Evaluation of elearning usage in South African universities: A critical review

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ABSTRACT

Although eLearning is the use of technology for teaching, learning and assessment, there is no common approach to it across South African Higher Education Institutions. There is therefore a concern that the full potential of eLearning approach is not utilised. This paper examines the nature and the extent of eLearning activities in South African (SA) universities. The research method employed in this paper was informed by a literature review; sources from the last decade include journals, conferences, books and websites. The findings show that the level of eLearning usage and adoption varies in different universities due to several challenges such as those of technology and institutions. We give an overview of studies conducted in eLearning in SA universities, highlighting challenges and best practices. We recommend management involvement of faculties in policy decisions and investment in technological innovations to address these challenges issues.

Keywords: eLearning, eLearning Challenges, Learning Management Software, Social Software

INTRODUCTION

Learning is a process where learners' interaction with materials, peers and instructors results in change in behaviour and thinking. Learning 2.0 is the concept of delivering educational activities using web tools which create a new kind of a participatory medium to encourage multiple learning types, including social learning (Hamid et al., 2009). Learning 2.0 utilises web tools, social networking, collaboration and self directed learning. Effective learning should improve on the quality of learning experience, be learner centred, be active, lead to knowledge construction and change learners' knowledge, attitudes, perceptions and skills. Educators need to prepare learners for future employment by putting theory into practice. Mlitwa (2006) notes that the quality of teaching and learning depends on methods, content, learner and educator, and, therefore, technology cannot correct these factors if they are poor.

eLearning Implementation in Higher Education Institutions

In the 1990s, e-learning, that is, learning facilitated online through network technologies emerged across South African HEI (Ravjee, 2007). In SA context, e-learning practices appear with new vocabulary, policies and structures, and budgets. eLearning is an ICT-enhanced practice in universities ranging from e-mail provision, online journals, and networked libraries, to development of creative software solutions for information management tasks in teaching, research and administrative systems. Moll et al. (2007) defined e-Learning as 'flexible learning using ICT resources, tools and applications, focusing on accessing information, interaction among teachers, learners, and the online environment collaborative learning, and production of

materials, resources and learning experiences'. eLearning is the use of technological interventions for teaching, learning and assessment (Mlitwa & Van Belle, 2011), enabling learners to improve problem-solving skills and empowers educators to disseminate and impart knowledge effectively. Millham et al. (2014) say eLearning is essential for the improvement of learners' performance, engagement, self- regulation, flexibility, interest and motivation. It promotes active participation and self-regulated learning, which enables construction, learning-pace adjustment and gives desired learning outcomes.

The Historical Background of eLearning Policies and Activities

After independency, South Africa explicitly formulated education policies for promoting access to educational opportunities for previously disadvantaged groups (Dumbrajs et al., 2013). Since 1994, education reformation has been a priority to promote equality among all races. Progress has been made in education legislation, policy development, curriculum reform and the implementation of new modes of education delivery; however challenges like student outcomes and labour market relevance exist. The new National Curriculum Statement (NCS) emphasizes a learner-centred, outcomes-based education approach. In the GET band (grades 1-9), "subjects" have been replaced with "learning areas" integrated across traditional disciplinary boundaries. The curriculum was subsequently rewritten in plainer language, with more emphasis given to basic skills, content knowledge and logical grade progression. The inception of Curriculum 2005 introduced changes in the SA school system and therefore retraining teachers is needed to prepare them for the newly introduced technology subject. The aim of reformed policies was to teach curricula based on learners' own socio-economic environment and equip them with skills that can be applied in real life situations (Dumbrajs et al., 2013). Other policies included the Revised National Curricula Statements and Curricula Assessment and Policy Statements, which indicate a period of rapid transformation and democratization. New education policies in SA include indigenous knowledge in the curricula but are not prescriptive (Dumbrajs et al., 2013). The national Department of Education, published its White Paper on E-Education in 2004 and called together a 'think-tank' in 2006 based on an overview of research and delivery needs related to the 'roll-out' of e-Learning in schools (Moll et al., 2007).Therefore teachers should explicitly provide opportunities for learners to learn effectively and this can be done by the use of Information and Communications Technologies (ICTs) like eLearning.

Using ICTs for education leads to social transformation and improves skills needs for a country (Jaffer et al., 2007). Universities can remain competitive by using innovative technologies in teaching and learning to improve the quality of activities and attract new learners (Mlitwa, 2006). The SA National plan for Higher Education emphasizes that University activities develop an information society, through technology use, for knowledge advancement to improve education and support the new education system. Therefore, there was need for integration of ICTs in SA Universities to compete globally, be innovative and address the learning styles and preferences of digital natives longing to learn in an active, authentic learning environment.

