilitation of courses, thus confirming that the expenditure of effort (particularly on the peer review) was warranted. The repeatability of CoI results between two deliveries of the same class in this study confirmed the reliability of the instrument in teaching scenarios different from where the instrument was originally conceptualised.

We attempted to answer the second question – which dealt with teaching a course with minimal contact sessions to a very large class and obtaining acceptable standards of learning and teaching – with the help of the CoI framework. In this study the CoI showed that the strengths of both the postgraduate Research Methodology courses were high teaching presences, harnessing the strength of the online environment, as recommended by Arbaugh (2010). The contribution of effective instructional design and facilitation towards a learning community bears out this finding (Ice 2009; Shea, Li and Pickett 2006). The comprehensive organisation with extensive support materials in the LMS apparently contributed to the high teaching presence evident in the courses, despite differing contact teaching time. More contact time did not improve the teaching presence.

According to the literature, one of the limitations of e-learning is that the resolution and application phase of practical inquiry, which contribute to cognitive presence, do not occur readily in face-to-face or open-ended online discussions (Richardson and Ice 2010; Vaughan and Garrison 2005). In our research, the practically fully online and the contact-dependent blended course both had high cognitive presences. Despite all the time and effort required, the peer review process is a highly beneficial activity that can be employed successfully in relatively large online classes. Peer review helped students to obtain resolution. It contributed to the teaching, social and cognitive presences in our courses, aided by the constructive alignment of the course activities that culminate in the final exam projects. Another factor that contributed significantly to resolution in the cognitive presence was the constructivist teaching approach of allowing students to choose their own problems to solve. The groups who chose their own topics experienced significantly higher triggering and resolution phases than the group whose questions were predetermined. This finding underscores the importance of a constructivist approach to online learning for andragogical learners.

The study did not indicate that including more contact opportunities in a blended delivery mode would necessarily provide a superior learning experience. This confirms the findings of a much larger study (Shea et al. 2006). If the design of online or blended learning does not deliberately foster the development of social presence, such a presence will not develop sufficiently to influence the student learning experience. Unstructured and unmediated interaction does not build social presence.

## RECOMMENDATIONS

Peer review is one of the most useful tools for engaging students at deeper levels. Because more than 90 per cent of students in this study would recommend peer review in future courses, coupled with the finding of a high cognitive presence in the course, we suggest that structured double-blind peer review be considered as a viable alternative to moderated online discussions, in order to pursue higher-order thinking (Meyer 2003). Under the present conditions of low connectivity it is a labour-intensive activity to manage, as the administration of submissions and reviews becomes daunting in anything but a very small class. Therefore, it is the subject of constant technology scouting and evaluation. We will continue to evaluate new proprietary software programmes in search of a more suitable mode of peer review. We also have high hopes regarding the future of bandwidth in this and neighbouring countries, which would enable more students to make optimal use of the LMS, as it is not only to their benefit, but will ease the burden on the lecturer.

In courses that do not support real-time communication and feedback, comprehensive feedback from students should be analysed and the essence thereof incorporated into the learning materials for subsequent courses. In such a design research climate, the presence of the student voice will improve the social presence in the classes, as well as the quality of the courses.

Aspects that might influence the CoI and are worthy of scrutiny in the local context are: student demographics; different teaching philosophies; the number and nature of contact sessions; the size of the cohort and available Internet connectivity. Some of these findings can even inform non-electronic distance course delivery, where different technologies are available for course activities. Peer review as a teaching tool is not limited to access through a learning management system, as ordinary email can also distribute documents, as was the case in the courses we studied.

We recommend that the CoI survey be administered in more blended delivery courses for large distributed classes, given that our findings crystallised with

comprehensive case study descriptions and open-ended student feedback. A meta-analysis of CoI outcomes from these courses could inform the design of quality open education courses at those higher education institutions presently committed to blended learning. In such a way, the university can gain indigenous knowledge regarding exemplary practice in our unique context, as different teaching restraints might influence the delivery of locally courses.

## ACKNOWLEDGEMENT

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# Academics going mobile: New roles for new technologies

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## Abstract

The use of cell phones for teaching and learning cannot be sustained if academics are not trained on how to use the tool and how to integrate the technology into their own practice. Therefore, more attention needs to be given to the capacity building of distance education academics and practitioners. Open distance learning (ODL) institutions have a critical role of providing the necessary knowledge and skills to teachers who will be using mobile technologies in distance education. The aim of this article is to explore pedagogic principles that best support the effective use of mobile learning in a distance education context. In developing a training programme for distance education practitioners, we should take cognisance of the fact that mobile technologies will not transform education on their own; they require academics who can use them to improve student learning. The aim is to ensure that technology is not perceived as an add-on but as an integral part of the curriculum. This article will therefore attempt to answer the following questions:
- What are the implications of mobile technologies for distance education practitioners?
- What pedagogic model best supports the effective use of mobile learning devices?

## INTRODUCTION

For many years, open and distance learning (ODL) institutions have experimented with different technologies in their teaching and learning. Their main concern has been to focus on how best they can support distance education students, who are isolated from their teachers as sources of information and their peers as sources of support. Most students who study through distance come into distance learning with expectations based on past schooling, where learning was directed and controlled by a teacher. When they are thrown into a distance learning environment where they have to do most of their work alone, they feel left out, insecure and alienated. Cell phones are better suited to support these students with their learning. The use of cell phones for education is much more potent in Africa, because it has the ability to connect less privileged people to information. The lack of infrastructure for electricity, computers and telephone networks, as

well as poor roads and unreliable postal services has led to the explosive growth of cell phone use in Africa. In 2008, subscribers to cell phone services in South Africa numbered 45 million, according to World Factbook (2010), and the number is increasing.

More than 90 per cent of University of South Africa (Unisa) students own a cell phone and a great majority of those cell phones have software features such as pictures, video, music, games, instant messaging and the Internet (Unisa Library 2010). Even low-cost cell phones have some of these features that enable the phones to be used in education for collaboration, tutoring, research, reading and writing purposes (Prensky 2004). The portable nature of mobile technologies enables students to learn anywhere, anytime and at any place, thus enabling them to experience the authentic joy of learning. The idea of using mobile technologies for education is premised on building informal learning in a social context that most students are familiar with, to develop formal learning opportunities for ODL students.

