The Recognition of 'Digital Technology Refugees' amongst Post Graduate Students in a Higher Education Institution

Simon B. Khoza
Sadhana Manik

Abstract

It is common knowledge that South African public universities have recently been embarking in efforts to increase their postgraduate (PG) enrolment, and ensure PG student throughput and graduation. Whilst it is well known that the student population is diverse, the literature reveals that students' preparedness is an area of concern in the student throughput discourse in higher education. One of the caveats of the students' preparedness discourse lies in the domain of digital technology which has been introduced in higher education. Research is a key component of PG studies and digital technology knowledge and skills are crucial to students' studies. This article is based on the digital technology experiences of postgraduate students undertaking research at a South African university in KwaZulu-Natal (KZN) province. The discussion leans on qualitative case study data which were generated over a period of two years from 2013-2014. Purposive convenience sampling was used in selecting the students. Multiple instruments such as the students' handwritten and email correspondence in addition to their articulations (verbal and digital) were used for data generation. The study concluded that there were ten PG students who were struggling with digital technology from the outset of their postgraduate studies and numerous digital technology challenges persisted throughout their course of study. Some students believed that they were forced to migrate to a digital world without the requisite support: to learn and internalise aspects of digital technology which made them 'digital technology refugees' in a higher education context. This article consequently

recommends the training of students before they use digital technology within the curriculum and an ongoing digital support structure in the higher education institution to ensure that these PG students receive sufficient assistance to progress and meet their academic targets, and ensure their throughput.

Keywords: Digital technology refugees, digital technology

Introduction

Research is part of the core business of higher education institutions and there is a plethora of literature (Churchman & King 2009; Jawitz 2009; Clare & Sivil 2014) that attests to 'how higher education now operates more as a business' with discussions of 'research productivity' (Van Laren & Mudaly 2012:1080) or 'research output and productivity units' (Clare & Sivil 2014:62) being of paramount significance. There has also been the assertion recently that research 'has been prioritised over teaching and there is a demand to increase the quantity of research' (Clare & Sivil 2014:60) which inadvertently means more postgraduate students undertaking research studies. In addition to this emphasis, is the persistent view, that higher education in the South African context is facing 'multiple challenges some of which include a diversity in the student population coupled with different stages of preparedness' (Bozalek, Ng'ambi & Gachago, 2013:420), the 'massification of education' and 'the heightened stress to raise through-put with meagre resource provision (Scott, Yeld & Hendry 2007). These challenges (which have also been reported across the world) draw attention to the view that higher education needs to address some critical discourses currently unfolding in its midst and one of these relates to students' preparedness for achieving success in a qualification wherein they have registered. One of the strands of this theme of student preparedness, leans on technical skills. Several researches have stated that the preparedness of students requires an improvement in what has been termed '21st century skills' (Johnson *et al*, 2011) and 'digital citizenship' (Johnson & Adam 2011). There is no doubt that higher education is currently a costly undertaking and it is vital to identify students who are 'at risk' early in their enrolment (Van der Merwe &

Van der Merwe 2009:284). This will reduce the cost because low student pass rates have a huge effect on an institution's funding (Van Aswegen 2009; Ungerer *et al*. 2013:1530). In respect of postgraduate students, Van Laren & Mudaly (2012:1081) reported that lecturers are 'pressured' to increase the numbers of masters and doctoral students so as to increase in the number of postgraduates. In addition, Van Laren & Mudaly (2012) also point out that higher education institutions prioritise the through-put of masters and doctoral graduates which becomes one of a host of challenges facing lecturers.

Studies on Digital Technology in Higher Education

Today, higher education like all other sectors in the world has been influenced by different types of technologies especially digital technologies. Digital technology (DT) means electronic technology that generates, stores and processes data (Atkinson & Mckay 2007). There are two key important strands of literature for this article on postgraduate students' experiences of digital technology, namely people who are identified as digital technology users and the use of digital technology in higher education.

