DIVERSE STRATEGIES FOR DIVERSE LEARNERS: ACTION LEARNING IN A HYBRID MODE

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ABSTRACT

This paper describes an action research study during which a flexible or hybrid approach to delivering an Information and Communication Technology competency course is implemented in the preparation of student teachers. The course incorporates Web-based course-content delivery, face-to-face classroom meetings to satisfy the need for human interaction, a variety of assessment methods, as well as recognition of prior learning. The objectives are to accommodate learning diversity, make learning focused and achievable for each learner, allow for intervention if the learning outcomes are not met, and focus on and guide the learning process, i.e. teach learners how to learn. This paper reports on the perspectives and experiences of two groups of first year learners, namely student teachers who attended a hybrid ICT course and first year learners who attended an e-learning ICT course. It was found that the success rate of the hybrid mode ICT course was significantly higher than that of the similar e-learning ICT course. The hybrid mode ICT course also enabled the learners to become self-directed to a higher degree.

Key words
E-learning; flexible learning; hybrid; ICT competency; learner diversity

INTRODUCTION

Higher Education (HE) institutions are both a reflection of change in society and catalysts for change. Their primary goals remain the same regardless of the mode of delivery or educational content. Furthermore, HE institutions are required to meet the needs of an increasing technologically oriented economy. The use of Information and Communication Technology (ICT) became one of the key factors in all the learning programmes in order to foster future success for both graduates and the economy (CHE, 2002:14-21). These enduring goals include creating a learning environment in which the learner is comfortable yet intellectually challenged, fostering the concept of self-directed learning and leading by setting examples of high standards. Curricula should provide greater flexibility in educational provision, delivery modes and methods of teaching. It is against this background that the authors of this article explore and investigate different learning approaches in order to accommodate learners from different disciplines in obtaining basic ICT competencies.

TWO DIFFERENT DELIVERY MODES

At the Vaal Triangle Campus of the North West University (VTC-NWU), South-Africa, where the study is conducted, all first year learners are required to complete a compulsory ICT competency course, which is presented as a self-study, e-learning course with no formal contact between lecturers and learners. The course is comprised of continuous online assessments which can be completed and repeated in the learner's own time. The assessment marks are recorded and make up the learners' participation mark. A summative on-line examination is completed and a second opportunity to re-write is available.

In order to realise the perceived benefits associated with e-learning and to accommodate the needs of a diverse group of first year student teachers, researchers in the School of Educational Sciences investigated alternative models of delivery modes and learner support that promote deep learning, collaboration and experiential learning. The researchers implemented the same outcomes, but with a different course design in which the learners can choose to follow the e-learning course or the same course delivered in a hybrid mode. The hybrid mode of delivering incorporates characteristics of both traditional face-to-face classroom settings and an online classroom setting. Thus teaching and learning occur in both synchronous and asynchronous modes. In the hybrid mode, the educator determines which aspects of the course are best suited to presentation via the various delivery modes.

THEORETICAL FRAMEWORK

ICT competency and recognition of prior learning
The advent of mass usage of technology has been fast and dramatic with enormous impact on the lives of most people in technological societies. Learners in higher education are expected to use ICT as a tool to search for, analyse, manage, and integrate information in their respective academic

programmes. The former Information Systems and Technology Standard Generating Body (IS &T SGB) formally registered 15 End-user Computing (EUC) unit standards for the EUC domain on NQF levels 1-3 (SAQA, 2000). Twelve of the 15 unit standards for EUC are pitched at levels 2 and 3 (equivalent to grades 10 and 11) on the NQF. The researchers have found that more than 60% of first year learners are not yet computer competent when they enter the VTC-NWU on NQF level 5.

The researchers experienced that higher education institutions do not grant recognition of prior learning (RPL) on a consistent basis to learners who are already computer competent. RPL is the granting of credit for a unit of learning on the basis of an assessment of formal and non-formal prior learning or experience (Janse van Rensburg, 2003). RPL policies can enable institutions to make judgments about student's preparedness for study and eligibility for credit.