In 2001 Prensky invented the term 'digital natives' to refer to the new generation of learners who have grown up surrounded by technology and views them as ''native speakers of technology, fluent in the digital language of computers, video games, and the Internet" (Thinyane, 2010). Digital natives are people between 18 and 24 years who were born into a digital world and find their way easily with computers, internet, video games, smart phones, tablets and interact via social media more than anyone else and rapidly adapt to new technologies (Hoijtink, 2015). The author further predicts 48.4 million smart phone users, 35.3 million mobile internet subscriptions and 5.1 million activated tablet devices, while 2.1 million households would have fixed internet subscriptions in South Africa in 2018. South Africa had traditionally copied western trends, but the influence of Asian countries is seen in the relationship between online shopping and social media

(Hoijtink, 2015). It is impossible for digital natives to learn in the same way as digital immigrants (not born into the digital world but have adapted to technology) did, because they speak different languages and have different brains (Thinyane, 2010). Digital Natives ways of thinking and learning include receiving information really fast, liking to parallel process, multi-task, prefer games to 'serious' work', graphics and random access, function best when networked and thrive on instant gratification and frequent rewards. Digital Immigrants think 'slowly, step-by-step, one thing at a time, individually, and seriously' and are encouraged to learn to use digital media, and recommends that education systems be adapted to the way of thinking of Digital Natives. New forms of learning are providing evidence of the dramatic social change through digitisation, like eLearning, game-based learning, webinars and Massive Open Online Courses (MOOCs). Therefore since eLearning approach transforms learning and teaching, it was therefore ideal for learner needs, preferences and requirements.

eLearning promotes learner-centred learning and enhances activities that promote collaboration, communication and interaction, and gives learners better experience and education effect (Du et al., 2013) and enables learners to apply knowledge in novel situations through case studies, role playing and simulations. Digital natives may be resistant to traditional teaching and learning methods (Bosch, 2009) because they are engrossed with technology and, therefore, eLearning is the way forward for today's universities. Brown & Czerniewicz carried out a study on how and to what extent ICTs were used in teaching and learning in HEIs in Western Cape Province of SA and only 2.15% learners never or rarely used a computer to undertake any of the 18 computer-based learning activities; therefore learners in SA Africa may have similar studies experience at university to other learners around the world (Thinyane, 2010).

Education leads to social transformation, hence the aim of the SA government being to achieve equitable access to Higher Education for previously disadvantaged learners with diverse racial, social and educational backgrounds (Jaffer et al., 2007). Macgregor (2008) says the use of educational technologies, like eLearning in SA, started in 2002. ICTs are used for teaching and learning, in one way or another, though universities differ in levels of institutional support, funding, uptake and staffing. There is increased interest in eLearning services and platforms since the SA curriculum restructuring was proposed in 2003. According to Jaffer et al. (2007), pedagogy, curriculum, assessment and organization lead to improvement in the educational process. Therefore, educators need to invest in these aspects for improved learning, better retention and improved grades.

Venter et al. (2012) say learners in SA universities highly value contact with instructors and colleagues via electronic media. They appreciate the use of Educational Technologies (ETs) to increase learning interest and motivation. Mlitwa (2006) describes eLearning as a Social Technical Network (STN), since it includes technologies for construction and collaboration by users. Through learning management systems (LMS), eLearning qualifies as an STN that incorporates computer, network, applications, learning materials, learners, educators and mediators.

This study aims to evaluate the impact of usage of LMS and social software in SA universities. We discuss challenges with eLearning implementation and look at the adoption and usage at different institutions, and then we give recommendations for institutions to address the issues identified.

Challenges of eLearning Implementation in South Africa

In general, SA learners have challenges which include diverse backgrounds, languages and race; they are divided between wealth, and have infrastructure shortages, access issues, shortage of

skilled instructor, managers' jobs loss misconceptions and instructor difficulty to create content. Teaching strategies are hard to employ and it is hard to gain insights into learner difficulties, especially in large classes. Therefore learners, especially those from poor backgrounds, may lag behind. The educational challenges demand a mixed approach like blended learning that is innovative to address problems of class and cultural diversity, learners' prior learning experience, increased education demand and changing learning needs. The SA post-apartheid policy documents advocate for equal opportunities in education sector; however, practice varies from policy (Rohleder et al., 2008). The eLearning approach provides equal opportunities, which is the biggest challenge in SA. Brown et al. (2008) recommend collaboration, joint research projects and sharing of good practice and approach to address the challenges. In the next section, we discuss the implementation of LMSs and social software at different universities in SA.