The Users of Digital Technology

A study undertaken in the early 1990's by Howe and Strauss (1991) found out that age was a decider in the use of digital technology resources. DT was found to be more attractive to younger generation (which includes students) than old aged people. Howe and Strauss (1991) identified differences between several categories of DT users based on age such as Generation X (born between 1961 and 1981) and the Millennial generation (born between 1982 and 2000 as well as after). In line with the discussion on age being a criterion for DT use, Tapscott (1998) referred to digital users as the Net Generation and later Prensky (2001) called them Digital natives implying that they are born in the digital era which predisposes them to learning via digital technologies. There currently exists a plethora of words describing digital technology users. This trend of referring to DT users was extended by Harel-Caperton (2003) who called them 'Clickerati' and Rushkof (2006) used the term 'Screenagers'. Other terms have been generated by scholars in the field

and they include but are not limited to 'Digital resident', 'Google generation' and 'Digital awareness users' (Khoza 2013 & 2014). Ultimately this fixation on terms describing who should be classified as DT users has highlighted the view that there is a tacit belief that the more youthful you are, the more conversant and at ease one is in using digital technologies. Interestingly, postgraduate students range across a host of age groups (from early 20's to late 40's), having entered postgraduate study at various stages in their lives and are not like undergraduate students, easy to box into a youthful age category. Also, these studies have failed to consider the particular contexts of DT users as being immensely significant in impacting on DT use such as being in a rural or developing country or having access to relevant digital technologies or being in a context where particular DT needs are required which would then warrant their learning. There are some exceptions to the influence of development and one such study is by Czerniewicz, Williams, & Brown (2009) on two students from two opposing socio-economic backgrounds (this will be discussed in some detail in the section below).

Digital Technology Use in Higher Education

Literature on Digital technology use in Higher education has centred largely on the types of DTs used in higher education and many of the studies were carried out amongst undergraduate students (see for example Lorencowicz *et al.* 2014) and not postgraduate students. There are very little data on whether and how there should be an integration of DT into modules from the perspective of students. For example, Prensky (2001) conducted a study on the difference between instructors' and students' usage of digital technologies. This study concluded by identifying students as digital natives because they were born in the digital era and needed 'future content' in learning (content that is generated and distributed by digital technology); whereas the lecturers were born before the digital era and identified as digital immigrants who were only familiar with 'legacy content' (content that is generated and distributed by print media). The results from that study suggest that if education institutions are driven by the digital natives' needs (students who are taken for granted as being familiar with DT), they will teach future content but if they are driven by digital immigrants' needs (lecturers who are not born during the digital era and have depended on print), they will teach

legacy content. The assumption here, is of homogenous categories that all students born during the digital era have acquired the same digital knowledge and skills and can use them in the same manner. Interestingly, Czerniewicz, Williams & Brown (2009) conducted a study based on two university students' in use of DT. One of the students was from a rich family with advanced technologies and the other one was from a poor family with only a basic mobile phone without internet access. The one from the rich family used his advanced technologies mostly for entertainment and the one from the poor family used the university internet for educational activities such as learning. This study concluded that both of these students managed to pass their modules without any noticeable differences between the utilization of technologies in learning. Studies that produced similar results were conducted by Kolikant (2010) as well as Lorencowicz *et al.* (2014).

Other studies conducted by Makoe (2012) revealed that all teachers need to be trained on how to use new technologies in order to use them as an integral part of their curriculum. Bozalek, Ng'ambi & Gachago (2013) reported a disturbing finding that there is a gap difference between the technologies which are being utilised by students, by the lecturers and that which is being provided by the higher education institutions. Thus in addition to there being differences amongst students in terms of their DT knowledge and skills and its use, there are also growing differences between the three mentioned essential stakeholders in the learning environment. In their study on emerging technologies and their use in SA HEI's, they targeted specifically what they call 'technology adopters' who were academics and professional staff already using DT and thus excluded from their study by choice, lecturers who were not DT savvy and all students which would have provided a more holistic picture into technology use in that higher education context.

Training teachers to use technology within the curriculum is important because it may help them in developing students' positive attitudes towards the technology. According to Hough and Neuland (2014), training is very important because it helps teachers to be at the forefront of the curriculum. Majid (2014), Hough and Neuland (2013) and Hough and Neuland (2014) revealed that in order to motivate students, one has to use Web 2.0 technology because students enjoy Web 2.0 technologies especially Blog, YouTube, Google Form and Padlet. According to these studies, students use Web 2.0 technologies every day to post their personal information and they are aware of the risks around the use of technology.

