THE VOICES OF STUDENT TEACHERS ON E-LEARNING INITIATIVES IN A DISTANCE EDUCATION COMMUNITY OF PRACTICE

E.C. DU PLESSIS
UNIVERSITY OF SOUTH AFRICA

Abstract

In distance teaching institutions where fourth-generation e-learning initiatives have become integrated in the modes of delivery, and where implementers struggle with effective adaption and implementation of technology-enabled education, student teachers' views on e-learning initiatives are assumed to be of significance. This article reports the findings of student teachers' views about access to e-learning facilities in a distance education (DE) community of practice. The research focused on 600 UNISA students who were enrolled for a PGCE qualification. Data was collected mainly by means of a quantitative survey. Findings indicated that student teachers don't have enough access to the internet and a need for training on the use of e-learning was identified as a high priority.

Keywords: blended learning; community of practice; distance education; e-learning; systems theory; quantitative research.

1. INTRODUCTION AND AIM

When we entered into the 21st Century, many educators, school administrators, professors and business leaders sensed that digital technology would bring about significant change in all aspects of human activity. A decade later, the accuracy of this notion has been confirmed. We have witnessed a rapid increase in the use of web-based 'collaboration ware' in recent years. These Web 2.0 applications, particularly wikis, blogs and podcasts, have been increasingly adopted by many online educational services (Wheeler, 2006) and follow the trends and patterns revealed by fourth and fifth generation distance education (DE) modes of delivery. DE operations have evolved through the following four generations: first, the Correspondence Model, based on print technology; second, the Multi-media Model, based on print, audio and video technologies; third, the Tele-learning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication; and fourth, the Flexible Learning Model, based on applications of telecommunication technologies to provide opportunities for synchronous communication; and fourth, the Flexible Learning Model, based on online delivery via the Internet. Although many universities are just beginning to implement fourth generation DE initiatives, the fifth generation is already emerging based on the further exploitation of new technologies. The fifth generation of DE is essentially a derivation of the fourth generation, which aims to capitalise on the features of the Internet and the web (Taylor, 2001:2).
Today's world is making rapid progress on the path towards the utilisation of technical applications in the field of education. One of the results of this has been a lessening of the financial burden of university education through e-publication of textbooks, free material and increasing the efficiency of university education. This is particularly true in the area of DE, as the possibilities of its realisation and growth have multiplied in ways not possible in the past (University of Saudi Arabia, 2015). The University of South Africa (UNISA) has joined the international race to make use of the products of the information revolution by broadening the role of technology in the field of education. Access to computers and the internet by students plays a crucial role in making an effective shift from a traditional DE mode of delivery to web-enabled education and teaching.

Organisations and professional associations are increasingly examining the potential of online networks to enable members to share knowledge and engage in ongoing workplace learning and professional development. Although we can draw on an established literature and research base to guide understanding and shape best practice in formal distance education settings (Berge & Collin, 1996; Burge & Roberts, 1998; Garrison & Anderson, 2003; Harasim, Hiltz, Teles & Turoff, 1995; Haughey & Anderson, 1998; Kearsley, 2000; Palloff & Pratt, 1999; Gray, 2004), we know much less about this new world of online learning that is possible outside a student teacher's context, due to a lack of exposure to e-learning.

The purpose of this study was to determine student teachers' viewpoints towards, and access to e-learning in their context.

There are many benefits of e-learning, but there is also resistance, primarily because of an attitude of techno-phobia and lack of e-learning technology. A good infrastructure and support system, as pointed out in the subsequent theoretical framework, need to be in place to offer effective e-learning teaching.

2. FRAMING SYSTEMS THEORY IN THE CONTEXT OF DISTANCE EDUCATION

This research is predicated on a theoretical framework consisting of two theories, namely the systems theory as proposed by Keegan (1993; 2000), and the general systems theory (Von Bertalanffy, 1962).

The use of systems theory serves as a basis for the systemic study of distance learning to contribute to the conceptual insights about the complexities of DE, and to provide the basis for developing methods for enhancing the teaching-learning community of practice. According to Du Mont (2002), the systems approach looks both inward and outward, focusing on relationships and patterns of interaction between subsystems and their community of practice within the organisation.
Another view held by Saba (1999:25) states: “a systems approach is necessary to describe DE and define a set of prescriptive principles and rules for its effective use, as well as a set of criteria to determine its effectiveness.”