E-Learning and diversity
E-learning has opened a multitude of possibilities for teaching and learning. E-learning is an abbreviation for enhanced learning and is defined as learning which is facilitated and supported through the use of ICT (JISC, 2004:10). E-learning offers students and educators the opportunity to engage in electronically mediated interaction with each other and with the learning materials. E-learning can be used by learners in traditional face-to-face educational settings or at a distance. Currently, however, very few teaching attempts have been made to match the pedagogical styles underlying e-learning interventions to learners' diverse learning styles. International research has made an attempt to develop e-learning models for diverse learning styles such as the Global Campus (GC) project at Middlesex University and the e-learning strategy of the University of Bristol (Dimitrova, Sadler, Hatzipanagos & Murphy, 2003).

The researchers believe that learning is based on the constructivist notion that the individual brings prior knowledge, aptitudes, motivation and learning preferences to a course. In this study, the researchers consider prior competencies; the academic programmes learners are enrolled for; learner preferences and the degree to which they are self-directed, all as variables of diversity. By understanding the learners' needs, past experiences with computers and the learning environment they find themselves in, (i.e. lab situations) will aid in helping to design a model and create a strong learning tool for all the learners.

Self-directed learning and learner success
Self-directed learning is generally described as a process in which learners take primary initiative for planning, carrying out and evaluating their own learning experiences (Merriam & Caffarella 1999; Brockett & Hiemstra, 1991:24). When learners are admitted to higher education institutions it is expected that they will be capable of successful completion of the course. There is much evidence in literature on teaching and learning to suggest that factors such as teaching strategies, motivation, learning styles and psycho-social factors, to name a few, are likely to influence learners' success. Killen (1994) and Brockett and Hiemstra (1991) indicate that some of the most significant factors in learners academic success at university are interest in the course, motivation, goal- setting, self-discipline and time management, self-regulation and effort.

Assessment methods and learner success
Assessment is the most powerful lever educators have to influence the way learners learn. Constructive assessment practices should always be an episode of learning and should not encourage passive, reproductive forms of learning (Le Grange & Reddy, 1998:6; Killen, 1997:30; Boud, 1995:44-45). Every act of assessment provides learners with feedback about what they know and should still be learning. In designing the assessment strategy for the hybrid mode ICT course, the researchers were concerned in organizing assessment with such flexibility that it promotes active learning, integration of concepts and skills, achievement of all the outcomes and a variety of assessment methods.

The authors share the concern of others that e-learning environments may be merely a repository of data and a commercial arena for the buying and selling of assessment artefacts (Funnell & Alexandersen, 2004). These concerns stimulated the researchers to explore more programme-specific and learner driven forms of assessment based on independent study and mechanisms to prevent rote learning, plagiarism and learners relying on others for assistance during informal assessments.

Problem statement and research objectives
In a previous study, the researchers found that on-line learning, as a mode of delivery, requires exceptional self-discipline and organizational skills from the learners (Strydom & Janse van Rensburg, 2002). In practice, the researchers found that prior knowledge and experiences of learners differ dramatically. Furthermore, many of the current e-learning programmes transfer traditional classroom instructions to on-line settings by merely recasting reading materials to the Web, which in turn reflect low level learning and a lack of a variety of strategies to accommodate learning diversity in terms of learning styles and disciplinary differences. Other researchers, who previously focused on these issues in countries such as the USA, UK and Norway, recognise that e-learning technologies rarely bring about substantial change in learning and teaching, and often emphasize recall, repetition and memorization (Honey & McMillan, 2002; Funnell & Alexandersen, 2004).

A further challenge is that the current funding formula urges Higher Education institutions to improve pass- and throughput rates, while providing a skilled labour force. In 2004, of all the learners who enrolled for the e-learning ICT course, 36% were unsuccessful or failed the first opportunity examination, and 7% of the learners did not complete the course. This means that these learners will have to repeat the subject in a later year of study and will not have the required ICT skills when entering their second year of study in higher education.

