

Trends in Digital Pedagogies: Implications for South African Universities Expanding through Hybrid Online Education

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Abstract

The South African Department of Higher Education and Training (DHET) anticipates that information and communication technology (ICT) will play an important part in democratising the country's education system, overcoming discrimination, expanding access to higher education and training opportunities, and improving the quality of higher education (HE). The aim of this article is to report on findings from a literature study on trends in digital pedagogies; the benefits and challenges of using ICT in HE; suggestions on how to utilise ICT in HE; and the implications for the expansion of South African universities through hybrid online education. The study identifies numerous benefits of hybrid online education for HE institutions, lecturers, students and employers. The unavailability and expense of technology and internet access, as well as HE institutions' lack of commitment towards hybrid online education, lecturers' apathy, as well as a lack of digital literacy skills among lecturers and students are identified as stumbling blocks for the successful implementation of hybrid online education. The study cautions against the implementation of hybrid online courses that are not supported by lectures, inaccessible to all students and lack theoretical depth and technical support. It is concluded that the DHET's aims to transform and democratise HE in South Africa will only be realised if government, internet providers, HE institutions, lecturers, ICT experts and technical support teams work together to bring affordable and accessible high quality hybrid online education within the reach of all South African citizens.

Keywords: blended learning, higher education, pedagogic theories

1. Introduction

Since the demise of apartheid in 1994 education policy developments in South Africa have been aimed at democratising the education system, overcoming discrimination, expanding access to education and training opportunities, and improving the quality of education, training and research (DHET, 2013). It is envisaged that universities will play a key role in realising these goals. The National Development Plan – Vision for 2030 outlines the following functions for South African universities: (1) educate and provide people with high-level skills for the labour market; (2) produce new knowledge, assess and find new applications for existing knowledge, and validate knowledge and values through their curricula; (3) and provide opportunities for social mobility and strengthen social justice and democracy, thus helping to overcome the inequalities of the past (DHET, 2013). Since 1994 there have been many changes to the university landscape. The 2011 student head-count for the 23 South African universities was 937455, which includes full-time and part-time students. This represents nearly a doubling from 1994, when the head-count was 495356. Almost 60% of students were engaged in contact-based study, with the remainder enrolled in distance education (DE) (DHET, 2013). It is envisioned that participation at universities must increase from the 2023 projected rate of 17.3% to 25%. By 2030 there must be a total enrolment of approximately 1.6 million (DHET, 2013). The Department of Higher Education and Training (DHET) (DHET, 2013) furthermore stresses the importance of improving student performance. South African universities are characterised by relatively low success rates, namely 74% in 2011 compared with the desired national norm of 80%. This results in a graduation rate of 15%, which is well below the international norm of 25% for students in three-year degree programmes in face-to-face education.

The DHET (2013) anticipates that information and communication technology (ICT) will play an important part in expanding student access to and improving the quality of higher education (HE). The *Policy for the Provision of Distance Education in South African Universities* (RSA, 2014) states that the utilisation of ICT will increase student engagement, as well as communication and support for remote distance students. It therefore seems that South African education authorities believe that ICT can play a vital role in transforming HE in South Africa. Whether or not this assumption is overstated can only be ascertained through a study of trends in digital pedagogies, as well as of the benefits and challenges of using ICT in HE. The aim of this study is therefore to give an overview of findings from a literature study on

trends in digital pedagogies, as well as the benefits and challenges of using ICT in HE. This study will also highlight suggestions offered by researchers on how to (successfully) utilise ICT in HE. Attention will lastly be given to the possible implications of expanding higher education through hybrid online education for South African universities.