Since the inquiry on e-learning anchors on various systems and components within the DE structure, systems theory was found to be suitable for this study. The systems or components referred to are:

- A learning recruitment and admission system (Administration department)
- A course design and materials development system (Materials development department)
- A student support system (Student support department)
- A teaching/mentoring system (Faculties and lecturers/tutors)

Although each system has different tasks and roles to play, they all contribute towards teaching-learning of DE or ODL in one way or another. The significance of systems theory is the interdependence and interlinkage or inter-relatedness of systems, subsystems and structures which influence each other directly or indirectly.

In the most general sense, 'system' means a configuration of parts connected and joined together by a web of relationships. A system is a group of interrelated, interdependent and interacting activities that form a coherent whole. If any of the parts or activities in the system seems weakened or misaligned, the system makes the necessary adjustments to more effectively achieve its goals (Von Bertalanffy, 1962).

Linking with systems theory, Fullan (2008) points out that careful entry into a new setting is needed, listening to and learning from those who have been there longer is important. Engaging in fact finding and joint problem solving is important, as well as carefully (rather than rashly) diagnosing the situation. He further states that people’s concerns should be addressed and obtaining their buy-in for what needs fixing, and developing a credible plan for making that fix, is also important. Fullan (2008) mentions the six secrets of change in figure 1.

![Figure 1: The six secrets of change (Fullan, 2008)](image-url)
According to Fullan (2014:1) the digital world is a 24/7 phenomenon of limitless intrigue and consternation. “Technology, pedagogy and change dynamics are converging on their own. We cannot stop them but we can take advantage of them to enable and accelerate learning, where learning and living become indistinguishable. This is not a theoretical realm. It is reality.”

The question is how to facilitate this collaboration revolution by the new technologies, in countries in which technology is poor, the bandwidth is null, and the scaffolding to help teachers is very weak?

Fullan (2015) prescribes four dynamically interrelated actions we can take:

• Consciously seeking a balance between our own autonomy and cooperation with others
• Improving the feedback exchange — giving more valuable responses, as well as eliciting, hearing and accepting feedback more effectively
• Building accountability to others into the fabric of our working lives
• Finding ways to influence others with the changes we’ve made and want to spread

One of the biggest breakthroughs in how people understand and guide change in organisations is based on systems theory and systems thinking. Furthermore, context is a key concept within general systems theory. The focus is on the interactive processes of which the individual is part. In systems theory, the relationship between organisations and their environments is recognised as the foremost source of complexity and interdependence (Du Plessis & Pretorius, 2005).

Open Distance Learning (ODL) institutions, the www, online learning content, internet access and the student community are regarded as integrated social systems because they interact with each other. Laszlo (1972:48) agrees that social systems are dependent on each other and added that they are influenced by each other.

The human mind has led to the creation of more technologically sophisticated societies all intertwined with each other (Laszlo, 1972). Plas (1986:16) elaborates by saying that systems associate integrally with additional systems. A pattern of “mutual dependency” occurs. Furthermore, context (students involved in e-learning) is a key concept within general systems theory.
3. CONTEXTUALISATION AND CONCEPTUALISATION OF DISTANCE EDUCATION AND E-LEARNING AS A COMMUNITY OF PRACTICE

For the purpose of this article, the concepts open learning, open distance learning, distance education, community of practice, blended learning and e-learning are of key importance, because these concepts represent the context (UNISA) where this research took place.

Open learning, open distance learning, distance education

It is essential to look at the concepts open learning (OL) and open distance learning (ODL), because these concepts are not similar. The worldwide post-modern educational paradigm shift from provision thinking to student-centred thinking, led to a sharp increase in the popularity of the “open learning” concept. In this perspective on open learning, the learner decides on the following (Mackintosh, Waghid & Van Niekerk, 1997:166–169): To learn or not to learn; what to learn; how to learn; where to learn; when to learn; the pace of learning; who to go to for assistance; how to evaluate what has been learned, and what to do next. “At the heart of open learning is learner choice: putting decisions about learning into the hands of the students themselves” (Wei, 2010:48). Holmberg (1989:17) reports a general misconception by emphasising that OL is not equal to DE. Any educational institution can offer OL, “as long as they take measures to make their educational programmes more open and flexible as regards time, place, courses, methods, ideas and people” (Wei, 2010:48).