Table 1: *Challenges of eLearning adoption in SA*

Author(s)	Challenges
Jaffer et al. (2007)	varying learner academic preparedness; large classes; multilingualism in 1st language context; inadequate curriculum design; diversity in (school) background; and academic ability
MacGregor (2008)	low bandwidth and unequal access
Brown et al. (2008)	range of organisational contexts; practices and cultures; infrastructural constraints — proportion of internet users to PCs, bandwidth, slow and internet costs; demographic divides, cell phone subscription LMS instability; lack of use of interactive web potential; access inequality; negative eLearning perceptions; no management support; lack of time and resources; and oversubscribed internet systems that limit applications use
Mlitwa & Van Belle (2011)	inadequate technical support; limited infrastructure capacity; network capacity; inadequate coordination and limited technological support; technology instability; resistance to change; tedious administrator processes; access issues; literacy limitations; institutions users with troubled network systems; and poor user support
Venter et al. (2012)	scarce resources; educational inequalities; technology access shortage; low throughput rates; technological cost; satisfaction & infrastructure; lecturer efforts; graduate competencies; business strategy shortages; learners' frustration with e-Learning; underutilised systems; bandwidth cost of high speed internet; and user penetration
Isabirye & Dlodlo (2014)	no institutional support; non-integration of eLearning business strategy; no eLearning culture; exclusion of academia from eLearning development programmes; instructor attitudes; technological challenges; lack of pedagogical strategies; cost and quality; lack of university policy, training, motivation, incentive; under preparedness; no facilitating conditions; logistical issues, lack of management; and ICT support
OERAfrica (2014)	weak ICT skills; lack of resources; low computer and internet access

From the table we note several similar challenges mainly, infrastructural constraints, demographic divides, staffing issues, organisational issues, learner issues, pedagogical issues. However some institutions have unique challenges like lack of time and resources, inadequate curriculum design, training, shortage of ICT skills. and user penetration.

STATE OF ART AND PRACTICE

Learning Management Systems Usage at SA Universities

The University of Pretoria (UP) was among the first universities to take up eLearning in 1998 with the WebCT LMS after running long-distance programmes from 1995 using video conferencing, broadcasting, multimedia, web-based courses. According to OERAfrica (2014), UP has over 48,000 campus-based learners and over 24,000 off-campus part-time and distance learners. The Department of Telematics Learning and Education Innovation assists academic instructor in learning design activities.

At the University of South Africa (UNISA), the instructor use eLearning to distribute resources and facilitate interaction and use mobile technology for learners' communication. Over 200,000 active learners are enrolled on 'myunisa' platform (OERAfrica, 2014), which uses the Open Source Software (OSS) Sakai platform, customised for user needs for administrative functions, academic collaboration and tuition related interaction (Venter et al., 2012). Of the 96% of learners that accessed the system, 13% were active in discussions, 64% were frequent users, 23% were occasional users and 10% were infrequent users. The platform was mainly used for administrative purposes as passive observers, hence it is not fully utilised to its potential. There is a need to increase active learners to improve learning.

The University of Cape Town (UCT) initially used WebCT and Moodle, developed by OSS Vula and customised by Sakai in 2006, currently used by 25,000 learners and instructor of the University of SA and North West University. This LMS supports teaching by notes and announcement distribution, and is used as a transfer medium, though not for construction. Courses are designed using eLearning and simulations. The LMS-adoption decision-making process involved educators who have the freedom to use proprietary, home-grown systems or none. Educators have no time to engage the system and pedagogy (Mlitwa, 2006). Designers keep the interfaces simple, the helpdesk service is professional and efficient, tedious administration tasks are eliminated, and lecturer assistants (Mlitwa & Van Belle, 2011) make use and adoption easy. The Science instructor lags behind due to instructors being unwilling to use the system, system usage is not promoted or supported, the computers are in poor working condition, there are no relevant software programs and no helpful lab instructor. The high turnover of the LMS was due to compatibility issues.

At the University of Stellenbosch (US) and Cape Peninsula University of Technology (CPUT), a proprietary LMS WebCT is used as a learning transfer medium (Mlitwa, 2006). At US, the system was adopted without consultation with academics and, therefore, there is minimal instructor engagement. There is a widespread usage of the LMS at US because of their compulsory intake clause at US. CPUT lacks a policy or forum for users to select the LMS.

At the University of Western Cape (UWC), a home-grown and developed OSS KEWL is used. It lacks full interactive engagement between social and technical factors because academics do not understand the potential benefits and are resistant to change (Mlitwa, 2006), which challenges LMS adoption and usage.