2. Trends in Digital Pedagogies

In the beginning stages of digital technology, the consumers of information were rarely the ones who had produced it. During that phase, broadly referred to as Web 1.0, the only possibility was one-way communication through websites rather than interaction between users and consumers. Web 1.0 was a broadcast medium, a "one-to-many" model that would soon be replaced by the "many-to-many" model of what came to be known as Web 2.0 (Norlander, 2012:72). McLoughlin and Lee (2008) argue that the dawn of the Web 2.0 movement, with its emphasis on community-based sharing, user-created content and personalisation compels lecturers to consider how the new software tools could be used to break away from the highly centralised model of learning, towards achieving individual empowered learners through designs that focus on collaborative, networked communication and interactions. McLoughlin and Lee (2008) also note that tools, such as blogs, wikis, media sharing applications and social networking sites are capable of supporting and encouraging informal conversations, dialogue, collaborative content and the sharing of knowledge, thus giving learners access to a wide variety of ideas and representations. When embracing ICT, courses usually use some of the following or a combination of all of the following resources:

- *Knowledge databases*: the most basic form of ICT-learning that provides indexed explanations and guidance for software questions, along with instructions for performing specific tasks.
- *Online support*: offers the opportunity for asking specific questions. It comes in the form of forums, chat rooms, bulletin boards, live instant-messaging and e-mails.
- *Asynchronous learning*: refers to a learning event in which students are not connected to the facilitator or peers. Such a learning event could be, for example CD-ROM bases, intranet or internet based and video-classes. It enriches and supplements the content and activities of the course,
- *Synchronous learning*: real-time event in which all participants are logged in at the same time and communicate directly with the lecturers and one another. It can take place, for example, through internet websites, and audio or video conferences (Herselman & Hay, 2005).

'Digital' is the latest descriptive term used in education to indicate the incorporation into its activities' new ICT. It succeeds 'computer' (-based, -assisted and -mediated), 'online', 'networked', 'web-based' and 'e-learning' (Goodfellow, 2011). Morris (2014), as well as Herselman and Hay (2005) emphasise that digital pedagogy is more than teaching online. According to Herselman and Hay (2005:394) digital pedagogy is "a way of utilising transformational technology that permits learning in ways that were simply not possible before". Digital pedagogy is "engaged and reflective practice and scholarship of teaching and learning through digital technologies" (THATCamp Liberal Arts, 2012, in Spiro, 2013). According to Spiro (2013) the following are typical features of digital pedagogy: bringing together theory and practice, making and thinking; fostering creativity, play and problem solving; encouraging participation, collaboration and public engagement; and aims to increase the critical understanding of the digital environment.

With the development of ICT-learning, HE institutions can overcome the confines of the traditional, four-walled classroom, but "instructor centred pedagogies continue to prevail, as manifested in the classroom or lecture hall metaphor adopted by many popular virtual learning environments" (McLoughlin & Lee, 2008:641). In this way, online learning implementations tend to reproduce traditional models of teaching and learning. To meet the learning and knowledge demands of students preparing for employment in a globalised market, traditional top-down teaching models, where lectures select, direct and deliver information no longer seems appropriate. Ashton and Newman (2006:427) consequently stress the need to "reframe the pedagogy underpinning our use of flexible and blended modes of teaching and to avoid merely focusing on technology as a novelty at the expense of deep understanding of its potential of learning". According to Attwell and Hughes (2010), there has been a growing interest in pedagogic theories and process for the use of ICT for learning. This may, according to Attwell and Hughes (2010:15) be seen in reaction to (1) the belief that despite considerable investment in new technology for learning in many countries, technology enhanced learning has failed to have the expected impact on the learning processes; and (2) the changing demands and expectations from learners, as well as the changing demands in competencies for learners. To avoid the dangers of technology-driven pedagogy, the educational uses of technology should be conceptualised within theoretical models that relate to how "pedagogies can be transformed to capitalise on the affordability of social software for learning" (McLoughlin & Lee, 2008:642). Researchers (Attwell & Hughes, 2010; Beetham, McGill & Littlejohn, 2009; McLoughlin & Lee, 2008) identify

several pedagogic theories that can underpin the use of technologies for teaching and learning. Beetham *et al.* (2009) produced a table summarising new pedagogic approaches that have emerged in education and education technology literature (Table 1).