This suggests that lecturers or facilitators should first understand the specific technologies that are familiar to their students before they recommend them for use by their students. This may serve to reduce resentment and to increase the success of technology adoption and integration into the curriculum.

Many of the above studies have tried to pave a way which may help institutions to make some decisions on digital technology. What was clearly lacking throughout in these studies, was the voices of particularly postgraduate students in higher education, whose numbers are increasing rapidly in the South African context. Hence, the need for this present study which explored postgraduate students' experiences of using digital technologies in undertaking their research.

Research Purpose and Research Questions

This article explores postgraduate (PG) students' experiences of using digital technology in undertaking their research dissertations at a South African university. It is anticipated that this article will contribute to providing insights into some of the challenges in higher education institutions on postgraduate students' experiences, through-put and drop-out. The research question in the study was 'What are the digital technology experiences of postgraduate students undertaking research?'

The data generation was organised to respond to the following critical questions related to PG students:

What are the digital technology experiences of students undertaking research in this HEI?

Why do students have particular experiences in undertaking research in this HEI?

Research Design and Methodology

This article is based on a study that was located within the interpretive paradigm. Qualitative data were generated over a period of two years from 2013-2014 on postgraduate students in two disciplines: Curriculum and Geography who were undertaking research at a South African university in KwaZulu-Natal (KZN) province. The postgraduate students were undertaking either an honours or masters degree with either a partial dissertation

component or full dissertation. The choice of approach was the result of needing to understand the challenges facing PG students in meeting their own research targets which they had crafted. The unit of analysis was thus PG students who were undertaking research in two programmes: either Geography Education or Curriculum Studies. Holistically, the study sought to unpack the experiences of postgraduate students in respect of the challenges they were facing in completing their research. In researching students' experiences, this study is aligned to what Polzer (2007) explains as comprising of research 'from below', namely gaining insights into understanding the experiences from the participants' perspectives.

Purposive convenience sampling was used to generate the data. Students were given several choices: to write down their experiences of undertaking research, to post their experiences on an online discussion forum or to email their experiences to their lecturer. The data generation methods were varied as the authors did not want to limit participation. These data generation processes were also iterative for example when students posted their experiences online, they were asked for more detailed explanations if they were not clearly enunciated, alternately when students spoke of their experiences during workshop presentations, they were asked to follow through by providing it in writing (email/s note to the supervisor who would follow through with additional personal interactions). Hence students could either respond to questions that were emailed/posted (discussion forum) or given (by hand) to students email their lecturers sharing their experiences when they encountered DT challenges. Multiple sources of data were also used for the purpose of enhancing the authenticity of data and achieving measures of trustworthiness. This article is designed around selected data from all the data sources available that demonstrated postgraduate students' digital technology experiences in respect of constructing their research dissertations. The sample size consisted of ten students in total. All participants were given pseudonyms to protect their identities as ethical research practices as espoused by Rand Afrikaans University (2002) were observed in the study.

In terms of data analysis, this study used framework analysis where the themes were generated from the data and the relevant literature. The findings are presented thematically largely by means of using direct quotations to give value to the voices of PG students and the corresponding discussions to provide 'thick description' (Geertz, 1973).

Findings

Postgraduate students undertaking research at honours or masters level enter with varying levels of digital technology knowledge and skills which are unknown to their lecturers and supervisors because there does not exist a benchmark activity to gauge their digital technology levels prior to/upon registration for postgraduate study. Nevertheless, they are expected to all fulfil several research related endeavours from the beginning of their study through the use of digital technology in meeting the target requirements to pass the programmes (honours or masters). These include the crafting of their dissertations using a computer, the electronic posting of assignments/chapters for marking with a Turnitin software report and regular email and associated other e-communications between the lecturer and students (such as forum or chat room discussion). The postgraduate students freely expressed their experiences with regards to their limited digital technology knowledge and skills and the impact of their experiences on their ability to meet targets and make adequate progress.

Purchasing the Required Equipment and Acquiring 'Start-up' Skills

Interestingly, this study indicated that there are students undertaking postgraduate studies who may not even have access to the necessary equipment like having a computer which is essential for the writing and submission of their work. Personally, they may not have their own computers and have to rely on the university's resources. Frequently, postgraduate students in Education are undertaking their studies part-time, with many being full time teachers and hence using the computer laboratories on a regular basis during the week days may not always be possible. Nobuhle (a masters student) explained her lack of the much needed equipment to undertake her writing and research: *'I didn't have a laptop or the necessary skills. I first had to buy the laptop. I didn't even know how to open it...'*.