At Nelson Mandela Metropolitan University (NMMU), the SharePoint 10 content and document management system is used to avail courses for sharing and collaboration in blended learning environments (Ssekakuubo et al., 2011).The platform is less flexible with limited interactivity options and was replaced by Moodle.

The University of Johannesburg (UJ) has over 45,000 full-time, part-time, face-to-face learners spread across seven campuses (OERAfrica, 2014). It uses a commercial LMS to supplement

course delivery, with extra support to learners in large classes with online materials. Instructors are offered support in learning design, which makes the usage of the system easy.

Since 2010, the University of Kwazul Natal (UKZN) has been using the Moodle platform for teaching and learning for instructor and learners (Sibanda & Donnelly, 2014). Instructors use the platform to upload notes and deliver assignments, announcements, discussion forums and other interactive exercises. There is no additional learner support which makes system usage and adoption challenging.

At Tshwane University of Technology (TUT), 'electronic campus' was the initial LMS in 2011. It was replaced by Blackboard (MyTutor), a content repository where instructors upload notes, assignments and grades. TUT has systems for online video tutorials access, TUT4life for learners for access to TUT mail and wireless internet, one for checking grades and an instructor portal for instructor-related information.

Studies On LMS Adoption And Usage At Universities

At the Western Cape Universities, Mlitwa (2006) noted the eLearning potential to unfold as a true socio-technical network was not fully realised and the technical aspect was not engaged at a socio-technical agency basis. The technology and organisational transformations relationship is minimal. The frequency of media use in Science, Engineering and Health disciplines was higher (Brown et al., 2008).

Several UCT projects had positive results with the intervention of Educational Technologies (ETs). A computer tutorial was more effective in the understanding of mathematical literacy skills, concepts and better retention (Jaffer et al., 2007). Interactive spreadsheets were effective teaching tools because they focused on the subject, not the procedural issues, and learners' article quality improved due to online feedback. Computer-assisted marking technologies provided feedback, thereby solving large and diverse class problems and saving instructors their time due to online marking and the ability to capture results electronically. Instructors had access to learners' performance and they found immediate feedback useful. ETs solved some issues that were hard to solve with face-to-face (f2f) methods. Gaps identified in research included how ETs can address education challenges in SA, where ETs are appropriate and how they are used in a given situation.

According to Jaffer et al. (2007), it is difficult for learners to understand theory-driven courses due to limited experience and practical knowledge. Simulations were used to provide UCT learners with insights into practical processes, which provided an authentic learning environment. The focus was on key learning aspects and linking theory to practice. An ET was used to impact curricula design, providing learners with simulations and role playing experiences — things that are difficult to provide in f2f environments. Real-world experiences helped bring theory into practice to address some challenges. Future challenges remain in identifying and conceptualising ways that ETs can contribute to learning experiences, curriculum and pedagogical designs.

SA is a divided society by race, wealth, background, and identity crisis; therefore, individuals need to create their identity. Rohleder et al. (2008) studied learners at UWC and US, the learners state that creation of virtual communities prepared them for diverse society.

The learners gave positive feedback and will repeat the collaboration because of the learning and the personal growth opportunity. Discussion forums and chat rooms in the LMS promoted flexibility, creativity, collaboration, communication and interaction, enhancing the learning process. As benefits of using eLearning medium, learners had rewarding and enriching personal

experience and attributed instant accessibility to information and their facilitators. Learners enjoyed working collaboratively within diverse groups of race and social economic backgrounds. Learners advocated for blended learning because they felt f2f sessions are important, too. The question of how to create something more than a superficial community of practice in a real world context remains.

Mlitwa & Van Belle (2011) say subjective personal perceptions influenced different LMS uptake by the 21 instructors at UWC, UCT, US and CPUT in Western Cape Province interviewed over a two-year period. They perceived eLearning as a content repository and administration tool for assignment submission and management, and easing communication, not for learning or teaching as a primary goal.

Instructors are worried about their roles being replaced and learners dodging class. The LMS pedagogical role is hardly recognised because educators cannot differentiate between LMS and eLearning; hence, the opportunity to address learning styles and teaching paradigms is unutilised. The Activity Analysis and Development (ActAD) framework and concrete empirical findings as comparative data for eLearning research and LMS adoption will be used in the future.