Table 1: New and emerging pedagogic theories

Theoretical field	Key concept(s)	Key theorists*
Learning 2.0	Learners' familiarity with Web 2.0 technologies opens up a complete new space for and the style of learning, focusing on collaborative knowledge building, shared assets, breakdown of distinction between knowledge and communication.	Dowes, Anderson, Alexander, Watson
Connectivism	Individual processing of information gives way to development of networks of trusted people, content and tools: the task of knowing is offloaded on the network itself.	Siemens
Communities of enquiry	Building on Wegner's notion of practice, (higher) learning is conceived in terms of participation, with learners experiencing social, cognitive and pedagogic aspects of community.	Wenger, Garrison and Anderson
Theory/practice: practical inquiry	Action (practice) and discussion (theory) in shared worlds is internalised, leading to personal capacity (practice) and conceptualisation. Specifically facilitated through social technologies	Vygotsky, Garrison
Academic apprenticeship	Literacy as situated social practice as best acquired through apprenticeship model, situated in disciplinary ways of knowing.	Holme
e-learning, e-pedagogy	New forms of learning and teaching are enabled – and required – by digital technologies. Typically more constructivist and learner-led.	Mayes and Fowler, Cronje

* References are provided at <http://www.academy.gcal.ac.uk.llida> (see Beetham *et al.*, 2009).

McLoughlin and Lee (2008) argue that there is a need for rethinking pedagogy to meet the demands of an era in which ubiquitous computing and social connectivity mediated by ICT are reshaping HE. According to them the terms 'pedagogy' (teaching of children), 'andragogy' (teaching adults) and 'ergonogy' (teaching people to work) capture the imperative of "innovative knowledge sharing and creation" necessary in the 21st century. Ashton and Newman (2006:872) believe 'heutagogy', in which learning is completely determined and directed by the learner, to be the next stage in the evolution of andragogy. Heutagogical approaches place the responsibility of learning on the learner and are in line with the belief that individuals must attain "learning-to-learn and self-directive competencies in order to succeed in the knowledge society" (McLoughlin & Lee, 2008).

With the advent of Web 2.0 two distinct delivery models for DE, as well as full time/on campus students have emerged (see Table 2).

Table 2: Delivery models

DE	Full-time/on campus
Programmes are delivered entirely online: all teaching, content and interaction occur virtually.	Programmes are delivered face to face: all teaching, content and interaction occur during face-to-face classroom and/or tutorial sessions.
Programmes use a blended/hybrid delivery or a combination of online and face-to-face classroom sessions or "mini" residencies.	Programmes use a blended/hybrid delivery or a combination of online and face-to-face classroom and/or tutorial sessions.

Adapted from Hochberg (2006).

Hayward (2004, in Hochberg, 2006), Nel and Wilkinson (2008) and Doering (2006:198) have found that more universities are utilising hybrid, also known as blended learning environments, which offer a combination of online and face-to-face contact (see Table 2). For a course to be described as hybrid, it has to have between 30-79% of ICT content (Singh, 2012). According to Doering (2006), as well as Nel and Wilkinson (2008), the aim of hybrid education is to improve the educational experience of students by joining together the best features of in-class teaching with the best features of online learning to promote active independent learning and reduce class seat time. According to Doering (2006) researchers at the University of Wisconsin, Milwaukee, a leading institution in hybrid course development, found that hybrid courses offer many advantages over face-to-face or completely online courses, including convenience, interaction, flexibility, and increased learning and retention.

3. Benefits of a Hybrid Education

Traditional approaches to teaching and learning are usually based on pre-packaged learning materials, fixed deadlines and assessment tasks designed and stipulated by lecturers. McLoughlin and Lee (2008) and Beetham *et al.* (2009) however, found that today's students perceive little value in rote learning of factual information, given the accessibility and ease of use of search engines and web-based reference sites. Today's students are in control of online content, and are no longer passive consumers but active producers of knowledge. There is thus a need for a change in pedagogy from lecturer controlled, prescriptive and didactic modes to learner-driven, and social, collaborative and participatory approaches to task design and learner engagement. The so-called digital natives, namely individuals who have grown up with technology, are not only well suited for education using technology, but they want to regulate and sequence their own learning (Renes & Strange, 2011). Digitally-based teaching and learning thus acknowledge the manner in which digital natives work, socialise and learn within a digital world.