The objectives of the study are firstly to make learning focused and achievable for each learner, provide learning opportunities for a diversity of learners, allow for intervention if the learning outcomes are not met, and focus on and guide the learning process, i.e. teach learners how to learn. A second purpose of the study is to ensure a fair opportunity for all learners to reach the outcomes through an appropriate mix of learning modes, as well as through reliable assessment practices.

Research questions

- Who are the learners and which mode of delivery do they prefer?
- What effect did the two delivery modes have on successful learning?
- How reliable are the assessment strategies employed by the two delivery modes?

RESEARCH DESIGN

The researchers developed and implemented the hybrid mode ICT course over three semesters, by following the basic cycles of action research (AR) activities as interpreted by Kemmis and McTaggart (1988), Elliott (1991) and Zuber-Skerritt (1993). Data was collected rigorously throughout the case study, by employing a multiple of data collection methods, known as data triangulation (Gable, 1994; Kaplan & Duchon, 1988). Qualitative data can help us understand the rationale of the theory and underlying relationships, while quantitative data can indicate directly observable relationships and corroborate the findings from qualitative data. The data was analysed with the aid of the SAS (SAS Institute Inc., 1996) package.

The study group consisted out of 93 first year student teachers enrolled for B.Ed. as well as the whole group of first year learners (434 learners) enrolled for other academic programmes (B.A, B.Comm. and B.Sc. (ICT)). The first group followed the hybrid mode ICT course during the second semester of 2004 and the second group followed the e-learning ICT course during the first semester of 2004. The learners completed a questionnaire with both structured and open-ended questions.

Questionnaires were structured according to a number of the determinants of self-directed learning (SDL). The determinants selected for measuring SDL during the two courses, were:

- motivation and goal-setting;
- interest; and
- self-discipline.

In order to determine whether learning took place successfully, the academic performances of the two groups are compared. The learning outcomes were the same for both groups and they used different, but comprehensive study guides, which also served as study manuals. According to Killen (1997:30), Freeman and Lewis (1998:24-30) and Wakeford (1999:59-60), assessment should conform to the principles of validity, reliability and fairness. For assessment to be reliable, it should provide accurate and consistent results. The consistency of the results of both courses was investigated.

Intervention strategy: hybrid mode ICT course design

A hybrid mode ICT course was developed over a period of two years and implemented during the second semester of 2004. The objective was to accommodate learner diversity and the need for human interaction, and to implement a reliable assessment strategy. The learning environment brings all activities together into a harmonious flow and offers adequate support for the learner, in order for learning to take place effectively. Figure 1 shows how the hybrid mode ICT course incorporates RPL and pre-assessment, accelerated learning opportunities for those who meet the outcomes sooner, face-to-face classroom delivery, electronic interactions and a variety of assessment methods. RPL provides flexible entry and exit points and pathways through the different programmes.
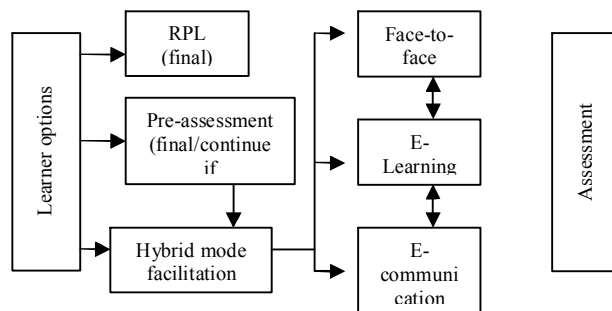

Figure 1 Hybrid mode of delivery for ICT competency

In this model, the lecturer's role behaviour changes as the learner progresses through the four stages of Grow's (1991) Staged Self-Direction Learning Model:

Stage 1:   Dependent learning. In the face-to-face classroom setting, learners who are not familiar with microcomputers or software learn through demonstrations by the lecturers using the NetOp School network demonstration programme (Danware Data, 2002) and by learning from one another. Those who prefer the e-learning programme, continue independently.

Stage 2:   Interest. Newcomers in the ICT field are becoming interested and participate in class. Those learners, who are slightly computer-competent, join in to learn more.