Mohamed & Peerbhay (2012) say dental learners were positive about the use of eLearning at UWC. Based on perceptions, learners said more advanced learning was encouraged, it is a good supplement to instructors, it broadens knowledge base and they found the information to be relevant, informative and helpful. The experience and information gave them a guide for studying and preparing for theory and practical exams. However, the LMS access challenges included computer shortages, inappropriate software versions, computer failures, viruses, no internet access, time shortages due to workload, and slow internet connections which led to download and website problems. They recommend faster internet connectivity because a shortage of resources causes negative attitudes and a negative impact on engagement with online resources. They recommend eLearning to encourage active learning and the next implementation phase to include an interactive component of self-assessment and discussion boards, as an incentive for more active engagement. The learner-centred approach uses a management system for administrative issues, offering learners personal tools for construction, presentation, reflection, collaboration, etc., and facilitating networks between learners within the same course and others in the field.

According to Millham et al. (2014), self-regulating eLearning as an intervention for poor results in science subjects leads to improved learners' grades. It provides multimedia and simulation materials, is self-paced, self-regulated, learner-led and encourages knowledge construction, which is more effective than the f2f approach. Self-regulated learning encourages construction, which leads to better performance in science subjects. The eLearning intervention shows positive results, especially for high-potential learners, amidst challenges of equipment issues and lack of prior basic IT skills. Issues of incomplete marks made a full detailed analysis of grade performance difficult and provided no correlation between assessment scores with relevant statistical information.

Sibanda & Donnelly (2014) determined the impact of eLearning on performance, showing that learners' performances increased after the introduction of online learning as years progressed and learners became academically-engaged as they became more familiar with the online learning platform. Younger learners quickly adapted and became engaged, which improved performance.

SOCIAL SOFTWARE AS A LEARNING TOOL IN SOUTH AFRICA

Learning is a social process and, therefore, Social Presence (SP) is essential as a predictor of perceived learning and promotes a sense of community in online courses (Brady et al., 2010). SP leads to a decrease in feelings of isolation and encourages learner interaction and participation. The relationship between SP and online participation is that learners with more SP are more involved and engaged in online conversions.

Social Software (SS), Web 2.0, Social Media (SM) or social web technologies are networked tools or technologies that emphasize the social aspects of the internet as a channel for communication, interaction, collaboration and creative expression (Dabbagha & Kitsantasb, 2012). Educational Social Software is SS designed for educational purposes. The elements of Web 2.0 technologies — including blogs, wikis, podcasts, RSS feeds, social networking sites (SNSs), social bookmarking sites, instant messaging, and virtual office applications — provide users with easy-to-produce web content and interaction (Al-Zoube & El-Seoud, 2009). Web 2.0 tools with potential apps for teaching and learning include Facebook, Wikis, Delicious, Podcasts, and YouTube. SNSs include Twitter, Facebook, Flickr, Myspace and Friendster, with core features of interaction, collaboration and the social aspect. The uses of SNSs include developing literacy skills, communication skills, e-portfolios, communities of practice and e-safety learning. Searching and retrieving information may have led to a learning styles shift, to more interactive environments and more hands-on inquiry-based approaches (Bosch, 2009). Web-based learning leads to the availability of the learning content.

SS facilitates self-governed, problem-based and collaborative activities by supplying learners with personal tools for independent construction and engagement in social networks (Dalsgaard, 2014). SS tools enable independent work, and actively facilitate relationships between collaborating learners and instructor. SS tools support the flexibility of open-ended activities, unlike an integrated LMS; they include personal tools owned and controlled by learners and used for construction and reflection, and tools for navigating the web to develop understanding and solve problems, which lead to lifelong learning using 'learning networks' for life. SM is part of a daily communication network; therefore, higher education needs to accommodate SM platforms to ensure learners are prepared as skilled digital citizens (Freeman, 2014). SM enhances learning, engagement, User Generated Content, sharing of information and content, ICT skills, learner empowerment and activities that foster knowledge construction; hence, SM is effective for learning. Learners should be facilitated to engage in different networks to support eLearning activities, which lead to accessing more resources through friends, instructor and researchers. SS encourages learners to develop individual networks for relationships based on specific interests and needs. Learning and network are related and learners should be connected. A learning network leads to a continuous lifelong process, which leads to continuous learning due to SNS-participation.

Facebook has stronger roots in the academic community, since it was developed as university project. In 2007, the Facebook version of the Blackboard LMS was implemented with new course feed application, providing users with course newsfeed (Bosch, 2009). In 2008, it was phased out, with Facebook calling on developers to build other educational platforms.