Frieman and Deek (2003) identify the following benefits of hybrid learning for students: faster and more flexible access to information; faster registration and course enrolment; faster turnaround of assignments, enabling faster remedial activity for learning; improving ability to submit assignments from anywhere – geography is not a barrier; increased interaction with lecturer and fellow-students; more time to reflect on learning difficulties during interactions; diminished time barriers for communication; more supportive student-centred learning; and reduced barriers of remoteness. These findings are supported by Starr-Glass's (2013) study, namely that hybrid learning provides greater social and cognitive connection between peers, lowers transactional distance, enhances student motivation and satisfaction, deepens a sense of community and offers an environment for effective communities of inquiry. Findings from a study by Hiralal (2012) within the South African context resonate well with those of the two aforementioned studies. Most of the 55 students who took part in Hiralal's (2012) study on their perceptions and reflections on hybrid learning in an Accounting Education (AE) course had a positive attitude towards hybrid learning. The majority of the respondents indicated that they either "strongly agree" or "agree" that hybrid learning improved their performance in AE (90.1%); motivated them to learn (92.7%); increased their independence in the learning process (81.8%); assisted them to acquire deeper learning in AE (98.2%); received immediate feedback from online assessment (100%); allowed them more interaction with the lecturer than in face-to-face lecture-based sessions (89.1%); promoted online discussions with their peers (92.8%); and made learning more convenient and gave them more flexibility as they could assess the virtual classroom in their own time (100%).

Renes and Strange (2011) have found that ICT-learning is not only beneficial to the digital natives, but also for students with physical disabilities; students in rural areas who find it difficult to relocate; parents with children who find it difficult to leave home; military personnel serving their country in remote locations; and students working full-time and who have no flexibility in their schedule.

Ncube, Dube and Ngulube's (2014) study on lecturers' perceptions of e-learning revealed the following benefits for lecturers: reduction in obligatory in-office consultation hours (will be able to communicate with students from a 'virtual office'); improve communication with students and shorter turnaround time for feedback on assignments.

Researchers (Herselman & Hay, 2005; Renes & Strange, 2011) highlight the benefits of the new delivery mode for HE institutions. Digital teaching allows universities more opportunities to tap into national and international markets than was possible with the traditional classroom. Digital teaching offers universities the possibility of sustaining programmes that are struggling with low numbers, and of competing against the growing number of private HE institutions, as well as businesses and companies who do the training and retraining of their personnel themselves.

Renes and Strange (2011) conclude that continuing education using a hybrid format is appealing to employers who can reduce training costs; increase productivity with less time spend away from work; and increase the professional development options for their employees. Employees who need to relocate as their careers develop can do so more easily when studying online.

Altech (2003, in Herselman & Hay, 2005) compared the benefits of digital learning with traditional face-to-face classroom learning. Table 3 gives a summary of his findings.

Table 3: Benefits of digital learning compared to face-to-face learning

Aspect	Digital learning	Face-to-face learning
Access	Always available	Limited
Quality	Consistent	Varied
Measuring of results and progress	Automatic	Difficult

Retention of information	High	Varied
Relative costs	Low	High
Access to resources	High	Limited
Flexibility	High	Low
Communication with learning facilitator	High	Limited
Interactivity	Guaranteed	Not guaranteed

Source: Altech (2003, in Herselman & Hay, 2005:397).

The preceding exposition highlights the benefits of hybrid education for students growing up in the digital age, as well as for students who find it difficult to follow programmes that are delivered exclusively on a face-to-face basis. Previous research has also stressed the positive impact of online hybrid learning on the quality of learning. The literature study moreover reveals the financial benefits of hybrid education for universities and employers.

