Online Learning as a Pre-Pandemic Barrier: A Case Study of First-Year Students at a South African University

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Abstract

The use of technology in higher education has been a challenge to some first-year students for some time. Students from different backgrounds find that, once registered at university, the use of computers is compulsory. Computers serve as the primary tool for academic work and for communicating with university stakeholders. However, the ability to use technology should not be taken for granted when students arrive at university for the first time. Many high school learners from disadvantaged backgrounds and schools have not had access to technology or computer literacy as a subject. This presents a challenge when they transition from high school to university. In this context, the purpose of this study was to explore the way in which blended learning may present itself as a learning barrier to some students. In this study, we adopted a mixed-method research design. For this paper, we present only the qualitative data. The data were collected in 2017 through focus group interviews from three different groups, namely, female participants, male participants, and mixed-gender participants. The findings indicate that first-year students who lack computer literacy at the university are from various backgrounds.

Keywords: online learning; computer literacy; first-year students; university

Background

The use of technology in higher education (HE) has been a challenge to some of the first-year students before the Covid-19 pandemic owing to inadequate digital literacies. De Vries (2018) contends that in the twenty-first century there has been an increase in the implementation of technology in educational institutions. Computers and internet-based technologies serve as the primary tool for academic work and for communicating with university stakeholders. Chetty et al. (2018) adds that digital skill goes beyond operating computers and other technological tools because it involves the ability to search, select, process and apply information from a different source in a specific context. However, the ability to use such technologies is not something that can be taken for granted when first-year students transition to the university for the first time. Many high school learners from disadvantaged backgrounds and schools do not have computer
literacy and digital literacies as a subject but they are expected to use computers and internet-based technologies for their academic work when they transition from high school to university (Ertmer et al. 2012).

The most commonly cited reason for the lack of technology implementation in the classroom is inadequate professional development and training from teachers. Most universities are using technology as the strongest factor to shape the educational landscape in the twenty-first century. Mntuyedwa (2020) argues that in most instances first-year students join peer groups at the university to improve their academic work. Students who grew up using computers and related technologies are often at an advantage regarding their learning because they have developed the skills required for using technological resources to enhance their learning. However, students who have not been exposed to any form of technology are often at a disadvantage regarding their learning because they often lack or do not possess sufficient technological skills.

The integration of computer technologies into the first-year curriculum is used as preparation for the outside world. The Department of Higher Education and Training (2012) states that many higher education institutions (HEIs) in attempts to reach this goal of redressing the past educational imbalances and transforming the HE sector opted for the Senate Discretionary Exemption Policy and Recognition of Prior Learning Policy. This refers particularly to previously disadvantaged universities. The future of governments, businesses and society in the Fourth Industrial Revolution driven by information and communication technologies (ICTs) will depend on their ability to embrace digital technologies (World Economic Forum 2016). This statement is supported by Barnett and Finnemore (2012) who claim that it is predictable for HEIs to promote graduate attributes that will assist students in being engaged and responsible citizens and be prepared for the world of work. In addition, Gleason (2018) claims that an accelerated global economy requires employees and thinkers who could respond to the exponential growth and demands of an economy driven by digital technologies. Shahroom and Hussin (2018) contend that it is expected of academics to stay abreast of digital developments that could further assist students when entering the job market. The National Development Plan (NDP) 2030 (National Planning Commission 2013) of South Africa aims to teach every citizen of South Africa digital literacy by 2030.

Problem Statement

We conducted this study to understand the challenges faced by the first-year students at a South Africa university when using the computer. Nash (2009) claims that students’ knowledge of computer literacy from high school is not sufficient to access learning at the university. Furthermore, first-year university students, especially those from disadvantaged schools and socio-economic backgrounds, enter university without adequate digital literacies. In addition, Hofmann (2011) argues that when learning technologies are introduced attention is often paid to the technology implementation while the design of the actual appropriate content is left with too little time and a limited budget to create a successful programme.
During apartheid, different institutions were categorised according to their medium of instruction (Bunting 2006) and, in accordance with the Bantu Education Act of 1953, education was offered separately to create segregation (Ngubane-Mokiwa and Letseka 2015). Lavery (2019) contends that during the apartheid era there was no adequate provision for technology infrastructures and teaching resources in some schools and universities and this has disadvantaged some students who were studying there. Christopher et al. (2018) confirm that university students who come from such underprivileged schools demonstrate inadequate knowledge of information technology because their prior schools lack such technologies and could therefore not expose their students to such technologies before going to university. Odunaike, Olugbara and Ojo (2013) argue that the racial division caused by the apartheid era influences students as they demonstrate a lack of knowledge at the university regarding the use of technology and adequate career guidance.