Despite evidence showing that cell phones now occupy every facet of our lives, they are still not viewed as a viable tool for providing education in ODL. In most developing countries, people tend to cite a lack of access to information communication technologies (ICTs), such as computers and telephones, as the reason why technologies are not adopted for teaching and learning purposes. In so doing they ignore the thousands of mobile technological devices that are in the pockets and schoolbags of thousands of students (Prensky 2004). Today's high-end cell phones, according to Prensky (2004), have the computing power of mid-1990s computers, while consuming one-hundredth of the energy. The use of mobile technologies for teaching and learning is most suited to African countries, because those technologies are available, affordable and accessible (Butgereit 2007; Hendrikz 2006; Makoe 2009; Nonyongo et al. 2004; Traxler and Dearden 2005).

Teaching using new technologies requires different sets of skills and types of pedagogies which are different from those which most ODL academics are familiar with. For many years, ODL academics relied heavily on prepackaged study material. Most programmes at Unisa had not gone beyond the production and delivery of course material, and there is limited integration of technological devices. The assumption is that students learn best through printed material. Thorpe (2001, 4) argues that 'course materials prepared in advance of study, however learner-centred and interactive they may be, cannot respond to a known learner'. Cell phones have the potential to reduce the formality of learning experiences by allowing students to engage socially in their learning experiences.

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By engaging with students directly, ODL teachers have an opportunity to respond to students' needs.

In developing a training programme for distance education practitioners, we should take cognisance of the fact that mobile technologies will not transform education on their own – they require teachers who can use them to improve student learning. The purpose of this article is to explore which pedagogic principles best support the effective use of mobile learning in a distance education context. This article therefore attempts to answer the following questions:

- What are the implications of mobile technologies for distance education practitioners in terms of professional development?

- What pedagogic model best supports the effective use of mobile learning devices?

## CONTEXT

Mobile technologies are better suited to distance education, because they increase the possibility for informal learning that is not tied to a particular physical location. What this means in the South African context is that students who live in remote rural areas can have access to education. The efficacy of distance education in promoting access to marginalised students is premised on the notion that it can accommodate an increased and more diverse student population at reduced costs. The *National Council of Higher Education report* (1996) cites distance education as a critical player in redressing past inequalities and removing barriers to access and success. Through distance education, disadvantaged students can also have access to higher education.

Unisa is one of the oldest and largest distance education institutions in Africa. It has a student population of over 280 000, of whom almost 80 per cent are black students (including coloureds and Indians) (Unisa 2010). Distance education enrolment constitutes more than 38 per cent of all higher education students in the country, and Unisa accounts for 85 per cent of all distance education enrolments (DoHET 2010). This shows that distance education institutions have been successful in increasing participation in higher education.

Throughout the history of distance education, different technologies have been explored to improve learning. The first generation of distance education exploited the use of print technology, which was referred to as the correspondence model. The second generation – the multimedia model – made use of audiotapes, videotapes and television to teach. The third generation – the telelearning model – looked into the possibility of interaction between tutor and student, and among students themselves. Interaction was facilitated through audio, video or computer

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conferencing and face-to-face meetings. The idea was to combine group learning with individual learning. This approach was followed by the fourth generation or flexible learning model, which contributed to the emergence of online teaching and learning.

The most recent or fifth generation (referred to as the intelligent flexible model) exploits the key features of the Internet and the Web. It is more concerned with interactivity between the student and the lecturer, the student and other students, and the student and the institution, through social networks. This model uses new technologies such as podcasting and cell phones to facilitate teaching and learning. What this means is that a much greater effort is made to integrate technology into the curriculum, with the aim of improving student learning. Prensky (2001) argues that the integration of mobile devices into educational processes has the power to radically change and improve the educational process. However, some technologies have been used more effectively than others. Keegan (2005, 3) believes that 'it is not technologies with inherent pedagogical qualities that are successful in distance education, but technologies that are generally available to citizens'. The challenge is to come up with innovative ways to use these technologies to enhance teaching and learning.

## CHALLENGES

Despite the findings suggesting that mobile technology has the potential to increase access to learning, the use of technology as an educational tool has not gained the momentum it should. The reasons for the slowness to adopt new technologies relate to a variety of issues, including

- the digital divide, i.e. the imbalance in access to technology (Bingimlas 2009; CHE 2004; Ford and Leinonen 2009);

- unfamiliarity with the use of information technologies for educational purposes (Aubusson et al. 2009; Becta 2004; Bingimlas 2009; Ford and Leinonen 2009);

- the underutilisation of technology in teaching and learning (Becta 2004; CHE 2004); and

- a lack of willingness to learn about using new technologies for teaching (Bingimlas 2009; Prensky 2001).

Due to limited resources, such as inadequate electricity and telephone networks, poor roads and postal services, as well as a lack of expertise in using computers, the uptake of wireless technology has increased rapidly in most developing

countries over the past few years. The majority of Unisa students – even those who live in remote rural areas with little or no fixed-line telecommunication infrastructure – rely on cell phones to communicate with their lecturers and with one another. This shows that the incorporation of mobile learning can afford new opportunities for teaching in ODL (Keegan 2005), especially in developing countries.

The challenge for South African higher education is to simultaneously redress past injustices, while addressing the reconstruction and development needs of the country. It is in this regard that government policies have not only identified distance learning as the sole feasible approach to expanding access to education, they have also recognised the importance of using technology to create opportunities for learners who were previously denied access to education. A hampering factor is the fact that many institutions in South Africa show little evidence of understanding the use of technology for educational purposes, according to the *National Council on Higher Education report* (2004). Even those with access, underutilise it. Unisa, for example, by and large functions in the second generation, with some use of third- and fourth-generation technologies in certain courses. Some academics tend to think that repackaging print-based courses and using technology to deliver it, constitutes e-learning. In most cases, the use of technology is not integrated into the curriculum; it is used as a delivery tool.

Another hurdle is that very few academics are trained to use these new technologies, let alone to integrate them into their study materials. Most academics are familiar and comfortable with their old ways of teaching, which are based on print-based courses with little room for technology. Their experience in ODL, coupled with their training, has developed their own culture of education which is often shared with colleagues within the same institution. 'Different values and underlying choices organise pedagogical practices', according to Bélisle (2007). It is, therefore, important to consider an implicit set of attitudes, beliefs and values, when introducing changes in pedagogy. Educational systems in big institutions such as Unisa, with over 4 000 staff members, are often very rigid and extremely difficult to change. Academics in these types of institutions tend to be transmitters of information through pre-packaged course material, and have very little interaction with students.

Mobile learning by nature tends to subscribe to the student-centred approach, which aims to develop in each student a sense of responsibility for his/her own learning by focusing on the student's experiences, perspectives, background, interests, capabilities and needs (Pulist 2001). Its pedagogical approach places the student at the centre of the learning. Effective learning, according to this

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approach, depends on the teachers' ability to create new learning pathways which encourage collaborative learning. However, this approach challenges the notion of teaching as an activity of transferring knowledge to the student. The new type of teaching provides for a more interactive education which encourages critical thinking, communications skills and flexibility for both students and teachers.