Thus it is evident that amongst PG students, there are those who at the commencement of their qualifications do not have the necessary equipment to begin communicating with their supervisors and writing their dissertations, off campus. But there are also students, who like Nobuhle, may have later acquired the equipment after registration for the PG degree (upon realising

that it is a necessity given her study context) but then she lacked adequate digital technology knowledge and skills which subsequently compromised her steady progress across the year.

Meagre Digital Technology (DT) Knowledge and Skills

Both honours and masters students explained how their limited DT knowledge and skills influenced their studies.

Nobuhle who is a teacher (Masters student) hand wrote her challenges in respect of digital technology. She said: *'I don't have formal training on computer skills/literacy. I haven't been exposed to the use of a computer that much. The learners' exam articles are typed out for us by an admin clerk at work. I didn't think that I would need the skills anyway. When we had to make learners' reports on a computer, we had to use a certain programme, I only learnt to use that and I didn't think I should worry about anything else. When I registered for my masters degree in 2014, I felt like I was thrown in the deep end and left there'*.

It was evident that Nobuhle did not have the necessary technology knowledge and skills at the commencement of her studies. Her background reveals that she only sought to acquire skills when she felt that it was necessary for the completion of a task and clearly she did not think that she would need to concern herself with learning any other computer programmes until she registered for the PG degree. Her comment that she was *'in the deep end and left there'* indicates that she felt abandoned when she registered for the masters full thesis option, and that she did not know how to address her digital technology challenges. Her comment also indicates that she was expecting some form of help although she does not expand on where this support should come from.

She explained her attempts to gain the needed DT skills. Nobuhle stated *'Even at the research commons, I had to bother people and ask for assistance. I had to teach myself using my own laptop. I couldn't even send an email…'* Nobuhle's repetition of the words *'didn't'* and *'couldn't'* display her personal lack of the needed equipment (computer) and her inability to achieve what would have been considered to be basic 'start up' computer skills (opening the computer and sending an email). The case study university has provided a postgraduate space for masters and doctoral students but there

is no technical support located at the venue or from this venue to a central system. It is thus apparent that she feels uncomfortable to ask her colleagues (in the postgraduate research room) to assist her, fearing that she is disturbing them.

Common problems expressed by PG students included emailing and the saving of documents. For example, emailing problems were also experienced by Honours student Thandeka who explained that what is considered to be basic emailing was difficult. She stated that she had the following problems in respect of emails: '*Secondly, finding, receiving and sending emails with ….Ive lost emails which were very important to my honours study...*'. Thandeka's emailing challenges encompassed sending, receiving and the retrieval of past emails.

The saving of documents was also problematic for masters' students. For example, Silo (masters student) had to rely on her emails to her supervisor when her laptop was stolen. She failed to save her work in multiple places and had to rely on her submissions to her supervisor to locate some of her work. Silo wrote, *'Hi Dr … I am not coming to the class tomorrow to present and submit my proposal because I had a terrible situation this morning where my laptop was stolen at the back seat of my friend's car in Pinetown. I did not have a copy of my work; please Doc help if you can help me to recover my work as I have been emailing you most of my work and I have been deleting my emails…'* It is thus evident that Silo's proposal submission and presentation were delayed due to her not having multiple copies of her work saved when her laptop was stolen.

But having a computer stolen and documents not saved in multiple places, are not the only reasons that academic targets are not met and Thandeka reported that: *'Thirdly, my laptop caught a virus which deleted some of my important work within my laptop'*. Here it is evident that digital technology is vulnerable when certain digital security provisions are not adhered to by computer users largely because they are unaware of the impact of downloading information from the internet that may have viruses which then compromises the integrity of their computers.

There are also students who may revel in having digital technology introduced at PG level, but a lack of appropriate digital knowledge and skills can lead to students becoming highly emotional as Buda (Honours student) explained *'While I enjoy e-learning tools sometimes I get frustrated if I don't know how to use technology the way I want'*. The level of frustration

experienced can lead to a rejection by students of digital technology in PG studies as Hlongwa (Masters student) demonstrated in his articulation, *'I strongly believe that if we can work with articles and forget about this confusing technology I can cope well with my studies... for now I don't know what I really know or don't know because I am battling with technology... Sometimes we don't get any hand-outs to read and referred to frustrating websites... I miss the time when education was not influenced by technology and enjoying reading our modules from articles not computer screens'*.