According to Dalsgaard (2014), an LMS is for improving learning and administration purposes, though the impact on pedagogy is limited. Unlike an LMS, SS tools support the active process of construction and strengthen learners' relations with others and the tools, which promotes collaboration as a basis for discussion. The problems are the basis of learners' activities in a constructive learning environment, and different tools and resources support both individual and collaborative problem-solving processes. Since the learning process focal point is self-governed by learners through problem-solving activities, it is not possible to envisage learner activities.

Open-ended learning environments for multiple possibilities for activities are encouraged. SS tools that support construction, presentation, reflection, collaboration and promote finding people and resources for problem solving are needed. In the future, development of educational SS tools, like personal tools and social networks, are needed to support learning activities for organizing eLearning beyond a single course and institution.

Dalsgaard (2014) recommends separate tools for individual learner needs and not integrated tools like in an LMS. Unlike an LMS, learners use networking beyond a specific course period for solving future problems. Personalisation (personal tools and social networking) enables learners to look for resources and people to help in the problem-solving process. In this learner-centred approach, an e-learning course is initiated by the formulation of problems for learners' self-governed work. The learning process develops through self-governed learners' work, manifested in personal tools which are unique for each learner, since they get different materials depending on their social network. Personal Learning Environments (PLEs) are effective for integrating formal and informal learning in the Higher Education context and address learners' control issues and personalisation effectively (Dabbagh & Kitsantas, 2011). PLEs consist of SM tools which promote individual learning where learners maintain the learning space to facilitate their own learning activities and peer connections. A three-level pedagogical framework for using social media to support self-regulated learning in PLEs — including personal information management, social interaction and collaboration, and information aggregation and management — was developed. It suggests that learners become motivated and empowered to create effective and sustainable PLEs to achieve desired learning outcomes and enrich learning experiences as they engage in self-oriented feedback system with instructor and peers. However, this framework has not been tested empirically and should be verified in the future.

According to Al-Zoube & El-Seoud (2009), SS provides users with a platform to build social applications and enhance interactive communication and collaboration with resource sharing. SS has created an impact on education and has been adopted to meet emerging needs since it promotes personalisation, flexibility, openness, problem solving, building connections and collaboration. SNSs can act as pedagogical agents like Problem-Based Learning — whereby learners identify people and resources relevant for problem solving — to add to the social network because information spreads fast and has the potential for networked learning. SS can be used to support a social constructivist approach to eLearning. Since SNSs are free, educators should integrate them into their personal lives and their academics.

Al-Zoube and El-Seoud (2009) presented an eLearning system that uses SS and SNSs to provide learners with an integrated, comprehensive and feature-rich environment for accessing applications, sharing documents, results and other objects, and connecting with instructor and learners. The learner feedback suggests that the SNS approach provides a much better user experience than with an LMS. In the future, the authors plan to enable web server interaction with Open Social applications to provide users with personalized materials and quizzes.

Since the SNS features promote interaction and collaboration, they should be integrated into LMSs for academic purposes to make the learning exciting and improve on the learning interest and motivation (Bosch, 2009). Training and support for SNS-use from institutions and instructor is highly recommended. Integration and social networking technology use is a solution to the distance learning problem of no interaction (Brady et al., 2010). A study to determine SNS users and applications used to enhance these tools academically showed that learners use SNS the most (96.7%), especially digital natives (90%) and digital immigrants (67%). Facebook was the greatest host (81%), followed by Twitter (30%), LinkedIn (5%) and Myspace (4%) (Rinco & Sandoval, 2014). Learners say social networks have led to a change in pedagogy and teaching methods, since they encourage information-sharing which promotes research and academia, and allows for quick knowledge enrichment.

Unlike a LMS, SNSs provide immediate feedback through such features as comments. According to Bosch (2009), universities should change their LMS's focus from content delivery to interaction, collaboration and communication between instructor and learners. The SNS features can be integrated into existing LMSs without building new systems — for example, Elgg and Mahara have inbuilt SNS features to support learning. UCT learners are more engaged with Facebook, as compared to the Vula LMS (Bosch, 2009). A UCT lecturer said it was quicker to 'talk' to learners on Facebook than finding them in class if she wanted to communicate. The Facebook functions for UCT learners include social networking, seeking peer support, community building on campus, learner activism, general communication, sharing information and maintaining group and personal communication on public spaces. The learners accessed instructors in formal environments with less pressure and felt more comfortable in the shared space. Learners asked questions they feared to ask in class, felt instructors were more approachable after online interactions and indicated the material to cover prior to the lecture, which led to class time spent effectively. Facebook benefits learners with low self-esteem and low life satisfaction and cannot be ignored as a potential educational tool because of its efficient ways to teach large classes, like through groups discussions (Bosch, 2009).