## PEDAGOGICAL IMPERATIVES

The biggest challenge for ODL institutions is to come up with ways in which teachers can be empowered with the necessary skills to fully utilise mobile technologies which engage students in the learning processes. Cell phones can be used as a tool to provide both synchronous and asynchronous support to learning. The former can be utilised to facilitate discussion, while the latter can be used by the teacher to stimulate discussion amongst students by sending a question via SMS. What emerged from Makoe's (2007) study is that students need non-academic support that will address the problem of isolation. The character of good distance education, according to Holmberg (1981), resembles guided didactic conversation study material which simulates a face-to-face conversation between tutor and student. The structure of the educational programme and the quality of the interaction between teacher and learner determines academic performance, according to Moore (1993). In his transactional theory, Moore argued for the relationship between dialogue, structure (teaching strategies and evaluation methods), and learner autonomy. However, it is important to remember that dialogue should not only be facilitated by the media used for delivery of course material, but should also recognise that students are key agents in their learning (Evan and Nation 1989). Students should, therefore, be encouraged to participate in the learning process in an active and challenging way.

Mobile technologies are positioned to support active and collaborative learning. This is based on Vygotsky's 1930/1978 socio-cultural perspective, where he argues that students' *development* is determined by social interaction through problem-solving under the guidance of a teacher, or in collaboration with capable peers. The most significant attribute of mobile technologies, according to Kukulsa-Hulme and Traxler (2005), is their ability to support situated learning. Social interaction is a critical component of situated learning – learners become involved in a community of practice which embodies certain beliefs and behaviours to be acquired (Lave and Wenger 1991). It is a negotiation of identities between individuals in a given context. The context, which tends to have a significant impact on the learning experience, is influenced and affected by many communities. Therefore, the application of mobile phone use in

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education should be based on the context in which learning occurs. Sharples et al. (2005) argue that mobile learning is more strongly mediated by its context than by the content of the study material. This implies that mobile devices can be used in a variety of situations, as they are not restricted by physical space. Cell phones have been used innovatively by other institutions such as banks and retail, by providing both an electronic network and a payment mechanism. 'It is increasingly possible to use the mobile banking platform to buy and sell goods and services' (Rao 2011). The healthcare professions also use cell phones to communicate health-related issues to patients. Therefore, it is necessary for the education sector to explore the use of cell phones for teaching and learning.

Sharples et al. (2005) argue that learning involves the subject (learner), an object (the task or activity) and the tool or mediating artefacts. Tools that are available in the pedagogic activity system include curriculum, learning/teaching resources, political influence, and human and intellectual resources (Robertson 2008). The activity theory framework is appropriate in mobile learning because it analyses learning as a cultural-historical activity system, mediated by tools that both constrain and support the learners in the goal of transforming their knowledge and skills (Sharples et al. 2005). Human behaviour is situated within a social context that influences their actions. According to the activity theory, teachers' disposition towards the use of technology is fundamental when it comes to the adoption of a particular technology (Robertson 2008).

## THE USE OF CELL PHONES FOR TEACHING AND LEARNING

The effects of mobile technologies on the way we communicate, write and relate to each other can never be underestimated. 'It is a glaring truth that people of all walks and ages are increasingly connected and communicating to each other in ways that people of all walks would have found impossible a few years ago' (Jacobs and Isaacs 2008, 1). The multimedia functionality and its simpler and user-friendly interface make cell phones easier to use for people who may be uncomfortable with other technologies such as computers. Since 2002, the University of Pretoria has been using SMS messages to provide administrative and motivational messages to students (Hendrikz 2006). Traxler and Dearden (2005) used cell phones to facilitate social interaction through asynchronous communication, where a student can receive and view the message at their convenience rather than in real time. They also found that that students from Kenya, who participated in an in-service training programme, showed an interest in using (SMS) texting messages for learning purposes. The authors recommend that SMS texting be used to support and encourage learners to engage with one

another. SMS can be used 'peer to peer in local decentralised groups', thereby encouraging collaborative learning. Traxler and Dearden (2005) also used SMSes to remind students about assignments, assessments or meetings, and to deliver content such as hints, tips, revision etc.

Nonyongo and her colleagues (2004) reported that they had received positive responses from students to whom they sent an SMS communication, encouraging them to send in their outstanding assignments. They also sent goodwill SMSes to their students before the exams, along with other SMSes informing them when the results would be released, as well as the closing date for registration. Unisa students who participated in the study reported that SMS messaging is not only efficient, it is also convenient and reliable. They stated that they would prefer to receive SMSes at least weekly. In evaluating the effectiveness of SMSes to support undergraduate students, Garner et al. (2002) found that students perceived the system to be immediate, convenient and personal.

Since cell phones are informally used for social interaction, they have the potential to reduce the formality of learning experiences by allowing students to engage socially as part of their learning experiences. Synchronous communication via cell phone platforms such as MXit has been explored in recent studies (Anderson 2007; Butgereit 2007; Makoe 2009). MXit is a cell phone instant messaging software where text messages are sent between participants to facilitate the process of real-time communication between individuals and groups. MXit, being a South African company, is fortunate in that all the cell phone operators offer data traffic at a far lower price than SMS traffic (Butgereit 2007). It runs on a low-cost GPRS communication system and is freely downloadable onto cell phones. Unlike SMSes that costs at least 50 cent, depending on the service provider, MXit costs about two cent per message. The low cost factor of MXit makes it very attractive to young people. It has a registered user base of over seven million people the world over, and the great majority of them are in South Africa. It has about 11 million log-ons per day and over 210 million messages are sent/received per day. The number of MXit users is greater than the total number of landlines installed in this country. More than 80 per cent of users are between the ages of 12 and 25. The potential for using MXit is enormous, considering that it is affordable, available and accessible.

The social networking platform can be used to encourage students to support each other, especially in distance education where they often feel isolated from their peers. In a study conducted by Makoe (2009), Unisa students were asked to form virtual study groups through MXit. As in any other study group, they met regularly in cyberspace to help each other, share information and discuss issues related to the study material. All these activities took place without the

lecturer's presence or intervention. MXit became a viable tool to afford students an opportunity to motivate one another while learning. That way, students felt they were in control of the activity of learning through collaborative engagement with others (Sharples 2002). In these study groups students adopted a communal approach to learning by sharing responsibility for reading and explaining course material (Lentell and O'Rourke 2004). By doing so, 'students were able feel immediate identification with others in their group and so lose feelings of isolation and anxiety' (Thorpe 1995, 365). In distance education there is a strong correlation between care and learner motivation. In this context, MXit was used to support learning amongst groups of students, not to teach content.