Stage 3:   Involvement. Learners participate in class assignments and collaborative work. Assignments are discipline related.

Stage 4:   Self-directed learning. Learners revise the work through the e-learning programme, work on assignments in their own time, communicate with the lecturers and submit assignments via E-mail. All assignments are discipline specific and integrate competencies from all units, e.g. data from spreadsheets are incorporated into presentations.

Implementation

A total of nine learners received recognition for qualifications such as Computer Studies grade 12 and ICT College Certifications. Of the 93 learners, 19 did the pre-assessment and 15 were exempted from class attendance. Their pre-assessment results counted for their final results. The four who were unsuccessful, attended classes with the other learners, who were divided into four groups. They attended class presented by the researchers, scheduled for one period per week over 12 weeks. Some learners, who had their own computers, and who preferred to work at their own pace, were allowed to attend class only from time to time. Class attendance took the form of guided interaction through demonstrations using the NetOp School broadcasting programme; completion of practical exercises, summative theory tests and Internet research. Learners practised in their own time in the labs, on the e-learning programme, or at home, and submitted some of the

assignments through E-mail. All practical exercises and assignments had to be submitted according to a schedule. The learners completed a practical and theoretical summative examination at the end of the semester.

In the next section, the results of the study with regard to both groups, namely the hybrid mode ICT course for student teachers and the e-learning course followed by the other first year learners, are discussed in terms of prior competencies, different learner preferences, success indicators, self-directedness and reliability of assessment.

Findings and discussion

Prior competencies: The need for RPL
Learners enrolled for different academic programmes at the North-West University are required to complete the e-learning ICT course, while learners enrolled for B.Ed. attend the hybrid mode ICT course. The number of learners from the different programmes who completed the questionnaires is listed in Table 1. On average, more than 34% of the learners viewed themselves as computer- competent before the start of the respective ICT courses.

Table 1 Learners' view on their prior experience with computers

Group	Completed questionnaires	Computer Studies Grade 12	Prior computer experience and wanted to be pre-assessed
B Ed	32	22%	21%
BA	15	33%	30%
B Sc (ICT)	64	33%	52%
B Comm.	103	23%	34%

A total of 27.5% of the learners who attended the e-learning ICT course indicated that they have completed Computer Studies Grade 12. The e-learning course specifications do not grant recognition of prior learning (RPL) for Computer Studies Grade 12. As a result, most of these learners felt that they did not learn anything new and that the time could be better spent. At least one learner who attended the e-learning ICT course remarked that, not having the opportunity to being pre-assessed "…*was a waste of valuable study time*".

A significant number of respondents from all the study fields indicated that they wanted to be pre-assessed. However, only 9 learners from the B.Ed. group were granted RPL for computer studies and other ICT qualifications on NQF level 5. Furthermore, a pre-assessment was implemented for learners attending the hybrid mode ICT course and who are already computer-competent. The assessment mark counts for the learners' final mark. Fifteen learners were successful with the pre-assessment and were exempted from class attendance and examination.

Learner preferences: The need for support and the role of the educator
Wood (2004) describes the learners' inability to manage time, difficulty in working independently and taking personal responsibility for actions, inability to organize and structure

assignments or conduct basic research as some of the problems of under-preparedness of South African school-leavers. The hybrid mode of instruction employed by the researchers is structured in such a way that learners take responsibility for their own learning through their choice of learning, but with guidance and input from the lecturer when needed.

Despite the self-confidence in their competencies (Table 1), more than 64% of the hybrid mode group and 35% of the e-learning group indicated that they required assistance from a lecturer or an assistant, although none was provided during the e-learning ICT course. The majority of learners said that they expected assistance in at least the form of a facilitator. Some learners needed guidance with the technology skills required to use the e-learning system. If there is a need for introduction to basic information (how the computer is used, how to log onto the network, how to send E-mail), designers of the curriculum should create a positive learning experience for these learners before they become frustrated. Comments included the following (learners' own words):
e-learning group:

> *There must be a class and lecturer or facilitator to assist the newcomers because others are not familiar with the computer, they don't even know how to log in and how to use the keyboard and mouse.*