Hlongwa's articulations are loaded with negativity for the introduction of DT into the curriculum ('confusing', 'frustrating'). His use of the word *'battling'* draws attention to the idea that his use of digital technology is perceived as a 'fight'. His frustration is compounded by referrals to websites which he sees as 'frustrating'.

But there is an underlying question emerging from the data: whether some of these PG students are feeling highly frustrated because there are insufficient/a lack of adequate technical support when they experience DT problems? Could it be that the technology is being perceived to be negative because students lack the knowledge and skills and there isn't the much needed DT support that they can access at the case study university as some of the students are pointing out?

Lack of Support for University Software Programmes

Several software programmes, like 'endnote' and 'Turnitin' are not only introduced at postgraduate level to students but they may also be mandatory for student use in certain programme offerings and failure to master their use has negative repercussions for the progress and through-put of postgraduate students.

Turnitin is well known as a software program for its provision of a similarity index and it's therefore used in detecting levels of plagiarism amongst PG students undertaking research. However, it appears that students' experiences with the software illuminated issues of a lack of academic and technical support for problems that they were experiencing with its introduction and use which has negative repercussions for student through-put. A stark example of this is evident from Ngwane (Honours) who explained how she failed as a result of the lack of support, '*I am disappointed*

because I failed to correct similarities in assignment one as indicated by TURNITIN and then the lecturer did not mark my assignment one. So I could not submit any assignment to TURNITIN because all my submissions had more than 25% similarities even after trying to correct them and I could not get any support even from the lecturer who also referred me to other lecturers or technicians to help as she had a problem with the system as well. I unfairly failed the module because we did not have support in using this system properly as we were using it for the first time'.

Buda questioned the forced use of particular tools and programmes as part of the curriculum: *'I do not understand why we are forced to use online discussion forum and Turnitin'*. In contrast there are students who enjoyed the use of certain tools such as the discussion forum and found value in its use, but again were 'afraid' of other programs. An example of this is evident in Gala's (Honours) comments when he stated *'I was happy because we did not use intimidating technology like chat-room that needs speed typing because I am slow in typing and in reading English words although I have started to enjoy the discussion forum... But at first I was scared of sending my work to the discussion forum thinking that my colleagues were going to laugh at my work. Fortunately they did the opposite because they were all supportive and only have constructive criticisms that are always encouraging which help me to understand myself and my work in a new way'*.

It is evident from Gala's comments that he may not initially have enjoyed digital tools but he has warmed up to the use of the discussion forum. English is his second language (as with many PG other students) which is understandable as the institution is located in KwaZulu-Natal, with Zulu as the most frequently used language and this negatively impacts on his use of particular digital tools using the medium of English. Interestingly, support and critique from his colleagues have assisted him to grow and accept the new technology.

There are times when despite technical support being afforded, students come to a realisation that they haven't achieved success although they have devoted long periods of time. Dino (Honours student) commented *'I feel bad that after battling with citations and references I was forced by my lecturer to consult the university librarians to train me on EndNote but EndNote has many mistakes as well and does not solve all my problems after spending hours on it'*. Once again it is evident that students use negative

terms to express their experiences with DT when technical support is lacking, with Dino (similar to Hlongwa) referring to his use of DT as a '*battle*'.

Multiple Consecutive DT Challenges Stresses Students

Ultimately, students' constant negative experiences with digital technology (given their lack of DT knowledge and skills) and largely without the requisite support results in them feeling stressed, having their confidence wane, not meeting their academic targets/achieving success and contemplating drop-out from their PG studies.

Winnie (honours student) went into despair when she lost her analysis chapter, which she hadn't properly saved on her computer. She stated *'I have never been so stressed in my life. I had to restart my whole chapter 4 (analysis) which took me longer than I had (first) done it'*.