4. Challenges of Hybrid Online Education

Access to appropriate and reliable technologies is a precondition for hybrid online education. The DHET (2013:53) acknowledges that current (2013) internet access in South Africa is “extremely” uneven, thus making it “impossible” for education to “fully harness the potential of using ICT to support teaching and learning, particularly at a distance”. The UN Broadband Commission 2013 report (Southafrica.info, 2013) found that developing countries are lagging behind the rest of the world regarding the seamless universal access and use of ICT. The following data give some insight into the availability of ICT in South Africa: 41% of South Africans use the internet, placing the country 5th in Africa and 92nd worldwide for individual internet usage, and above the world average of 35.7%. Just over a quarter (25.5%) of South African households have internet access, placing the country 5th in Africa and 44th among developing countries for household internet access, and just above the 24% average for the 128 developing countries measured in the report. With regard to fixed broadband penetration, the report ranks South Africa 111th worldwide, with 2.2 out of every 100 people enjoying fixed broadband subscriptions, well below the global average of 9.1 (Southafrica.info, 2013). Whilst reliable internet connectivity is a given in most developed countries, South Africans still lack reliable and affordable internet access, especially in the remote rural areas (Kajee & Balfour, 2011; Mayisela, 2013). This may have a negative impact on some students’ ability to access the internet, especially when they are off-campus (Mayisela, 2013).

It appears that a lack of connectivity is not the only stumbling block for successful hybrid online education. In the following discussion attention will be given to the challenges faced by HE institutions, academics and students as developers, implementers and consumers of hybrid online education.

Fullan and Langworthy (2014:7) caution that new pedagogies made possible by the use of technology, are not as simple as “flipped” classrooms or MOOCs (Massive Open Online Courses) where content information and existing knowledge are “delivered” online rather than through textbooks or live in a classroom. The DHET (2013) comments in this regard that if digital teaching and learning is not carefully planned and underpinned by sound educational theory it will be used only as a gimmick (see section 2 for the same argument). Frieman and Deek (2003) maintain that one of the biggest challenges for universities will be acquiring and using resources to operate both physical and online programmes simultaneously, especially if students who take these courses represent different markets. Training lecturers to teach effectively in both environments, maintaining dedicated equipment and ensuring adequate technical support is time-consuming and expensive. Vogel (2010) identifies the following additional challenges for HE institutions: There are difficulties with allowing institutional open access computer-users to personalise their browser’s toolbars and widgets so that they can design collaborative activities. There is the uncertainty of third-party hosts which are often unaccountable commercial enterprises. Many Web 2.0 environments have vague privacy statements, vague statements about intellectual property, and no guarantee to safeguard the work on their servers. The latter is, according to Vogel (2010), hard to reconcile with institutional statutory requirements, such as data protection and freedom of information. New models of authorship and knowledge creation (e.g. Wikipedia) can also be perceived as challenges to established models of authority.

Web 2.0 technologies can provide a foundation for the development of new pedagogies. It is however important to note that the tools, technologies and platforms tend to become outdated quickly. New versions of hardware and software seem to be in an endless cycle of reinvention (Vogel, 2010). DePietro (2013:2) warns that “online learning systems like Blackboard [may] become dinosaurs before instructors and students can master updates. Social networking platforms integrated into course instructions may disappear, bought by a competitor or losers in the battle for market share”.

Most lecturers are digital immigrants that are “forced” to adapt to what they perceive to be an ever changing, often strange and even hostile digital environment (Renes & Strange, 2011:205). The limited use of technology for teaching and learning is often due to lecturers’ lack of knowledge in the use of learning technology per se, as well as uncertainties on how to use it within their own subject areas (Enochsson & Rizza, 2009). Technical competencies are however not a guarantee for the effective use of ICT. Ashton and Newman’s (2006) study reveals that some lecturers are concerned by the demands of change, fearful of renouncing power to the student and anxious about their ability to meet the challenges associated by flexible and hybrid learning. Online technology is capable of monitoring lecturers’ availability, activities and responsiveness to student demands. Noble (2002, in Smith & Jeffery, 2013) warns that these heightened surveillance measurements may result in the loss of autonomy and increased scrutiny, thus creating conditions leading to a rise in self-censorship and a potential loss of academic freedom. Vogel (2010), Tshuma (2012), as well as Enochsson and Rizza (2009) note that most research highlights the demand of technology on lecturers’ time. Time can be consumed by a lack of skills, a lack of interoperability between institutional systems, as well as the increased interaction required by, among other things, online discussions, especially when used as a supplementary activity (Smith & Jeffery, 2013; Vogel, 2010).