Bettinger, Boatman and Long (2013) contend that only a third of students graduating from high school are prepared or ready for college-level coursework. In addition, Berrío-Zapata and Rojas (2014) perceive that student background and geographical location play a crucial role in the issue of the digital divide in educational systems. Mikre (2011) argues that the pedagogical activities in academic systems have now been subjected to various technological approaches such as e-learning and blended learning. Some students could not manage the transition from face-face to online learning owing to limited technological skills and lack of resources.

Aim of the Study

The aim of the study was to find a solution to what first-year students regard as challenges when they are registered at the university. The objective was to understand the challenges experienced by the first-year students. From the aim, the following research question was formulated: What are the challenges faced by first-year students when using a computer?

Literature Review

Blended Learning

McGee and Reis (2012, 17) observe that in blended learning quite often “the process of design is emphasized as one of re-design, implying that those involved in the design process are willing and able to see beyond what has been done in the traditional classroom and re-conceptualize what can be done in multiple delivery modes”. In addition, there is no absolute agreement within HE on the exact make-up of a blended course. Generally, institutions use “blended” or related terms to refer to some combination of on-campus class meeting and online activities. Graham, Henrie and Gibbons (2014, 21) concur that “models adopting the combining online and face-to-face instruction definition is the most prominent in the research”. Blended learning is an instructional format that integrates online and face-to-face teaching modalities. Learners
spend part of their learning time interacting face-to-face with their teacher and classmates, and part of their learning time using a computer or portable digital device to access online courses, curricula and other learning resources, by themselves or collaboratively, inside or outside of the classroom. Learning in the two modalities is integrated, complementary and overlapping, where learners have some control over time, place, and pace (Maxwell 2016).

Digital Literacy

UNESCO (2018) states that digital literacy covers the physical operations of digital devices and the software operations in those devices. The UNESCO Institute for Statistics (2011, 1) views digital literacy as a life skill that not only increases employability but also serves as a catalyst that “enables the acquisition of other important life skills”. Brennan and Resnick (2012) and Majgaard and Bertel (2018) state that the concept of digital literacy embraces the critical and reflected use of technology and digital sources, innovative thinking, and personal and societal positioning concerning the role of technology. Brennan and Resnick (2012) and Gee (2013) define digital literacy as predominantly possessing technical competencies and the critical use of social media, the critical assessment of digital sources and application of IT-based tools. This means that digital literacy is the ability to identify and use technology and texts confidently, creatively and critically to meet the demands and challenges of life, learning and work in a digital society.

Digital literacy is therefore a key factor that contributes to students’ success in HE, especially when they are equipped with these skills at the first-year level. Majgaard and Bertel (2018) argue that developing a new way of teaching requires that teachers balance conflicting priorities and when applying teaching technologies, the learning goals obviously have high priority. However, learning only occurs if the students interact correctly with the technology, texts and use the appropriate technology. Peroni and Bartolo (2018) claim that individuals who grew up using technology are referred to as digital natives, whereas those who were not born in the digital era but who are adapting to the technological evolution are referred to as digital immigrants. Bettinger, Boatman and Long (2013) contend that only a third of students graduating from high school are prepared or ready for college-level coursework. Furthermore, Crisp and Delgado (2014) claim that this lack of academic preparedness has resulted in the need for remedial or developmental education at the post-secondary levels.