This approach is foreign to most teachers who are competent in teacher-controlled learning environments. They therefore find it difficult to teach technologically savvy students. The difference between digital natives (that is, native speakers of the digital language of computers, cell phones and videogames) and digital immigrants (the older generation or teachers) is that the latter tend to engage more with content, while the former focus on the tools they use (Prensky 2001). Digital natives 'have hypertext minds – they leap around … they have short attention spans – for the old ways of learning' (Prensky 2001, 2). It is necessary for digital immigrants to recognise and acknowledge this, in order to improve their practice. It has therefore become necessary for distance education providers to explore and use new tools (such as MXit) to support social interaction amongst their digital native students.

Prensky (2004) believes mobile technologies can provide students with the knowledge, skills, behaviours and attitudes that will help them succeed in their schools, jobs and lives. Many learning processes can be followed via cell phone. Ford and Leinonen (2009) found that cell phones can be used to disseminate ideas and lesson plans to teachers, by creating slide shows of lessons with audio narrations in all 11 of South Africa's official languages. Through the development of the concept of mobile audio Wikipedia, Ford and Leinonen (2009) used SMS and text-to-speech technologies to enable access to information using voice. Through the mobile audio Wikipedia, the user searches for a term by sending an SMS message to the server. The server calls the user, and the speech synthesiser reads the article found in Wikipedia (Ford and Leinonen 2009). This concept is highly appropriate in Africa, because of limited access to both print-based and electronic information on the continent. Students who participated in this study were able to capture information, take photos, compile a slide presentation, and record and store information. Despite the limitations of cell phones (such as screen size), young people are already inventing ways to use their phones to learn. 'The differences between the digital native student and the digital

immigrant teacher lie at the root of a great many of today's educational problems' (Prensky 2001, 5). The author believes that instead of removing cell phones as tools of distraction and delivery devices of illicit information, educators need to determine how to teach 'in the way that fits into our students' digital lives – and their cell phones' (Prensky 2004).

## IMPLICATIONS FOR PRACTICE

As mobile technologies offer new opportunities for enhancing teaching and learning, more attention needs to be given to the professional development of teachers. Prior to the creation of professional development programmes, it is important to collect information that will help to address the question of whether or not ODL academics need training; who the potential participants in the training are; whether the job requires a particular skill or knowledge to perform; and, finally, whether training is the desired solution. The training needs analysis should include the profile of the potential students, the competencies needed, the course design, and the selection and use of media. This will serve as a construct for the creation of professional development programmes that are responsive to students' needs. The starting point for developing such a training programme is to identify the competencies needed to perform the functions and roles which facilitate learning via mobile technologies. Competencies are descriptive tools that identify the skills, knowledge and behaviours needed to effectively perform a role. We cannot offer a meaningful and effective professional development programme if we do not know the competencies required for successfully facilitating mobile learning.

In the absence of any prior identification of the competencies that may be required to be a mobile learning facilitator, we drew on the roles and competencies of ODL professionals and e-learning practitioners. Egan and Akdere (2005) cluster all the competencies identified by distance education practitioners in their study under four broad themes: (1) communication and interaction; (2) management and administration; (3) technology; and (4) learning and instruction. Unlike earlier studies that emphasised communication as the most important competency in distance education (Thatch and Murphy 1995), Egan and Akdere (2005) found that participants in their study prioritised technology as a major competency in distance education. The nature of technology is such that the role of the lecturer shifts from being primarily a content expert to being a learning process design expert. The latter includes the management of learning technology; course design and the development of instructional material; the facilitation of mobile learning; skills with Internet tools for instruction; and media attributes knowledge (Aragon

and Johnson 2002). However, it is important to note that these competencies should be built on the knowledge and skills base of the other competencies which academics already have. The implications are that these competencies (both old and new) will provide guidance and structure for formal and informal training for distance education practitioners using mobile learning.

Despite studies showing the benefits of using mobile technologies, Aubusson et al. (2009), found that teachers are not convinced about its potential to develop new ways of teaching and learning. Part of the reason may be that most teachers are digitally incompetent, even though they would not admit to it. 'The shift towards the sophisticated usage of mobile devices for purposes other than personal communication may be a generation of teachers away' (Aubusson et al. 2009, 238). It is, therefore, important that training should focus on changing the mindset of academics. This could be done through marketing the training, not only in terms of how to use the technology, but also how technology can be used to aid teaching and learning processes (Salmon 2000). 'Introducing changes with technology can only succeed if the concerned actors have reflective understanding of their actions, their goals and their underlying processes' (Bélisle 2007, 6). It is, therefore, important to acknowledge the existing teachers' beliefs and assumptions about the processes of learning; their established expectation and norms; their notions about good teaching practices; their competencies; and their understanding and commitment to practice. 'Any training of teachers needs to be truly professional development that involves, beyond skills training, changes in teachers' approaches to learning, in their attitudes, values, beliefs and meta-cognitive understanding' (Bélisle 2007).

The main focus of the learning process for distance education practitioners should be on a particular theory that helps to explain the functioning of people and institutions. Each theory of learning leads to an adoption of specific teaching and learning process. Learning is understood as the process of changing our frames of reference or our mindsets, to generate a new or revised interpretation of our beliefs and experience as a guide to future action (Kolb 1984; Mezirow 2000). When looking at what is expected of teachers in responding to the new knowledge systems, 'it becomes obvious that they have to gradually bring about change in the relationship to knowledge' (Bélisle 2007, 13). It therefore becomes necessary for change in the teaching practice to be guided by one or many learning theories. Sustainable change in teaching practice can only occur if professional development programmes require practitioners to engage in dialogue about practical theories of teaching and learning, in order to subject them to review and revision.

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The basic level of training should rather focus on how cell phones can be used to free teachers to spend more time on innovative ways of improving their practice, than on spending time on administrative issues. The majority of lecturers at Unisa raised concerns about the increasing workload which stems from administrative functions – something which takes valuable time which could be spent doing research or improving teaching and learning practices. It is therefore important that training address issues of concern and attempt to break teachers' unfamiliarity with the technology, by gently exposing them to the potentials of using mobile technologies for teaching and learning. The strength of this device is that it offers learning that is intimate, spontaneous, situated and versatile. It is only when academics are familiar with the device and convinced of its potential and educational value that they will use it. However, 'the overwhelming belief in the transformative power of technology is nowhere as important as it is in the curriculum content of training for digital competency and literacy' (Bélisle 2007, 10). 'The justification of what we know and believe, our values and our feelings, depends on the context of biographical, historical, cultural situation in which they are embedded' (Mezirow 2000, 3). It is important to consider these contexts when planning professional development programmes aimed at facilitating the process of change. Teachers' practice can only change in a fundamental way, if they engage in self-reflection and self-awareness in relation to their practice.