Although researchers (see section 3) emphasise the necessity to accommodate the needs of digital natives through hybrid learning, not all students embrace technology as a delivery mode. Despite students’ ability to use ICT for everyday tasks, researchers (Mayisela, 2013; Tshuma, 2012; Vogel, 2010) have found that not all students are digitally literate. Digital literacy goes beyond “learning from computers or about computers, to learning with computers” (Tshuma, 2012:25). ICT becomes a tool in the learning process. Without intensive engagement with the learning tools, learning cannot be accomplished. An Australian (Ashton & Newman, 2006) and several South African studies (Ncube *et al.*, 2014; Herselman & Hay, 2005; Mayisela, 2013) furthermore, have found that the introduction of hybrid courses may bring about a financial burden for individual students and institutions. Mayisela’s (2013) study reveals that some of the students who took part in his study on hybrid learning at a rural South African university, only have access to computers when they are on-campus. Ashton and Newman (2006:832) argue in this regard that the financial burden upon less affluent students should be balanced against the “bigger picture of working and learning in a globalised world”. They concede that access to online study may become an ethical issue.

5. How to Address Hindrances in the Successful Implementation of a Hybrid Online Mode of Delivery

Researchers (see section 4) referred to problems pertaining to the availability and affordability of technology, as well as HE institutions’, lecturers’ and students’ lack of commitment and their inability to embrace ICT in teaching and learning as stumbling blocks for the successful implementation of hybrid online education. The following exposition focuses on researchers’ recommendations on how to address these hindrances. Government, internet providers, HE institutions, lecturers, students, ICT experts and technical support teams all have a role to play in the successful implementation of a hybrid mode of delivery. From the discussion the importance of collaboration between these role-players will become clear.

Affordable and available ICT is a prerequisite for hybrid online education (RSA, 2014). Internet connectivity that is expensive, unreliable, and mostly available in densely populated areas exclude large numbers of potential students from access to universities that have adopted a hybrid mode of delivery. According to DHET (2013) the following may improve the affordability and availability of internet access: (1) Collaboration between internet providers and government to facilitate increased bandwidth and reduce costs for educational purposes, with a special emphasis on remote areas. (2) Negotiations with stakeholders to improve access and reduce the costs for internet-enabled devices. (3) Education authorities should make funds available to ensure that a comprehensive, enabling ICT infrastructure is put in place for all providers of HE. (3) The establishment of ICT-enabled learning support centres in areas where home-based provision is likely to be difficult or expensive.

When faculties consider using ICT they should take cognisance of the institution’s commitment and capabilities; students’ needs, capacities and access; and the lecturers’ skills (Renes & Strange, 2011). If there is a market in the student population for learning in new formats, the institution and faculty’s commitment to these learning formats and the support to help lecturers use the formats have to be the first considerations. Renes and Strange (2011) argue that if a lecturer is excited about offering a course using ICT, but the institution or the technological support is not available, the best-developed course will fail if it requires for example, bandwidth or other computer requirements that are not available to many of the students wishing to enrol for the course. Lecturers should therefore become familiar with the level of institutional and technological support available to them and with the degree of student access.