Yet, the concept open learning grew a strong base particularly in the domain of DE, resulting in the extended concept ODL. ODL thus refers to DE students’ choice with regard to the content, time, place and pace of learning, method of instruction and nature of assessment. In its ideal form, ODL suggests that the provisioning for multi-students, with multi-modes, by multimedia, at multi-levels, and for multi-purposes, is aligned, with cognisance of the needs of a knowledge-based society, with due emphasis on diversity encompassing the range of learner characteristics, learning conditions and learning environments (Van der Merwe, 2011). This possibility of student-centeredness is impressive and attractive, and not surprisingly, ODL has become the propaganda to the extent that most acknowledged DE institutions wish to be viewed and accepted as “ODL institutions” (Kamper & Du Plessis, 2014). The “openness” in ODL also implies that learning could take place anywhere and gives students the most freedom possible.

DE is a mode of delivering education and instruction, often on an individual basis, to students who are physically separated from learning institutions and tutors (University of Saudi Arabia, 2015). DE seeks to assist in the achievement of the equivalence of educational opportunities and equality among students, in order to respond to the constantly increasing demand for
education, whether among those whose circumstances do not permit them to enrol in traditional classroom-based learning or those whose personal, economic or social circumstances prevent them from accessing education (University of Saudi Arabia, 2015). DE is also important in the area of higher education (as community of practice), where it began in a modest fashion and then expanded to a point where it became indispensable.

**Community of practice**

Communities of practice (in this case UNISA) are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly (Wenger, 1998). It should be noted that communities of practice can be very effective in a digital world, where the working context is volatile, complex, uncertain and ambiguous. A large part of the lifelong learning market will become occupied by communities of practice and self-learning, through collaborative learning, sharing of knowledge and experience, and crowd-sourcing new ideas and development (Bates, 2014). In addition, blended learning yielded positive results from the online community (Bradford, Porciello, Balkon & Backus, 2007).

**Blended learning**

Blended learning is a formal education program in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace (Norm, 2012; Christensen, 2014). In 2006, the term became more concrete with the publication of the first *Handbook of Blended Learning* by Bonk and Graham (2006). Graham challenged the breadth and ambiguity of the term's definition, and defined "blended learning systems" as learning systems that "combine face-to-face instruction with computer mediated instruction" (Bonk & Graham, 2006:5). The terms "blended learning," "hybrid learning," "technology-mediated instruction," "web-enhanced instruction," and "mixed-mode instruction" are often used interchangeably in research literature (Martyn, 2003).

**E-learning**

E-learning, is education based on modern methods of communication including the computer and its networks, various audio-visual materials, search engines, electronic libraries, and websites, whether accomplished in the classroom or at a distance (University of Saudi Arabia, 2015). Generally speaking, this type of education is delivered through the medium of the www where the educational institution makes its programs and materials available on a special website in such a manner that students are able to make use of them and interact with them with ease through closed or shared networks, or the internet, and through use of e-mail and online discussion groups. The definition of e-learning centres on its being a learning method and a technique
for the presentation of academic curricula via the internet or any other
electronic media inclusive of multimedia, compact discs, satellites, or other
new education technologies. The student, in e-learning, is able to access
educational materials at any time and from any place, thereby transforming
the concepts of the educational process, and learning to go beyond the limits
(University of Saudi Arabia, 2015).

Quite simply, e-learning is electronic learning, and typically this means using
devices such as a computer/smartphone, i-pad, to deliver part, or all of a
course whether it's in a school, part of mandatory business training or a full
distance learning course (Virtual College, 2015).

Some of the major advantages attributed to e-learning include access to
educational resources from outside the institution on a global and instant
basis, a quick and easy way to create, update and revise course materials
through low-cost off-the-shelf software. It further accommodates different
learning styles and support learning with a variety of media. Additionally it may
increase flexible interaction with students through e-mail and discussion
forums and information can be provided as and when needed and can be
accessed wherever a computer with an internet connection is available. It has
the ability to serve a large number of students at a potentially reduced cost
(Virtual College, 2015; Reyers, 2015).