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# Influence of a university merger on personnel at the University of South Africa

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## Abstract

The influence of a 'technikon-into-university' merger, as manifested in the former Technikon South Africa and University of South Africa merger, is the focus of this article. A quantitative research design was employed using a questionnaire with a five-point Likert scale. Randomly selected academic and administrative personnel formed the sample of 31 personnel from the Department of Public Administration and Management. The research results indicated that personnel were satisfied with their work and with management during the merger process. However, personnel were somewhat dissatisfied with the institution. A possible managerial implication for the newly merged institution is that the positive attitudes of personnel towards their work and management provide a sound basis on which the institution can build its future human resource activities. This study enables a better understanding of a university merger, and these findings may also be extended to a follow-up study in order to identify the main reasons causing the current negativity amongst personnel in the Department of Public Administration and Management towards the institution.

## INTRODUCTION

Since the beginning of 2000, South African universities have come under ever-increasing pressure from the government to become more accountable for how they manage their affairs. Moreover, the government has been questioning the ability of universities to manage equity and deliver academic programmes and services efficiently and effectively. The government suggested that there were too many higher education institutions, which resulted in excessive duplication. It was therefore argued that some higher education institutions should be merged. The hope was that this would correct the ineffective public service delivery legacy of the apartheid system and achieve greater efficiencies (e.g. educating more students without additional costs) (Curri 2002, 133–134).

Although many reports identified financial benefits as a primary contributing factor to the success of a merger, there was also support for the notion that personnel issues play an important role in merger decisions (Hay and Fourie

2002, 116–121; Reddy 2007, 486). This implies that factors such as participative decision-making and feelings of loss, anxiety, frustration and demoralisation were equally important in the decision-making process, as regards higher education mergers (Cebekhulu and Mantzaris 2006, 98–102; Jansen 2003, 44–45). In support of this view, Kavanagh and Ashkanasy (2006, 83–85) argue that the human factor should guide the merger process. It is further clear from the literature that in the majority of cases, personnel report negative perceptions about mergers and that dissatisfaction is a major contributing factor to the failure of mergers (Reddy 2007, 486; Van der Westhuizen 2004, 154). Personnel have been profoundly affected by the implementation of the University of South Africa (Unisa) merger in 2004, and the implications of these changes have been substantial and far-reaching (Fourie 2008, 27–37).

Against this backdrop (the fact that a merger could have a negative impact on the perceptions of personnel), the main research problem investigated by this study was: Were personnel in the Department of Public Administration and Management (DPAM) negative towards their work, the university and the management of the university after the Unisa merger? In addition to the research problem, the researcher asked the following central questions: What is meant by the concept 'merger'? What theories are there for analysing mergers? What policy measures drive the merger process? What effect did the Unisa merger have on the perceptions of personnel in the DPAM? The study mainly focused on the perceived experiences (perceptions) of personnel during the 2004 merger. The demarcation is outlined below:

- The major part of the research was conducted during the 2009 academic year, thus allowing a five-year gap between the merger and the study to emerge. The researcher is of the opinion that for the merger to be effective and show substantial results, a five-year waiting period is crucial, as it allows personnel to form specific perceptions of the process. However, conditions in the university have since changed to some extent, and caution should be exercised when making cross-departmental comparisons on merger issues, since the working environment differs significantly from one department to another.

- The perceptions which the research in this study highlighted, sketch a picture of the state of the merger only as perceived by personnel at the time of the study.

- This study took place within an open distance learning (ODL) environment. However, this excluded specific ODL themes.

## LITERATURE REVIEW

A range of analyses, namely conceptual, theoretical and policy arrangements, is explored.

### Conceptualisation

Experience has shown that terminology used around mergers in the international literature is not always consistent. In a number of instances the word 'merger' is referred to as 'incorporation', 'amalgamation' and 'consolidation' (Van der Merwe 2007, 539–540). Obviously, there will be differences in conceptualising the term, because generally the goals for merging institutions differ: there are two extremes on the continuum, varying from a form of loose cooperation to absolute integration. In view of the uneven use of the term internationally, without going into detail this study has adopted the following definition for 'merger', which is fully in line with Section 23 of the *South African Higher Education Act*, 101 of 1997:

> A merger in higher education is the combination of two or more separate institutions into a single new organisational entity, in which control rests with a single governing body and a single chief executive body, and whereby all assets, liabilities, and responsibilities of the former institutions are transferred to the single new institution. (Hall, Symes and Luesher 2004, 2)

Given the above conceptualisation, the author is of the opinion that the unbundling of Vista University and the subsequent incorporation of the Vista University Distance Education Campus (VUDEC), with the manifestation of the former Technikon South Africa (TSA) and Unisa (two separate institutions) into the newly merged Unisa, could be regarded as a fully-fledged merger. These three institutions merged into a single, open distance learning Unisa, whereby all assets, liabilities and responsibilities were transferred to a single governing body, namely the Unisa Council, and a single chief executive body, namely the Unisa Executive Management consisting of a principal and vice-chancellor, assistant principal, pro-vice-chancellor, deputy vice-chancellor and vice-principal: learner support, vice-principal: academic and research, vice-principal: strategy, planning and partnerships, vice-principal: finance and university estates, vice-principal: operations and university registrar (University of South Africa 2009). Within this newly merged institution it has become necessary to widen the scope of research around mergers, including the Unisa merger, to give a broader understanding of the main theme of the study.

## Theoretical framework

Very little of the literature provides guidance on mergers in the public sector, more particularly regarding the perceptions personnel have towards their work, the institution and the management of the institution (Sehoole 2005, 160). However, in a few local studies on mergers in South African higher education, the authors structured their reviews around the complex political interactions, conflicts, contestations and compromises of a merger (Cebekhulu and Mantzaris 2006; Fourie 2008; Hay and Fourie 2002; Jansen 2003; Jayaram 2003; Kilfoil and Groenewald 2005; Mentz and Mentz 2006; Reddy 2007; Sehoole 2005; Van der Merwe 2007; Van der Westhuizen 2004). Other authors highlighted the need for merger managers to take account of five interrelated concepts that provide the framework for understanding the broad theoretical basis proposed in this article.

In summary, the following five concepts are advocated: first, the transitional context. It would be difficult to understand the restructuring of higher education without grasping the nature of the transitional context of South Africa. In other words, the merger of the higher education system can only be understood by examining the macro-political environment before 1994 – more particularly, the transition from an apartheid state to a post-apartheid society.