Multiple stresses also had an impact on Taniel who is undertaking a masters-part dissertation. She only responded two months after her previous email to her supervisor and she explained her experiences, *'so sorry for taking so long to reply but faced a few challenges…I have conducted all my interviews and transcribed one but my computer crashed and every file was deleted. Computer store will check if they able to restore files but waiting to get paid as it's really expensive and no guarantee'*. At the construction of this article Taniel had still not responded to several emails (in a three month period) attempting to elicit some response from her on whether she was successful or not in retrieving the data. It can be assumed that she has dropped out from PG study despite having completed all her modules and only having her part dissertation to complete as the final aspect for achieving her masters qualification.

Nobuhle's experiences across the first year of her PG study has been an uphill journey as chronicled early in this section on the findings, which almost culminated in her dropping out of PG study. Other experiences that she explained at the commencement of her study in February 2014 included: *'Im not sure whether Im coming or going,..'*. Later in the proposal stage in March 2014, she experienced plural challenges ranging from: '*the ... problem is the literature…another problem is the student card, cant access research commons* [postgraduate students' computer laboratory], *the gentleman tried to solve the problem but still not sorted'*. Seven months later, she was still

experiencing DT challenges and wrote, *'I don't know if there's something wrong or just me being incapable'* (18 October 2014). Later as she sought help, she commented, '*It has been a very difficult experience which made me feel incompetent. It also made me think of ceasing my studies'*.

Again the negativity in her comments is apparent as is her poor self-concept which is evident in her view of herself as '*incompetent*' because she has experienced several DT challenges in her study.

Discussion

The findings from this study reveal that there are PG students who cannot be classified as belonging to the 'net generation' (and other similar concepts used to describe students *au fait* with digital technology) because these students are not at ease with the integration of digital technology into the curriculum. DT Integration into the curriculum is also challenging as the concept of integration suggests 'ease' and 'facilitation' which is absent (according to these students' experiences) since there is the absence of teachers' knowledge of particular software which is part of the curriculum which then creates challenges for the students when coupled with a lack of technical campus based support. In fact, this sample of PG students are digital technology refugees: these students feel forced to imbibe and use digital technology when they have neither the knowledge nor the skills available to assist them to migrate progressively to meeting their academic targets for successful PG research at university.

PG Students as 'Digital Technology Refugees'

This sampled group of PG students articulated their lack of digital knowledge and skills which negatively impacted on their self-concept and their ability to migrate easily to digital technology. This hinders their progress in the PG programme. This finding of such students suggests an opposite of the evidence presented by scholars who have claimed that students belong to the Millennial generation (Howe & Strauss 1991), Net Generation (Tapscott 1998), are Digital natives (Prensky 2001), Clickerati (Harel-Caperton 2003), Screenagers (Rushkof 2006) etc. because the majority of participating students were younger than thirty years (though of different races and

gender). This further suggests that the biographical constructs of age, gender or race were not distinguishing factors in this sample of PG students when they were expressing their negligible DT knowledge and skills. Interestingly they were all not averse to DT and Gala explained that one has to use digital technologies for a longer period in order to enjoy them.

It was apparent from students' articulations that they were not migrating to DT because they wanted to but rather because they felt impelled to by the programme requirements of PG study. They questioned the use of digital tools and software programmes, largely due to the lack of DT support and bemoaned their multiple negative experiences which stressed them, sometimes leading to their thoughts of drop-out from PG study. They thus cannot be termed 'digital immigrants' because they are a specific cohort of migrants, who feel 'forced to move' to the digital technology world to ensure their survival in a programme. This is evident in their use of words such as 'intimidating, forced, battling' to name a few as descriptions of their experiences with DT use. In migration terminology when a person feels forced to flee to another location as a result of particular circumstances, that is when such a person does not willingly move but feels coerced to do so, he/she is termed a 'refugee'. Refugees have 'a well -founded fear' (Mpedi, Smit & Nyeti 2011:01) and the PG students who were sampled in this study feared failure in their PG studies and not meeting their academic targets due to their lack of DT knowledge and skills and this propelled them into moving to try to embrace and imbibe the necessary DT in order to progress in their studies.