Hybrid mode:

> *… but I give credit to my lecturer, who was always there when I needed help.*

> *The lecturer was very patient because if we didn't understand, she would try and help us.*

The questionnaires revealed that 38% of all the learners said that they required assistance when working with the e-learning ICT course. In general, 65% of the e-learning group and 88% of the hybrid mode group said that they found satisfactory help, in the form of either the learning guide, a tutor or a lecturer. A total of 63% of the hybrid mode group and an average of 84% of the e-learning group regarded the study guide as important support in order to succeed. In both courses, the study guide equipped them with time management and organizational skills that guided them through the respective courses.

Furthermore, the learning responsibility cannot be solely transferred to the inexperienced learner. First year learners, who are not yet computer-competent, are more open to learning when it takes place in a flexible or hybrid mode setting that makes provision for their diversity of needs and learning styles. It is obvious that students who engage in an e-learning endeavour need a mentor or an educator's support.

Learner preferences: different modes of delivery
Motivation, climate and encouragement of deep, but discouragement of surface approaches towards learning are seen as being essential for good teaching. Motivation comprises expecting success, and a task that is valued, while trust is the essential characteristic of climate in which teaching occurs (Biggs, 2003). Equally important is the example of the lecturer as teacher for the student teacher. Apart from their satisfactory pass rate of 71%, the quotations below indicate that

the learners are of the same opinion that the teaching method used during the hybrid delivery mode is successful.

Learner remarks, hybrid delivery mode:

> *I'd like to teach (the subject) the same way I was taught…*

> *The method of teaching us is the most affordable and appropriate way of teaching someone who doesn't know anything about a computer.*

Most of the learners who attended the e-learning ICT course and who were not yet computer competent, required a higher degree of lecturer guidance. These learners felt some degree of dissatisfaction with the course. However, the e-learning delivery mode suited especially those, who viewed themselves as already computer-competent and self-directed to a higher degree, as indicated by the remarks below.

Learner remarks, e-learning delivery mode:

> *Dit kort aandag! (It needs attention!)*

> *There is no teaching method, as we are given the work to do by our lonely selves. What is MS Office?*

> *Actually the way we were taught was fabulous, because, we do have to make our own time to complete the tests, even if you wanted to complete all the tests the same day, you had an opportunity. By this way, it was very nice.*

In terms of figures, 56% of the B Ed learners who attended the hybrid mode ICT course and an average of 58% of the learners who attended the e-learning ICT course, said that one cannot learn practical skills entirely online.

The range of learner abilities on HE level are becoming increasingly larger, thus producing discrepancies between the needs of students. Even if students opt for an e-learning mode only, it doesn't necessarily mean that the learner doesn't need any support from the educator. The hybrid mode enables the educator to meet the needs of students with varying learning needs. The objectives with the mode of delivery should clearly reflect both the institutional and the learners' goals, thereby gaining the highest level of motivation, learning and understanding. In the hybrid mode ICT course, the learner has gained a strong sense of inter-relationship with the lecturer, as well as with the material. The e-learning setting is more rigid, and leaves no room for tailoring the individual experiences of the learners.

A flexible or hybrid ICT course that incorporates on-line with traditional classroom course delivery, has the potential of numerous benefits for a wide range of learners with varying backgrounds, interests, language, experiences, cognitive and psycho-social abilities. Well-designed hybrid courses should be more than merely traditional courses with added online components. Hybrid courses that are thoughtfully designed can promote and foster deep learning, which in turn fosters successful pass rates.

Success indicators

Increasing emphasis on learning standards places greater responsibility on lecturers and administrators to ensure that each of these learners reaches the highest levels of achievement. The average pass rate for the hybrid mode group was 71%, although 9% of the learners felt that they did not cover all the outcomes in the available time. The average pass rate for the e-learning group was 53%. Table 2 indicates the results per academic programme. Some learners felt that they did not achieve all the outcomes before the final examination and the percentages vary from group to group with, as can be expected, the B Sc (ICT) group as the group with the least problems of the three groups who attended the e-learning ICT course.