Second is the macro-political environment. To understand what accounts for the unique South African macro-political environment, it is crucial to point out that the rationale for mergers in higher education was built around the following twin logics of transition: the logic of resolving the apartheid legacy in higher education and the logic of integrating the higher education system into the globalised economy.

The micro-political arena is the third concept. Soon after the mergers were effected on 1 January 2004, it became clear that the important fundamental in managing a merger in the South African context is the recognition that there is nothing fluid – it is complex in nature. Hence, not many mergers were consistently welcomed or pursued enthusiastically by the higher education institutions concerned. Experience of the merger process has shown that it created deep concern regarding, for example, cultural incompatibilities, loss of institutional 'memory', resistance to change, loss of key competencies, harmonisation of conditions of service, job losses, anxiety about institutional futures and a general loss of morale on the part of all involved.

The fourth concept is merger formations. On the formation side, interactions between governmental macro-politics and institutional micro-politics have been effective processes in forming the content of the mergers. This interplay has resulted in four types of mergers, namely institutional obliteration (disappearance of the college identity), protected disclosure (separate existence of the merged

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entity), subsumed integration ('take-over' of a smaller institution into a larger established institution) and equal partnership (combination of two institutions). The equal partnership formation was adopted by the TSA/Unisa merger, which is regarded as the ideal type, i.e. where the combined resources of the two institutions lead to an expanded single institution.

The final concept is the merger outcomes. Seven such outcomes, which are contingent with the political forces at macro- and micro-level, are advocated in the literature: equity effects (greater representation of targeted groups – in this case black and women students and personnel), efficiency effects (sound financial management), curriculum effects (rationalisation of the curriculum), organisational effects (organisational integration and restructuring), student effects (consultation), physical integration effects (physical facilities, such as buildings and parking spaces) and personnel effects (emotional and professional lives) (Becker 2004, 165–167; Hay and Fourie 2002, 120–121; Jansen 2003, 29–45).

This article focuses on the personnel effects on the micro-political arena of the TSA/Unisa merger. Hence, the analysis is in line with views regarding the personnel effects.

## Policy arrangements

The specific nature of higher education restructuring in South Africa forced the government to take the route of mandatory merging, because most institutions failed to explore such solutions voluntarily. Therefore, it is important to underscore the fact that the merging of the TSA and Unisa was policy- or politically driven and was prescribed by government (Hall and Symes 2005, 204–211). By taking the route of mandatory restructuring, the government was able to strategise the merging process into two main categories. As a consequence, higher education institutions were instructed to transform both 'fitness of purpose' and 'fitness for purpose'. The former strategy implies institutional fitness in terms of compliance with national policy goals, priorities and targets. The latter strategy means that once institutions have grasped this challenge by formulating their own visions, missions and strategies within the boundaries of national instructions, it is then their responsibility to manage (implement the vision, missions and strategies) the merger in practice (Hall et al. 2004, 64). The literature relating to national policy reveals that the restructuring process in the higher education sector took place against the background of the following policy arrangements: the National Commission on Higher Education in 1996, the *Education Draft White Paper* 3 of 1997, the *Council On Higher Education Report On Size And Shape* of 2000, the *National Plan for Higher Education* of 2001 and the *Higher Education Act* 101 of 1997.

The Department of Education formally announced, on behalf of the then Minister of Education, the intention to merge the identified institutions based on the content of the abovementioned policy guidelines (Hall et al. 2004, 43). Subsequently, the Unisa merger was effected on 1 January 2004 as outcome 11 of the *National Plan for Higher Education*. The newly merged institution is regarded as the only open distance learning institution in South Africa. Van der Merwe (2007, 538) points out that in practice, outcome 11 determined the merger of the former TSA with the former Unisa, and the incorporation of the Vista University Distance Education Campus (VUDEC). The rationale for the establishment of the newly merged Unisa was based mainly on the imperatives of equity and merit, as proposed by the NCHE. Although this is not the only merger study done at Unisa (see Fourie 2008; Kilfoil and Groenewald 2005; Meyer, Groenewald and Bushney 2009; Ngambi 2011), it is unique in the sense that it was the first study designed to investigate whether the 'people issues', in terms of work satisfaction and attitudes towards the institution and management, are relevant.

## RESEARCH DESIGN

The research design is explained in this section. The first part focuses on the method of research. Details are also given about the target group, instrument, pilot testing, data analysis and limitations. The article ends with the results and discussions.

### Research method

Merger terminology, theories and policies in previously documented literature were used as the basis for constructing generic principles for this study. According to the literature, most studies on mergers are quantitative and qualitative in nature, frequently using, for example, course experience questionnaires, case study experiences and literature studies (Cooper 2006, 260–290; Kilfoil and Groenewald 2005, 12–17; Mentz and Mentz 2006, 112). It was decided to use a quantitative paradigm for this study. Within this paradigm, the empirical method of investigation (survey) was used, which implies that the researcher used a questionnaire as well as individual discussions to collect the data. The questionnaire included a combination of closed- and open-ended questions. To inform the literature review, the evidence sources used included books, journals, government legislation, university merger (and other) documentation and (mainly) the data from the structured questionnaire.

## Target group

In view of the invaluable contribution that all personnel (academics and administrative) make to ensure quality service delivery, questionnaires were sent to and completed by all 31 personnel (response rate of 100%) employed in the DPAM. Individual discussions were also held with these personnel.

## Instrument

The questionnaire used for the study was mainly based on a combination of the Brayfield-Rothe (BR) (work satisfaction), the Index of Organisational Reactions (IORCI) (company identification) and Index of Organisational Reactions (IORS) (management) questionnaires (Cook, Hepworth, Wall and Warr 1981, 16–43). The questions were grouped into the following four sections (key variables):

- Section A: Biographical information

- Section B: Work satisfaction

- Section C: Perceptions regarding the institution (Unisa)

- Section D: Perceptions towards management at Unisa.

In Section A, respondents were required to respond on their biographical characteristics such as age, years of service and gender (independent variables). In all other sections respondents were asked to rate their experience of their work, the institution and management. The majority of the questions used a five-point Likert scale ('strongly agree' – 'strongly disagree'). For example, in the BR questionnaire respondents were expected to respond to the following question: 'My job is like a hobby for me.' After each section, space was provided for qualitative comments.

## Pilot testing

Pilot testing involved seven randomly chosen personnel members in the DPAM. A few suggestions were received and the questionnaire was adapted accordingly. This was done to ensure that the questions were suitable for the study and that they would provide a true reflection of the personnel issues affected by the merger (based on the literature). In addition to the pilot testing, informal discussions were held with selected academics to refine the questions. This further increased the reliability and validity of the questionnaire for this specific study.