As noted by Cloete et al. (2009), the benefits of SNSs like Facebook include a higher level of engagement, digital literacy skills, integration in learners' daily practices, the potential to make identity information more relevant during class discussions, adding a 'social' peer to peer component and managing alumni through the group. Facebook creates an online academic community by linking learners and instructor, thereby breaking barriers and providing more immediate responses. The instructors highlighted the promotion of critical thinking and improved 24/7 access to resources as SNS advantages. The learners sited companionship, information access, emotional and material support, the opportunity to know their instructors better, expanding social research, more confidence, opportunities to develop peer relationships and instructors, and more self-disclosure as benefits. While 64.4% of instructors at UP thought Facebook can be an academic learning tool, only 24.4% had applied SNSs to teach (Cloete et al., 2009).

Brady et al. (2010) surveyed graduate distance learners' attitudes to the Education-based SNS online tool Ning for teaching and learning to determine the educational benefits. The discussion tool was used for sharing ideas and deliberating the topics covered. Key themes in the learner responses were communication, collaboration, reflection and comprehension, convenience and comfort, and benefits and draw backs of the tool. Based on the learner perceptions, Ning was better than f2f in terms of collaboration, time efficiency and diverse viewpoints. The learners highlighted the benefits of increased levels of communication and collaboration to deepen the levels of reflections. The instructors reported positive effects on learner engagement and content sharing. Learners created a forum based on their personal needs, which increased individual collaboration, personalization and learning ownership. Learners were more familiar with Facebook and preferred it for discussions; therefore, it is important to find learners in their space. Drawbacks reported include time shortage and access issues. This study did not explore how education-based SNSs can be most effectively used to support and enhance learning.

According to Du et al. (2013), LMSs are a traditional form of eLearning, designed for course management and they have limited impact on pedagogy, lack personalised control for learners and offer limited interaction and collaboration between learners, educators and courses. Therefore, they are not competent for supporting eLearning in a new era which views learning as a self-governed, problem-based and collaborative social process. Learners' proficiency in cutting edge technologies required by employers can be promoted by SM use. SS moves academic activities to the public sphere and opens the academic environment to public space (Rodriguez, 2011). The incorporation of SM and User Generated Content (UGC) into the public space for

teaching and learning in Higher Education is needed. Learners' active participation, a form of knowledge creation, is encouraged and changes the information flow from unidirectional to bidirectional.

Instructors integrated SM with Blackboard LMS to understand the potential for teaching context, expectations, experiences and pedagogical choices. Instructors reported flexibility and increased learner involvement in finding resources, discussing content and sharing in knowledge construction (Freeman, 2014). There was a close connection between instructor pedagogical values and the perceived potential of SM technologies that drew instructor to the appropriate technology from the personal/private to public or pedagogical technology users. The instructor's personal experiences on SM influenced their approaches to integrate tools into pedagogical practices after discovering compatibility between SM collaborative strengths and pedagogical values. In the future, there is a need to explore the domestication of SM in higher education classrooms.

There is limited or no f2f interactions in distance learning, which makes building Communities of Practice (CP) and fostering Social Presence a challenge. Technologies in SNS aid discussion and create intimacy among online learners by building community in socially- and educationally-constructed network. SNSs actively extend learning beyond the class, which is important for distance learners. Distance learning courses are more successful when they develop CPs which enhances deep learning. Deep learning includes higher order thinking, reflective learning and integrative learning, which leads to higher scores in education, and the practical components lead to social development (Sibanda and Donnelly, 2014). LMSs are more focused and lack the personal touch and networking capacity that SNSs offer. SNSs are user-centred, not class-centred, and have the potential to increase learner engagement and improve the learning process.

The perceptions and learning experiences of learners from the University of Stellenbosch (in South Africa) and the University of Alabama (in the United States), both using the Blackboard LMS, were determined (Hough and Neuland, 2014). The learners identified acquiring problem-solving and decision-making skills as the biggest benefits of using the tool and added value to their business process management and communication skills. These positive results were attributed to the extensive involvement and experience with cases, which simulated real-world business experiences. The learners claim ICTs added value to studies because they created online profiles on web 2.0 sites. South African learners experienced a higher value and more positive experience than their United States counterparts because of proximity, no direct on-campus interaction with instructors, and employment. They recommend optimal use of ICTs to enhance learning because learners choose Higher Education Institutions based on delivery expectations, so curricula and learning experiences must remain relevant and market-related. UNISA learners use SNSs to connect with fellow learners and are strongly in support of Facebook (Hough and Neuland, 2014). Educators need to tap into SNSs for an attitude change and to improve motivation and learning interest by integrating SNS features into the LMSs for better learning processes.