Table 2 Success indicators of all groups with the respective ICT courses

Group	Enrolled	Could not achieve all outcomes before the examination	Average mark	Pass Rate
Hybrid Mode: B Ed	93	9%	75	71%
E-Learning: BA		47%		
B Sc (ICT)		28%		
B Comm.	472	33%	66	53%

A significant number of the e-learning group indicated that they could not achieve all the learning outcomes on time. This could be the result of lack of self-directedness, lack of motivation ……….
The hybrid mode group has a significant higher success rate than the e-learning group. In terms of withdrawal rates from the course, it is 12% for the hybrid group and 18% for the e-learning group

The confidence of the learners, concerning what they have learned is illustrated by their willingness to conduct a post test during 2005 in order to show that they have mastered all the required skills, as well as that they will remember those skills. Table 3 shows that the B.Ed. group has the most confidence, followed by the B.Sc. (ICT) group.

Table 3 The learners' willingness to do a post-test

Group	%
Hybrid Mode: B.Ed.	97%
E-Learning: B.A.	53%
B. Comm.	61%
B.Sc. (ICT)	83%

Differences in self-directedness
The hybrid mode ICT course design includes mechanisms to accommodate the learners who are not yet self-directed to a satisfactory degree. Results revealed that some of the learners from both delivery modes who were not computer literate had problems to self-direct their learning at the start of the semester.

This inability resulted in 11 learners (12%) of the hybrid mode group and 85 learners (18%) of the e-learning group not completing the ICT course, and probably not being able to apply their skills in practice (Table 2 refer). Probably due to the implemented mechanisms, the percentage of drop-out learners attending the hybrid mode ICT course was less than that of the e-learning ICT course.

The identification of academic goals is essential to the successful management of learning. It is believed that self-directed learners seek to accomplish academic goals strategically and overcome obstacles to learning in order to reach their goals.

Self-management is reflected in the plans that learners make before tackling a task, in the adjustments they make as they work and in the revisions they undertake afterwards (Paris & Winograd, 1990:18). In this study, the latter was used as measurable instrument. Table 5 shows the frequency with which the learners have used the microcomputer laboratories after office hours in order to practise, do assignments or to revise the work. 81% of the learners attending the hybrid mode ICT course were self-directed, in the sense that they practised on their own initiative. Hybrid mode students were also more motivated to practise and apply competencies in other subjects. More hybrid mode students completed learning units in the prescribed times than e-learning students, another aspect that proved that the hybrid mode learners were more self-directed than the e-learning group. Other aspects of self-directedness were measured in terms of interest and motivation, self discipline and effort. The results are summarized in Table 4.

Table 4 Measures of self-directedness of learners from both groups in terms of interest, motivation, self-discipline and effort

Academic Programme / Remark	Hybrid Mode ICT course	E-Learning ICT course		
	B.Ed.	B.A.	B.Comm.	B.Sc. (ICT)
I applied my competencies in my other subjects also.	97%	80%	63%	70%
I practised on my own to learn new skills.	94%	60%	65%	70%
The ability to demonstrate what I have learned motivated me to continue.	97%	67%	71%	75%
I used the labs after hours more than once per week. (Less than 30% of learners have their own PC's).	81%	60%	64%	70%
I have completed the learning units in the prescribed times.	89%	53%	61%	66%

Most of the students enrolled for the ICT course at the first year level, came from a school system where there is limited emphasis on self-directedness. The hybrid mode of delivery enables the educators to identify the learner's level of self-directedness and helped learners to become more self-directed with the goal of fostering more and meaningful learning for future e-learning endeavours. Designers of e-learning programmes should also take cognisance of the important role they have to play in developing and fostering learner's self-directedness to be successful e-learning learners.