Disadvantages of e-learning comprise technology dependency. This can
create unique challenges for universities that might include: slow or
intermittent internet connections; inadequate computers and related
technology; and the need for lecturers and students to have technical skills.
Students who need more training support might find self-directed e-learning
confusing. E-learning requires internet access and data which might be
expensive for students. Lecturers may not be available to answer questions
when e-learning is undertaken. If e-learning content is not designed to make
the most of the medium it can be quite ineffective. It's important that
courseware begins with an understanding of how the mind works during
learning and incorporates that understanding into the course design (Reyers,
2015).

Given the speed of change and the resulting need for continual reinforcement
and enhancement of students' skills, the importance of effective e-learning
can't be overstated. This links to different uses of e-learning, like wikis, blogs
and podcasts in online education and communities of practice:

**Wikis**

Perhaps the best example of a wiki in action today is 'Wikipedia – The Free
Encyclopaedia'. Wikis, and in particular Wikipedia, represent a promising
principle that can significantly transform the internet information age; they
have greatly grown in popularity (Connor, 2005). Wikis can be used as a
source for obtaining information and knowledge, and also as a method of virtual collaboration, e.g., to share dialogue and information among participants in group projects, or to allow students to engage in learning with each other, using wikis as a collaborative environment to construct their knowledge or to be part of a virtual community of practice.

**Blogs**

A related web information sharing technology is the “blog”. A blog (WeBLOG) is a website that contains dated entries in reverse chronological order (most recent first) about a particular topic (Blog, 2015a). Functioning as an online journal, blogs can be written by one person or a group of contributors. Entries contain commentary and links to other websites, and images as well as a search facility may also be included. Because blogs engage people in knowledge sharing, reflection and debate, they often attract a large and dedicated readership (Blog, 2015b). They can also engender the drawing together of small virtual groupings of individuals interested in co-constructing knowledge around a common topic within a community of practice.

**Podcasts**

"Podcasting's essence is about creating content (audio or video – vodcasts) for an audience that wants to listen when they want, where they want, and how they want" (Harvard Medical School, 2006). Users can listen to podcasts and watch vodcasts on their computer (e.g., using Windows Media Player), or download them to portable MP3/MP4 players and listen/watch on the move/anywhere, which is perfect for the busy health professional. Podcasts can be created from written text using text-to-speech synthesiser software, but better podcasts featuring real human voice and radio-style programmes are also available (Boulos, Maramba & Wheeler, 2006).

Technology provides a wide range of tools that can support communities of practice, as indicated by Wenger (in Bates, 2014) in figure 2.
Many possible digital tools exist, as indicated in figure 2. From these specific tools, UNISA uses E-mails, YouTube, Facebook, forums and group discussions mainly as teaching tools. Looking at all these possible tools available via e-learning, it is of no use if student teachers don't have access to computers and the internet. Therefore, what are student teachers' views on e-learning initiatives?

4. METHODOLOGICAL CHOICES

Yin (2014), defines the research design as the logical sequence that connects the empirical data to a study's initial research questions, and ultimately to conclusions. It is, therefore, a strategy which shapes the research. Quantitative research is concerned with gathering facts and figures for the purpose of statistical analysis (Creswell & Clark, 2007). The research approach adopted was mainly quantitative to evaluate student teachers' (as respondents) views on e-learning. A survey with structured questions as the data collection method were used in this research project. Posted questionnaires were used, to reach a convenient sample of 600 respondents of which 330 questionnaires were returned, constituting a response rate of 55%. These respondents were enrolled for the PGCE qualification in the senior phase and further education and training. These respondents were
from all the provinces in South Africa. Both genders, different cultural groups and a wide range of student teachers' ages were involved. Moreover, these student teachers were involved in a wide variety of sites – from those that were rich in human and other resources to those that lacked even the most basic of resources.

The questionnaire consisted of three sections. Section A focused on respondents' biographical information (as indicted in table 1). Section B consisted of 12 closed dichotomous questions tied to access to the internet and related to the complexities of DE related to the systems theory and general systems model (as listed in table 2). Section C comprised of three open questions where respondents were asked to report on the advantages and disadvantages of e-learning and to make recommendations regarding the use of e-learning.

Ethical measures were adhered to because participant anonymity, as well as confidentiality, was maintained at all times. Moreover, no coercive measures were used to secure participation. A covering letter was included explaining to respondents how they came to be involved in the investigation. Clear instructions were given to respondents on how to complete the questionnaires.