An important stumbling block in the way of transforming universities from predominantly face-to-face institutions to

using a hybrid model of delivery seems to be the lecturers. Studies (Ashton & Newman 2006; Renes & Strange, 2011; Vogel 2010) have shown that lecturers often lack the required skills and knowledge for effective digital teaching. Attwell and Hughes (2010), as well as Arbaugh (2000, in Frieman & Deek, 2003) highlight the need for lecturers to stay current in their skills to integrate advances in technology into their virtual classrooms, together with the challenge for lecturers to create methods to develop modules/courses that meet the needs of both the subject matter and the medium. To build digital literacy among lecturers, group workshops and demonstrations in digital tools is crucial (Damoese, 2003; Enochsson & Rizza, 2009; Vogel, 2010).

Vogel (2010:41) has found that academics' fear for a loss of professional identity is an important barrier for change. She therefore recommends that any change should be balanced with "a commitment to continuity, a view of academics as the custodians of their disciplinary knowledge, inculcators of its ethos with their own intellectual allegiances". Renes and Strange (2011:207) assert that lecturers should not be "bullied by a technocentric world".

Tshuma (2012) emphasises the importance of aligning technology, pedagogy and context when designing any course that uses ICT. For a hybrid course to be effective, it has to be grounded in theories and pedagogies dealing with learning in general, as well as online learning. Renes and Strange (2011) write that when institutions move to a hybrid format, a lecturer cannot simply replicate what is done in a traditional classroom. Two separate components that interact with each other in course delivery should be considered: instructional design and technical design. Instructional design includes the strategies used to teach content and assess comprehension. Both pedagogical knowledge and content knowledge are required for effective instructional design. Technical design includes things such as screen layouts and display menus, as well as selecting how content will be presented. Effective collaboration will ensure that the lecturer "can maintain his or her focus on aspects relating to pedagogy and learning strategies" (Damoese, 2003:29). The lack of effective collaboration between instructional design and technical design will, according to Renes and Strange (2011), constrain rather than support the course design. Damoese (2003) and Vogel (2010) recommend that technologists be assigned to a specific faculty so that they can become sensitised by the needs and concerns of that faculty. Technical support should be on hand or only a phone call away. The breakdown of technology results in the breakdown of interactive online classes.

Despite the ubiquity of internet connectivity through mobile devices, the literature has shown that not all young people are digitally literate (see section 4). There is thus a need to integrate Web training, which makes provision for the ever-changing technologies into the core curriculum of all university courses (cf. Johnson, Smith, Willis, Levine & Haywood, 2011; Nel & Wilkinson, 2008; Vogel, 2010).

Renes and Strange (2011:209) recommend the development of digital learning communities to enhance online learning. Opportunities for face-to-face or teleconferencing interaction and the development of social networking web sites may foster a sense of community for students, especially DE students, so as to feel less isolated and "reminds them that they are not alone out in cyberspace". The lecturer has a key role to play in the learning community. He/she should be willing to consistently monitor the course room to be aware of problems that might occur. Lecturers should respond to students' concerns quickly (within 48 hours). They should also be dependable, friendly and empathetic. Nel and Wilkinson (2008) strongly emphasise the online availability of lecturers.

The above exposition of recommendations is in line with the following conditions for hybrid learning adopted by an American study among student teachers who were part of a programme preparing teachers to use technology: shared vision; access; skilled lecturers; professional development; technical assistance; content standards and curriculum resources; student-centred teaching; assessment; community support; and support policies (Enochsson & Rizza, 2009).

6. Implications of Findings for South African Universities Expanding through Hybrid Online Education

The DHET (2013) anticipates that HE will play a key role in democratising the South African education system and address some of the challenges facing HE in South Africa, including the lack of quality education; inaccessibility of HE for potential students from previous disadvantaged and isolated communities; and low throughput rates (see section 1). The notion that hybrid learning can address issues of access and quality education is supported by previous research (Damoese, 2003; McLoughlin & Lee, 2008). McLoughlin and Lee (2008:641) point out, in this regard, that when used correctly, ITC has the potential "to make student-centred learning a reality by promoting learner agency, autonomy and engagement in social networks that straddle multiple real and virtual communities independent of physical, geographic, institutional and organisational boundaries". It therefore seems as if hybrid online education has the potential to expand access to high quality HE in South Africa.