Reliability of assessment strategies
In the e-learning course, which is presented to several hundred learners per year, they have multiple opportunities to work through the course. When the learners have completed a learning unit, they may take up to three unsupervised online tests. Marks are recorded on the system, and the best mark is used as a semester mark. A summative exam at the end of the course is thoroughly controlled and co-ordinated. In the hybrid mode ICT course, the researchers implemented a system for the recognition of prior learning (RPL), pre-assessment opportunities and a variety of summative and formative assessment methods in order to make fair judgements about learning. Assessment during the hybrid mode ICT course mainly took place during contact sessions, although some assignments were E-mailed to the lecturers.

In the e-learning setting, learners gain feedback on their comprehension of the work by means of on-line tests at the end of each unit of work, mainly through multiple choice questions. Conversely, in the hybrid mode course, there are a variety of opportunities for practice with feedback, both theoretical and experiential. In the case of the e-learning model, the feedback on comprehension did not correlate with the learners' final results. (Different reasons can be speculated, but this is not the objective of the study).

Another problem is the difference between the continuous assessment marks (C) (uncontrolled assessment) and the examination marks (E) under controlled conditions. For the e-learning course presented during the first semester of 2004, there was a difference of -30% ($(\overline{E} - \overline{C})/n * 100$) between the examination marks and the continuous assessment marks.

Another finding is the difference between the continuous assessment marks (C) (uncontrolled assessment) and the examination marks (E) under controlled conditions. For the e-learning course presented during the first semester of 2004, there was a difference of -30% between the examination marks and the continuous assessment marks. The correlation of the participation mark and the exam mark (table 5) further emphasizes the inconsistency between continuous and summative assessment marks for the e-learning group. In contrast, the correlation of the hybrid mode ICT course is 0.65.

Table 5 Percentage difference between continuous assessment mark and examination mark

Group	Semester mark / exam mark increase/decrease	Correlation of participation and exam marks
Hybrid Mode: B.Ed.	-4%	0.652
E-Learning: B.A.		
B.Sc. (ICT)		
B.Comm.	-30%	0.47

Assessment needs to be applied in unique and creative ways as opposed to the mere acquisition and reproduction of skills through time-constrained multiple-choice online examinations. In order for learners to become computer-competent, assessment should challenge learners with real life problems, and not fragmented, static units of work.

Conclusion and recommendations
This paper has outlined a model for a flexible approach to deliver an ICT competency course. The researchers aimed to accommodate learner diversity by adopting the hybrid mode of delivery. The challenge posed by greater diversity and greater accountability is to enable learners with widely divergent needs, skills, and interests to attain the same high standards. To transform the pressures of diversity into opportunities for all learners, we apply insights about learners who don't "fit the mould" to help us create flexible curricula and tools that will work more effectively for everyone. Educators need to accommodate learner diversity within the curriculum in the way they design the course, plan the learning experience, select learning materials and assess the outcomes, regardless of the mode of delivery. Learner diversity is acknowledged through the consideration of a variety of teaching and learning strategies, supported by technology.

In order for learners to acquire foundation competencies, such as ICT competencies, to use in their studies and future careers, we need to create effective academic programmes that combine a variety of learning/teaching methods with ongoing research and practice in an agenda of open-mindedness to address the diversity of learners with different learning styles. It has been shown that learning improves greatly in social environments rich in collaboration and human interaction.

This study showed that changing learning and teaching technologies without changing our beliefs about learning could result in an incredible waste of time and resources. We need to concentrate on the use of technology to support the learning process and not the redistribution of content. To generate value e-learning requires a shift from an instructional to a constructivist approach whereby learners are supported in the process of becoming self-directed and self-regulated learners

A further action research cycle should clarify the following aspects, which have been identified for further research:
- Determine the retention rates of both groups of learners during the learners' second year of study in HE by means of a post-tests.
- Determine the correlation between the different groups' confidence in using ICT and their ability to complete the work in time and their learning styles and aptitudes.
- Investigate the continuous assessment strategy in order to narrow the gap between the results of the uncontrolled assessments and assignments, and the examination results.

The objectives are to accommodate learning diversity, make learning focused and achievable for each learner, allow for intervention if the learning outcomes are not met, and focus on and guide the learning process, assisting learners to become self-directed, thus helping educators to find the right mix for the best match.

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