The Statistical Package for the Social Sciences (SPSS) was used to analyse the data from the first two sections and provided descriptive statistics with frequencies and percentages for each item. The data in the final section was analysed qualitatively by identifying themes and categories. The following findings are based on an analysis and interpretation of the data collected.

5. **FINDINGS AND DISCUSSION**

The data on the respondents' views on e-learning of the university as a community of practice showed mixed responses. Table 1 consists of the biographical data of the respondents.

**Table 1: Biographical data (Section A of questionnaire)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>*f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teacher gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>122</td>
<td>37%</td>
</tr>
<tr>
<td>Female</td>
<td>208</td>
<td>63%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>330</td>
<td>100%</td>
</tr>
<tr>
<td>Student teacher age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 and younger</td>
<td>175</td>
<td>53%</td>
</tr>
<tr>
<td>31 - 39</td>
<td>109</td>
<td>33%</td>
</tr>
<tr>
<td>40 - 49</td>
<td>43</td>
<td>13%</td>
</tr>
<tr>
<td>50 and older</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>330</td>
<td>100%</td>
</tr>
</tbody>
</table>

*f = frequency*
The majority of the respondents were females, with ages ranging between 22 and 60. Most of the respondents were under the age of 30 years.

The findings to the closed ended questions (Section B of the questionnaire) are listed in table 2.

Table 2: E-learning (accessibility to the internet and web-delivered teaching-learning facilities)

<table>
<thead>
<tr>
<th>Statement</th>
<th>*f</th>
<th>%Yes</th>
<th>%No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you have easy access to a computer?</td>
<td>328</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>2. Do you have access to the internet?</td>
<td>328</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>3. Have you received any guidance on e-learning?</td>
<td>327</td>
<td>18%</td>
<td>82%</td>
</tr>
<tr>
<td>4. Are you interested in guidance on e-learning?</td>
<td>329</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>5. Do you think e-learning will increase interaction between students and lecturers?</td>
<td>327</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>6. Do you think e-learning will reduce costs?</td>
<td>324</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>7. Are you positive about online study material and assessment of all your assignments?</td>
<td>324</td>
<td>22%</td>
<td>78%</td>
</tr>
<tr>
<td>8. Would you like to engage with technology, like e-learning (including wikis, blogs and podcasts)</td>
<td>326</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>9. Do you regard e-learning as similar to distance education?</td>
<td>315</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>10. Can e-learning as replace traditional (paper based) distance education?</td>
<td>318</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>11. Should open universities strive to be e-learning institutions?</td>
<td>317</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>12. Do you think UNISA must shift from traditional distance</td>
<td>315</td>
<td>35%</td>
<td>65%</td>
</tr>
</tbody>
</table>

*f = frequency
The findings can be summarised as follows: 24% of the respondents revealed that they do not have access to computers, 29% specified that they don't have access to the internet, while 82% of the respondents indicated that they didn't receive any training or guidance on e-learning. 92% of the respondents specified that they are interested in guidance on e-learning and 96% thought e-learning would increase interaction with students and lecturers. 77% of the respondents said that e-learning would reduce costs but only 22% were positive about online study material and assessment of all their assignments. This is a vital finding to think about. What was positive is the fact that 95% of the respondents indicated that they would like to engage in technology like wikis, blogs and podcasts. 80% of the respondents regarded e-learning as similar to distance education, while simply 49% specified that e-learning can replace traditional distance education. Another positive point was that 87% of the respondents indicated that open universities must strive to be e-learning institutions. Only 35% of the respondents thought that UNISA must shift from traditional distance education delivery to web-enabled education and training.

The above responses can be tested against the general systems theory (Von Bertalanffy, 1962). There is evidence of a need for interaction with all the systems as one quarter of the respondents do not have access to computers or the internet. The different systems, such as access to the internet, training and guidance on e-learning, and the process of transforming traditional distance education into web-enabled teaching and learning should be interrelated, interdependent and interacting elements in order to form a coherent totality. Connecting with community of practice (Bates 2014), student teachers need access to e-learning, culminating in collaborative and lifelong learning.

In the “open questions” section (Section C of the questionnaire), positive and negative comments as well as recommendations were made by the respondents.

Positive comments from the respondents from the open questions revealed that study material will be available on time, that feedback from lecturers will be quicker and that studying from anywhere in the world is possible. Furthermore, it is fast, cost effective and it brings flexibility. Besides, we will not be reliant on the post office.