These students are not comfortable in their migration to digital technology mostly due to a lack of technical and academic support in the DT domain when they experience problems. The findings above suggest that students are struggling as a result of limited or the lack of an available support structure for their digital technology woes. Scholars claim that students get motivated and effectively use technologies in their studies if it was properly introduced to them by their facilitators with an effective support system (Jones & Shao 2011; Kolikant 2010; Lorencowicz *et al.* 2014). In this study, there was evidence that the lecturers and the technical support system was lacking in providing assistance to them. Refugees in any country are afforded the services of the host country as deemed by a country's laws and hence this group of 'digital technology refugees' need to be been able to obtain the requisite effective technical support as a service provided to them

for their easy DT integration. In addition, while the lack of a support structure is perceived by most of the students as a negative factor, it can be positive in catapulting students to transform and to start reflecting on their knowledge and skills by identifying specific issues/factors that need to be addressed in order to capacitate themselves. An example of this was evident with Nobuhle and her actively empowering herself. According to Mezirow (1991) the transformation process is good because it promotes deeper learning.

Some of the elements that 'digital technology refugees' found challenging included the activation of student cards, understanding basic computer start –up skills like emailing, saving and the use of an anti-virus. Others related to how the key digital tools and software packages which are mandatory to PG research such as TURNITIN and EndNote, work. This translates into the needs of these PG students so that they can be motivated to continue with their studies and achieve PG success. This indicates that students were challenged by technology in education (TIE) (Percival & Ellington 1988) also known as hard-ware (HW) and soft-ware (SW) (Khoza 2013). Technology in education (hard-ware with soft-ware) is beneficial if users have acquired proper training because it assists in their motivation which is the most important ingredient for successful ICT integration in education, according to Copriady (2014).

Conclusion and Recommendation

In a higher education environment that is foregrounding the 'industrialization of research' (Clare & Sivil 2014:63) with talk of increasing postgraduate through-put and student success, addressing the digital needs of postgraduate students, who may be perceiving themselves as being digital technology deficient, is imperative. The finding of PG students who are digital technology refugees is key to understanding the challenges not only that they as PG students are experiencing but also the challenges facing higher education in South Africa in terms of through-put and drop-out. Australia has long realized that higher education has to again focus on the mentorship and preparation of students for life in a world where digital and emergent technology can be institutional barriers (Johnson 2012) and we need to take a lesson from here for future planning initiatives in PG studies in Higher education in South Africa.

References

Amory, A. 2010. Education Technology and Hidden Ideological Contradictions. *Educational Technology & Society.* 13, 1: 69-79.

Atkinson, R.D. & A.S. Mckay 2007. *Digital Prosperity: Under-standing the Economic Benefits of the Information Technology Revolution*. Washington DC: ITIF.

Amundsen, C. & L. McAlpine 2009. 'Learning Supervision': Trial by Fire. *Innovations in Education and Teaching International* 46, 3: 331-342.

Bozalek, V., D. Ng'ambi & D. Gachago 2013. Transforming Teaching with Emerging Technologies: Implications for Higher Education Institutions. *South African Journal of Higher Education* 27(2):419-436.

Clare, J. & R. Sivil 2014. Autonomy Lost: The Bureacratisation of South African Higher Education. *South African Journal of Higher Education* 28,1: 60-71.

Copriady, J. 2014. Self-Motivation as a Mediator for Teachers' Readiness in Applying ICT in Teaching and Learning. *TOJET: The Turkish Online Journal of Educational Technology* 13, 4: 115-123.

Czerniewicz, L., K. Williams & C. Brown 2009. Students Make a Plan: Understanding Student Agency in Constraining Conditions. *ALT-J. The Association for Learning Technology Journal* 17, 2:75-88.

Gatfield, T. 2005. An Investigation into PhD Supervisory Management Styles: Development of a Dynamic Conceptual Model and its Managerial Implications. *Journal of Higher Education Policy and Management* 27, 3: 311-325

Geertz, C. 1973. Toward an Interpretative Theory of Culture. In *The Interpretation of Cultures*. New York: Basic Books.

Harel-Caperton, I. 2003. Clickerati Kids: Who are they? Available at: http://www.mamamedia.com/areas/grownups/new/21_learning/main.html (Accessed on 14 October 2014.)

Hough, J. & E. Neuland 2013. Web 2.0 Usage in Higher Education in South Africa. *South African Journal of Higher Education* 27, 3: 590-606.

Hough, J. & E. Neuland 2014. Strategic Management and the Use of Information and Communication Technologies by Selected South African and American Students. *South African Journal of Higher Education* 28, 2: 455-465.