## Data analysis

Data from the completed 31 questionnaires were entered into the Statistical Package SAS-JMP version 8.01 for Windows. The effect of the merger on

personnel issues such as work satisfaction, perceptions of personnel regarding the university and perceptions of personnel towards the management of the university were measured using descriptive statistics (frequency and percentage scores and mean differences). In addition, the reliability of the dimensions (or subscales) in the questionnaire was determined by means of the Cronbach's alpha, to ensure that the same set of items would elicit the same responses if the same questions were recast and re-administered to the same respondents (Santos 1999). In general, the reliability analysis of the subscales (dimensions) recorded relatively high Cronbach alpha values. All the subscales showed a high alpha, which is an indication that the dimensions are reliable. Mean scores were calculated for each of the dimensions, after which an analysis of variance (ANOVA) was conducted to test for significant differences between gender, age, group, occupation, education and experience for each of the different subscales.

The limitations of this study included personal perceptions and limited data. Regarding personal perceptions it is accepted that questionnaires and individual discussions may have uncovered personal attitudes rather than deeper realities that existed during the merger process. Data were limited, since this study was based on the experiences of one academic department at Unisa (with only 31 respondents), namely the DPAM. The data may not have been adequate to generalise on conclusions of this nature. Nonetheless, for the purpose of this study, perceptions were helpful in determining whether the implementation of the merger had a negative effect on the work satisfaction of personnel, perceptions of personnel regarding the university and perceptions of personnel towards the management of the university. This study has established a foundation from which further research may be undertaken in the open distance environment.

## RESULTS AND DISCUSSIONS

The respondents' biographical information, their perceptions towards work, the university and the management of the university, are presented below.

### Biographical information

Most respondents were between the ages of 36 and 50 (54.83%), with 19.36 per cent aged 20–35 years and another 25.81 per cent aged 51+ years. Only 32.14 per cent of the respondents had been employed at Unisa for 11+ years. The majority had been working at Unisa for fewer than ten years (67.84%). The sample was fairly evenly split between males and females, although there was a slight weighting towards female employees (51.16%). The majority of the respondents had a university degree (72.41%). Over 74.19 per cent were academics and 25.81 per cent were administrative staff. Given the above data, it is clear that the sample consisted of an acceptable degree of diversity and representivity.

## Perceptions towards work

The interpretation of the respondents' responses concerning their perceptions towards their work after the merger was guided by their perceptions of particular work-related issues, as measured by the Brayfield-Rothe questionnaire (work satisfaction). These perceptions were embedded in their experiences of the Unisa merger, and each respondent was required to bring this into their respective responses. In general the work satisfaction subscale showed a mean of 2.14 (standard deviation=0.65) out of 5 on the scale (relating to 1=strongly agree and 5=strongly disagree). This demonstrates that the respondents were positive towards their work at Unisa.

When compared to the biographical information, the following interesting research results emerged: a comparison of the mean work satisfaction scores for the different biographical variables with one-way ANOVAs showed no significant results, although a slight deviation was detected for age groups. The mean score of 2.34 for the age group 20–35 years was slightly higher than for the other two age groups, with mean scores of 2.08 for the age group 36–50 and 2.12 for the age group 51+. The mean score of respondents aged between 20 and 35 was slightly lower (mean score=2.34) than the group of personnel over 35. This may imply that the degree of work satisfaction seems to increase with age. Although it fell outside the scope of this study, it was interesting to note that older employees were generally more positive towards their work than their younger counterparts. According to Theophanides (2010) this may be due to a number of factors, including greater autonomy and flexibility, as well as having greater influence on the strategic processes of the institution.

The data further illustrated no statistically significant differences (with one-way ANOVA) between the other biographical variables. There were no significant differences for the mean scores between the number of years in service categories 0–5 (mean=2.2) years and 11+ years (mean=2.2), with a slightly lower mean score (mean=2.14) for the category 6–10 years. There were almost no significant differences in the responses of the females (mean=2.18) and males (mean=2.10). It is also interesting to note that the respondents with grade 12 (mean=2.3), those who held a technikon degree (mean=1.9) and those with a university degree (mean=2.2) revealed very similar mean scores. Similar mean scores (mean=2.14) were also obtained for the two occupational categories (academics and administrative personnel).

An examination of the qualitative data regarding work satisfaction revealed a similar set of positive responses. On the one hand, participants recognised that the merger had caused an increase in the workload, more demands to learn new tasks, more stress because of the new work environment and an increase in

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'change fatigue'. On the other hand, there was unanimity among the respondents that the new work environment (after the merger) provided more opportunities – particularly in key performance areas such as tuition and research. In fact, everyone agreed that the new institution offered every staff member the opportunity to take on broader responsibilities. Most respondents were also of the opinion that in the newly merged Unisa there was a measure of renewed energy and optimism among personnel as regards the work they did.

A summary of the responses from the abovementioned data revealed that there was agreement among the respondents that they were positive towards their work after the merger. This indicates support for a study conducted at the University of Pretoria where it was found that despite negative experiences, personnel claimed that a strong sense of duty directed them in a positive way towards their work during the merger (Becker 2004, 157). The lesson to be learned – which is clearly suggested by both the quantitative and qualitative data – is that the impact of the merger on the work experiences of personnel was positive.

## Perceptions towards the institution

The respondents' perceptions towards the institution after the merger, as measured by variables represented in the Index of Organisational Reactions questionnaire (company identification), were reported. An analysis of the data showed a relatively low mean score of 3 (standard deviation=0.91) out of 5 on the scale (relating to 1=greatly encourages me to do my best and 5=definitely discourages me from doing my best). This implies that the institution ratings were slightly lower than those of the other two categories (perceptions towards work and perceptions towards management). These results indicated that the respondents were not so positive (in other words, slightly negative: 3 is neutral) towards the newly merged institution (Unisa). A number of interesting facts were evident. According to the one-way ANOVA analysis, the same mean scores (3.2) were reported for the age group 20–35 and the age group 51+. However, the mean score for the age group 36–50 was slightly higher (mean score=2.6). These results reveal, therefore, that the age group between 36 and 50 was more positive (not significantly) towards the institution.