The learners felt eLearning tools held great potential to transform education through collaboration and increased engagement, and they advised instructor to facilitate this environment. Twitter learners had a significantly greater increase in engagement and Grade Point Average (Junco et al., 2010). Hamid et al. (2009) highlights the main challenge as pedagogically appropriating and repurposing social technology for the Online Social Networking (OSN) used by digital natives. There is need to adjust pedagogical models to address digital learners with important OSN activities that include content generating and sharing, interacting and collaboratively sharing.

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

From the literature reviewed and the challenges discussed, we recommend the following for successful eLearning implementation.

Training and Support in ICT, Content Creation Skills and Policy

We note instructor and learners' difficulty in using the LMS due to inadequate ICT skills. There is a need for ICT personnel support at institutions. The issue of diverse languages can be addressed by creating and sharing local, customised content which improves learning because the learners study better in their first language. Training users in content creation and ICT skills enables the development of localised content for teaching and learning. There is a need to develop educational software tools to support learning activities, like Weblogs to promote collaboration and provide a basis for discussion. If a learner posts his/her view, it attracts feedback and becomes collaborative. An SNS platform differs from an LMS discussion forum because group views matter. Collaboration between content, pedagogy and technology is important for successful eLearning.

There is a need for institutional leadership, policy, and awareness programs to encourage use to improve institutional policy and delivery performance at HEIs.

Cost and Technology Aspects

Most debates concentrate on cost and proprietary vs OSS issues, and not technical aspects, during the LMS-adoption decision making (Mlitwa, 2006). Technological aspects should be discussed for successful implementation. The cost is curbed using free and customisable OSS to institutional and academic needs.

Content Access to Diverse Population

The eLearning approach is recommended for learners from diverse cultures, races and languages by availing content accessible anywhere. Over the years, SA has had increased access to mobile phones compared to computers (Bosch, 2009; Brown et al., 2008). Brown et al. (2008) says 2 out of 14 eLearning managers testified to using mobile technologies for education. An opportunity for increased access to content and technology is exploiting mobile-learning platforms, like mobile apps using SM. Learners can access resources and networks using mobile phones at their convenience to keep engaged and improve learning. With SNSs, content is accessed beyond institutional borders; for example, the MIT Open Course Ware in the United States and the Open Educational Resources provide equal content access to diverse populations for equal opportunities.

Large Class Sizes

Educational technologies can address large class numbers by providing accessible content regardless of location; they can address diverse learners by promoting Personalised learning and PLEs. SNSs like Facebook allow group creation for academic purposes, which enable easier management of large classes.

Curriculum Review

There is criticism of the f2f approach that it fails to develop the Higher Order Cognitive Skills necessary for work environments (Bagarukayo et al., 2012). A change in curriculum to incorporate practical pedagogy that promotes HOCS for problem solving, critical thinking and decision making is recommended. eLearning and SNSs provide the best platforms for practical skills and HOCS, and should be embraced.

Infrastructural and Technical Issues

Due to infrastructure issues, the use of web 2.0 technologies may be difficult in the developing world. Therefore, universities need to improve their technology infrastructure by seeking funding from Governments and others to procure adequate infrastructure.

Instructor Motivation and Job Security

There is a need for instructor motivation and incentives for content creation for easy LMS-use. The instructor that develop and upload content can be a given bonus to motivate others; they should be sensitized of the eLearning benefits for adoption and must be assured of job safety and relevance as facilitators.

Engaged Learners and Instructor

Some universities had few active users; this needs to increase to improve grades and increase retention. Instructor should motivate learners to increase their engagement in the online learning environments. The learners are engaged in SNSs; hence, educators need to find them in their space for effective, more active and engaged learning. Instructor should be involved in the LMS development and acquisition in order to own the technology and use it optimally. The learners' interest and motivation is increased by integrating SNSs in LMSs.

CONCLUSION

We discussed eLearning usage and implementation, identified challenges and made recommendations. There is a paucity of research on the use of Social Software for academic purposes in Africa as compared to developed world. We recommend the SS approach to promote learning activities that improve the learning process. According to the Technology Adoption Model (Venter et al., 2012), system adoption is influenced by attitudes, perceived ease-of-use, perceived usefulness and user behavioural intentions. Therefore, institutions should ensure that these factors are positive for the successful adoption of eLearning. In the future, we will survey instructor at TUT and other SA institutions to measure the improvement in technology usage. We will experiment with social software as a tool for learning to determine how it influences learning at SA institutions.

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