Howe, N. & W. Strauss 1991. *Generations: The History of America's Future*.

New York: Quill.

Jones, C. & B. Shao 2011. *The Next Generation and Digital Natives: Implications for Higher Education*. New York: Higher Education Academy.

Khoza, S.B. 2012. Who Helps an Online Facilitator to Learn with Students in a Day? *Mevlana International Journal of Education* 2,2:75-84.

Khoza, S.B. 2013. Can they Change from being Digital Immigrants to Digital Natives? *Progressio* 35,1:54-71.

Khoza, S.B. 2014. Is Chemistry Everything to Engineering Students? Let their Experiences Talk. *South African Journal of Higher Education 28*,2:501-513.

Kolikant, Y.B. 2010. Digital Natives, Better Learners? Students' Beliefs about How the Internet Influenced their Ability to Learn. *Computers in Human Behavior* 26, 2010:1384–1391.

Lorencowicz, E. *et al*. 2014. Application of ICT by Students at Selected Universities in Poland. *TOJET: The Turkish Online Journal of Educational Technology* 13, 4:1-11.

Majid, N.A.A. 2014. Integration of Web 2.0 Tools in Learning a Programming Course. *TOJET: The Turkish Online Journal of Educational Technology* 13, 4: 88-94.

Makoe, M. 2012. Teaching Digital Natives: Identifying Competencies for Mobile Learning Facilitators in Distance Education. *South African Journal of Higher Education* 26, 1: 91-104.

Mezirow, J. 1991. *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass Publishers.

Nyenti, M., M. du Plessis & L.A. Apon 2011. *Access to Social Services for Non-citizens and the Portability of Social Benefits within the Southern African Development Community.* Bloemfontein: Sun Press.

Ozerbas, M.A. & U. Canan 2014. Vocational and Technical Education from the Eyes of an Instructor. *Mevlana International Journal of Education (MIJE)* 4, 2: 12-26.

Percival, F. & H. Ellington 1988. *A Handbook of Educational Technology.* 2nd Edition. London: Kogen Page.

Polzer, T. 2007. Adapting to Changing Legal Frameworks: Mozambican Refugees in South Africa. *Internal Journal of Refugee Law* 19: 22-50.

Prensky, M. 2001. Digital Natives, Digital Immigrants. *On the Horizon* 9, 5: 1–6.

Rand Afrikaans University (RAU) 2002. *Guideline on Academics Ethics.* Johannesburg: RAU.

Rushkof, D. 2006. *Screenagers: Lessons in Chaos from Digital Kids*. Incorporated: Hampton Press.

Scott, I., N. Yeld & J. Hendry 2007. A Case for Improving Teaching and Learning in South African Higher Education. Higher Education Monitor 6: iii-v. Available at: http://www.che.ac.za/documents/d000 155/HE_ Monitor_6_ ITLSOct2007. (Accessed on 1 November 2014.)

Singhal, A. & E.M. Rogers 1999. *Entertainment-Education: A Communication Strategy for Social Change*. New Jersey: Lawrence Erlbaum Associate Publishers.

Srichanyachon, N. 2014. E.F.L Learners' Perceptions of using LMS. *TOJET: The Turkish Online Journal of Educational Technology* 13,4:30-35.

Tapscott, D. 1998. *Growing up Digital: The Rise of the Next Generation*. New York: McGraw-Hill.

Ungerer, M. *et al*. 2013. The Importance of the Changing Demographic Profile on the Success of Postgraduate Accounting Students. *South African Journal of Higher Education* 27,6:1529-1550.

Van Aswegen A. 2009. University Subsidies and UNISA. Available at: http://www.unisa.ac.za/Default.asp?Cmd=ViewcontentandcontentID=11 979. (Accessed on 02 November 2014.)

Van der Merwe, C. & S. Van der Merwe 2009. Student Success: Data Mining Measures what Matters. *Journal for New Generation Sciences* 7,2:284-302.

Simon. B. Khoza
Curriculum Studies & Educational Technology,
School of Education, University of KwaZulu-Natal
khozas@ukzn.ac.za

Sadhana Manik
Social Sciences Cluster, School of Education
University of KwaZulu-Natal
manik@ukzn.ac.za