The one-way ANOVA mean scores were basically the same for the number of years-in-service variable (0–5 years [mean=2.9]; 6–10 years [mean=2.9] and 11+ years [mean=3]). Interestingly, there is a difference in the mean score between the responses of the females (mean=2.7) and the males (mean=3.1). Although there was a tendency amongst female personnel to be more positive towards the institution, relatively high statistical differences (p=0.18; t test probability p<0.05 is statistically significant) emerged from the data. This implies that the

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results between the two gender groups are not statistically significant. Further, noticeably high mean scores were recorded for the respondents with grade 12 and respondents who held a technikon degree (mean=2.4). Respondents with a university degree revealed a relatively lower mean score (mean=3.2). According to the analysis of the data, it is clear that those personnel with a grade 12 and technikon degree remained positive towards the institution after the merger, but respondents with a university degree experienced slightly negative perceptions towards the institution. In the occupational category, the responses of the academic personnel were substantially less favourable (mean=3.1). In contrast to the responses of the academics, the administrative personnel revealed a relatively high mean score (mean=2.4). These mean differences illustrate that the academic personnel were more negative towards the newly merged institution than the administrative personnel. The sharp difference between the mean scores of the academics and the administrative personnel seems problematic, since the academics are responsible for the core functions (for example, tuition and research) of the university.

Despite the negative responses, the qualitative results also revealed positive responses. It was mentioned that the merger offered prospects of greater job security. These results corroborate the view that personnel in academic institutions (particularly, academic personnel) have autonomy and security in their jobs (Reddy 2007, 496). Generally, however, the data underlined the following common negative feedback from the respondents:

- There is less loyalty.

- Confusion exists regarding the new organisational culture.

- There is a 'Florida campus culture' and a 'Pretoria campus culture'.

- A lot of institutional memory was lost.

- There is no commonly accepted vision.

- Morale and productivity have been negatively affected by the merger.

- Differing values, beliefs and assumptions amongst staff have set the scene for major conflict in the new Unisa.

In summary: the findings from the data confirmed that the respondents were negative towards the newly merged institution. This data correlate with the view that the impact of mergers on personnel, in all cases, has been devastating in terms of their emotional and professional lives (Jansen 2003, 44). In fact, in exploring the merger literature, it became clear that the central themes for a

successful merger are: good management (particularly in facilitating transitional structures); paying attention to cultural differences between the two institutions; establishing clear, consistent and frequent communication channels; and keeping human resource matters central throughout the process (Field and Peck 2003, 748). Generally, the analyses revealed that the Unisa merger had been experienced negatively, as was shown by the respondents' perceptions towards the institution. Overall, this situation could have a negative effect in terms of the operational management of the university and will have to be addressed, preferably in a strategic human resource management programme.

## Perceptions towards management

The rationale for inquiry on the perceptions of the respondents towards the different management levels of the institution after the merger was derived from the variables represented in the Index of Organisational Reactions (IORS) questionnaire (management). The results of the analysis showed a slightly below-average mean score of 2.6 (standard deviation=0.81) out of 5 on the scale (relating to 1=I am extremely satisfied with the management I receive and 5=I am very dissatisfied with the management I receive). Taken together, results of this subscale suggest that the respondents were generally satisfied with (positive about) the management of the newly merged institution.

With regard to the variable age group, the one-way ANOVA analysis found basically the same mean scores for the subscales: perceptions towards the institution and perceptions towards management. The mean score for both the age group 20–35 and 51+ years was 2.9. The dispersion of the means score for the age group 36–50 was slightly higher (mean score=2.4). Thus, it was found that the age group between 36 and 50 was more positive towards the management division of the institution after the merger. In respect of the number of years in service at Unisa, the findings were basically the same. This means there were no significant differences in the mean scores for all three categories (0–5 years [mean=2.7]; 6–10 years [mean=2.6] and 11+ years [mean=2.6]). The findings also indicate that there were no significant differences in the gender variable with females (mean=2.6) and males (mean=2.7).

Although not significant, statistical differences emerged in terms of the educational variables. The one-way ANOVA mean scores for respondents with grade 12 (mean=2.5) and respondents who hold a technikon degree (mean=2.2) were relatively high. However, respondents with a university degree noted a lower mean score (mean=2.9). The lower mean score recorded for this variable, therefore, indicated that respondents with a university degree experienced negative perceptions towards the management division of the newly merged

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institution. The prevalence of negative perceptions amongst respondents with a university degree in both categories of variables, namely perceptions towards the institution and perceptions towards management, is of particular concern. In the occupational category, responses were almost equally split between academic (mean=2.7) and administrative personnel (mean=2.4).

With some exceptions, the quantitative data suggest that positive feelings emerged amongst respondents concerning their perceptions towards management after the merger. This is supported by qualitative responses such as the following: 'distribution of work is fair', 'trust exists between employees and management employees', 'communication channels are open', 'employees have a feeling of personal empowerment' and 'employees participate in the development of strategic plans'. Less favourable responses included the following: 'there is a top-down approach', 'I miss my former managers', 'I don't have a clear duty sheet' and 'there is a lot of disrespect (for example, name-calling)'. These mixed results underline the mixed emotional experiences personnel generally have towards management during and after a merger (Becker 2004, 163).

What is noteworthy about the Unisa merger is that the responses indicated that respondents were positive about the management of the university. This implies that merger interventions should not always be seen in a negative light.

## CONCLUSION

Since the late 1990s the South African higher education system has experienced a complex restructuring process, particularly with regard to the merging of institutions. This process was driven by several policy guidelines which culminated in the *Higher Education Act,* 101 of 1997. This Act, which laid the foundation for a single, coordinated national higher education system in South Africa, resulted in the mandatory merging of Unisa on 1 January 2004. An examination of the literature illuminated five merger outcomes of which effects on personnel were identified as the most relevant. The Department of Public Administration and Management at Unisa was one of the academic departments affected by the merger. A study was conducted to determine empirically if personnel in the DPAM were negative towards their work, the university and the management of the university after the Unisa merger. The analyses revealed that personnel were positive towards their work and management, but negative towards the institution. The research presented in this study corresponds with other related studies that indicated dissatisfaction amongst personnel as a major contributing factor in the failure of mergers. Since the empirical work done in this study was limited to the experiences of only one academic department

at Unisa (with only 31 respondents), it may not be adequate to generalise on conclusions of this nature. Therefore, it is suggested that further corroborative research be conducted on merger issues at Unisa. In this regard, two preliminary implications may be suggested: first, as personnel are negative towards Unisa as an institution, there is a need for further research to explore the main reasons for the negativity. Second, since this study was limited to personnel in an academic department (the DPAM) that has merged, the findings cannot be generalised to other academic contexts that have not merged. These findings, therefore, need to be replicated with a broader target group at Unisa. This highlights the need for another merger enquiry, including a comparative study between an academic dept that has merged (DPAM) and one that has not merged in the School of Management Sciences at Unisa.

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