The positive remarks of the respondents about online study material and assessment were confirmed by literature and discussed as major advantages attributed to e-learning, for example flexibility, quick delivery of study material and cost effectiveness (University of Saudi Arabia 2015; Virtual College, 2015; Reyers, 2015).
Place and time independent distribution of study material would be enhanced more effectively by e-learning. Accessibility of content, lecturers comments and their advice and open unlimited opportunities regarding time and place when studying online are important building blocks for successful e-learning. The aforementioned aspects reflect the importance of “mutual dependency”, one of the principles of the general systems theory (Von Bertalanffy, 1962).

Negative comments from the respondents included the fact that e-learning takes the human factor away and that not all the student teachers have access to the internet – thus collaborative learning will not be possible. It is also expensive for student teachers to go to regional offices or internet cafes. Students also indicated that not all of them has electricity at home. This type of technology is not possible on all 'pay as you go' cell phones. Indeed UNISA’s system is often down or slow and human challenges of time pressures in busy work lives were highlighted. In addition, it is time consuming and it puts strain on one's eyes.

According to the general systems theory, the complexity of the relationships between elements in a system is the key to understanding the system (Von Bertalanffy, 1962). From the negative responses it can be assumed that e-learning cannot be understood as a set of discrete elements. “Mutual dependency” as one of the key concepts, as stated in the abovementioned paragraph, cannot be ignored. Negative comments made by respondents also correlated with literature, for example, limited or slow internet access, expensiveness and strain on the human body, e-learning is technology dependent and students need more training support (Reyers, 2015).

Respondents recommended in the open questions section that our education system should take e-learning seriously and must ensure that all student teachers have access to computers and the internet. In the same way student teachers and teachers must be trained first. Besides, e-learning must be phased in gradually – not overnight. The respondents further suggested the appointment of a technical moderator who will play a valuable role in assisting students in the use of effective e-learning initiatives.

The responses can be evaluated against the systems theory of Saba (1999) and Du Mont (2002) emphasizing the need for prescriptive principles and rules for effective DE and e-learning should be in place, like effective student support systems, by means of mentors. Keeping Fullan's (2014) theory in mind, we cannot stop technology but we can take advantage of it to support learning, and to find ways to influence others with the changes we've made and to empower communities.
6. CONCLUSION AND RECOMMENDATIONS

The latest generation of collaborative web-based tools, namely wikis, blogs and podcasts, offers many unique and powerful information-sharing and collaboration features. However, in this article the researcher highlighted student teachers' voices on the topic of access to computers and the internet to be able to make use of e-learning initiatives. As such student teachers' exposure to e-learning and their needs were identified.

Respondents identified some limitations and restrictions in the open section. In addition to technical frustrations such as systems that are often down, limited access or lack of power and human issues played a significant role in how this research unfolded. It was found that many student teachers still do not have access to computers and the internet. The need for training on the use of e-learning was identified as a high priority before the university can impose e-learning. This calls for urgent address of the needs of students. UNISA has student teachers in deep rural areas without electricity – what about a computer. On the other hand it is important to move forward with technology and to give students teachers who have access to computers and the internet the opportunity to use it. It is vital to train student teachers in the use of technology for them to be able to train and empower their communities and to keep up with transformation.

It is recommended that role players' and prospective users' representatives (student teachers and lecturers) must be adequately involved in these research and development processes and more partnerships must be found between schools, universities and communities. Additionally, organisations that are planning to develop online communities of practice are encouraged to make use of an admission system (relating with systems theory) and use a moderator with technical competence, an understanding of community-building, a learning orientation and sufficient knowledge of the practice itself to demonstrate credibility to facilitate the process. We need to look at our student's current skills and accessibility. For at least the following few years, the university needs to make provision for all their student teachers, making use of a blended approach which brings together the best of both distance learning and e-learning.

The findings and recommendations of this article highlight the need for an optimally considerate approach in the provision of e-learning in teacher education, with specific reference to the need for rectifying the identified lack of training. Careful consideration and further continuous investigation of student perspectives on contextual and professional variables in the provision of e-learning are needed in order to find the best ways to leverage these emerging tools to boost our teaching and learning productivity, foster better “communities of practice”, and support continuing education development.
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