For South Africans to play an important role in the knowledge-based global society, universities should move away from a centralised model of teaching that perpetuates rote learning towards a model which not only allows students to

create their own knowledge, but allows them to learn through collaboration, communication and interaction. Universities should move towards a heutagogical approach to learning, which places the responsibility of learning on the students. Web 2.0 technology allows universities to be flexible and innovative in their modes of delivery. Universities which embrace online hybrid education will be able to utilise the best of face-to-face and online teaching and learning. To avoid the pitfalls of technology-driven changes, the educational uses of technology should however be conceptualised within existing or emerging pedagogic theories.

Hybrid online education may serve the call of the DHET (2013) that universities should adhere to the principle of social justice and make HE accessible to previously marginalised groupings. ICT transcends boundaries and thus provides learning opportunities to students with limited access to face-to-face education. South African universities should increasingly view computers and handheld digital devices as effective tools which can address the needs of these potential students, since geographical location and time do not matter in a digital environment. A prerequisite for hybrid learning is however an accessible, affordable, ubiquitous digital environment. Data from the UN Broadband Commission 2013 report (Southafrica.info, 2013) have shown that South Africa lags behind the developed world concerning affordable, seamless connectivity. However, for mobile broadband - which allows people to access the web via smartphones, tablets and wifi-connected laptops - South Africa ranks 62nd worldwide, with a connection rate of 26 out of every 100 people compared to the global average of 22. Mobile phone use in South Africa has increased from 17% of adults in 2000 to 76% in 2010. More South Africans (29 million) use mobile phones than personal computers (6 million) (Southafrica.info, 2013). Mayisela (2013) has found that 98.5% of the students who took part in his study among students at a rural South African university have mobile phones, while only 43% have access to computers when they are off-campus. It therefore seems as if South African universities should look at the potential of utilising mobile phone technology in hybrid learning. Mobile phone technology has made remarkable strides in recent years. Both market-driven and not-for-profit organisations continue to push for increased access to mobile phones for the world's poorest citizens (Norlander, 2012). The potential of mobile devices, ranging from tablets to book readers for teaching and learning are recognised and well researched (Attwell & Hughes, 2010).

For hybrid education to be successful in South Africa it needs more than seamless, affordable internet connectivity; it needs institutional commitments to embrace change, as well as academics', who are mostly digital immigrants, willingness to cede some of their autonomy and enter into a partnership with technologists to ensure that their courses are instructionally and technically sound. While this study acknowledges the benefits of hybrid learning for today's students, we should not ignore the lack of digital literacy of students who have grown up in remote areas with limited or no access to ICT, as well as the plight of students who cannot afford or do not have ready access to affordable ICT. The exclusion of some students from resources essential for academic success will perpetuate previous inequalities. Government, universities, internet providers and funding agencies should work collaboratively to make online hybrid education a viable option for all South African students.

7. Conclusion

South African universities should play a leading role in eliminating the inequalities of the past and provide high quality, accessible education that will ensure that the country becomes a presence in the global economy. This will only be possible if universities transform their highly centralised models of delivery that promote uncritical rote learning to a hybrid online model of delivery that fosters creativity, encourages participation and collaboration, with the aim of encouraging critical knowledge production in a digital environment. The study identified the numerous benefits of hybrid online learning for HE institutions, lecturers, students and employers. It is important to stress the importance of affordable, reliable internet access for the successful implementation of a hybrid mode of delivery. Hybrid online courses that lack theoretical depth, the commitment of lecturers and technical support are doomed to fail. The exclusion of some students who could benefit from learning opportunities presented by hybrid online education is unacceptable in a country striving to democratise and transform its universities. The DHET's aims to transform and democratise HE in South Africa will only be realised if government, internet providers, HE institutions, lecturers, ICT experts and technical support teams work together to bring high quality, affordable hybrid education within the reach of all South African citizens.

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