Underpreparedness

Makoni (2012) suggests that one of the main reasons for failure in the first year or the high student drop-out rates is owing to academic underpreparedness. In addition, Crisp and Delgado (2014) claim that this lack of academic preparedness has resulted in the need for remedial or developmental education at the post-secondary level. According to Hughes, Gibbons and Mynatt (2013), this problem is affecting many undergraduate students, because they lack the basic skills required to handle university-level
coursework. Spaull (2013) points out that educational policy changes in the post-apartheid era and the post-1994 departure of apartheid in South Africa have increased access to education for students from previously disadvantaged population groups. This has not translated into improvements in completion rates for many of the students in HE. Students in HE continue to fall short in achieving academic success within regulated time frames, even though access has improved. In essence, these students were underprepared for the academic rigours of HE and come from poorer school and home backgrounds.

Furthermore, McGhie and Walton (2007, 35) state that the “under-preparedness of students due to the poor South African public schooling system” is one of the main factors affecting the decision to introduce an academic literacy course at the tertiary level. It was also explained that students cannot read comprehensively, write grammatically or fluently, and “argue and engage with texts in a meaningful and critical manner” (McGhie and Walton 2007, 35). Osterholt and Barratt (2012) argue that one of the most important factors leading to the success of the underprepared student is the ways in which a faculty member views and deals with underprepared students in the classroom. This notion is supported by Bettinger, Boatman and Long (2013) who contend that only a third of students graduating from high school are prepared or ready for college-level coursework. Crisp and Delgado (2014) claim that this lack of academic preparedness has resulted in the need for remedial or developmental education at the post-secondary levels. Scheerder, Van Deursen and Van Dijk (2017) believe that digital divide challenges stem from computer anxiety which in turn affects the students’ academic performance.

**Socio-Economic Status**

Ziemba and Becker (2019) indicate that students who use online computer tutorials for computer programming, mathematics and social sciences performed better than their counterparts who do not use such technologies. Spaull (2013) states that South Africa has increased access to education for students from previously disadvantaged population groups and that this has not translated into improvements in completion rates for many of the students in HE. Generally, new technologies have always benefited those with financial capital; those who do not have financial resources will always be left behind. The literature claims that the inequalities sometimes arise from socio-economic statuses, family background and education (Nyahodza and Higgs 2017). Unfortunately, accessibility is highly related to the socio-economic background, and this is where the digital divide begins. Students who come from low socio-economic background develop academic skills lower than those who are from higher socio-economic families (Morgan et al. 2009). Li and Qiu (2018) contend that the impact of socio-economic status can be seen here through the family’s financial support. The human capital theory stresses that the economic resources of a family therefore have an impact on a student’s academic achievements. Student poverty and the lack of sufficient funding have consistently been cited as key reasons for student academic failure and progression difficulties (CHE 2013; Letseka and Maile 2008).
Conceptual Framework

The proposed study will be guided by the new literacies theory. Gee (2013) and Hall (1996) argue that the theory of new literacies emerged in the field of education as a response to the changing world, which has changed dramatically from old capitalism to the new global capitalism. Street (2003) states that “new literacies” are new forms of reading and writing from new technologies for literacy that redefine what it means to become literate in today’s digital world.

Methodology

Research Setting and Data Collection

We conducted the study at the University of the Western Cape (UWC) in South Africa on first-year students who were staying in two residences. The mission was to accommodate diverse students who were registered as first-year students. Demographics of the first-year students brought a better understanding of the different backgrounds at the UWC. We adopted a qualitative approach through a case study research design. Qualitative data were collected from first-year students in 2017 through three focus group interviews each with female participants only, male participants only and participants of mixed gender in two first-year residences. The qualitative data were analysed using thematic analysis.

Data Collection

We collected the data through focus group interviews. Babbie (2013) indicates that a focus group is a group interview of approximately six to twelve individuals who share similar characteristics or common interests. In addition, Babbie and Mouton (2009) and Strydom (2011) argue that the focus group interview has the advantage of involving group members in interactions and exchanges of information, ideas and experiences.

Qualitative Data

For analysing the qualitative data, we used thematic analysis, which is the process of identifying patterns or themes within qualitative data (Clarke and Braun 2013). Thematic analysis is considered the foundational approach to qualitative data analysis (Clarke and Braun 2013).

Ethical Clearance

Concerning ethical considerations, we obtained permission to conduct this research from the ethics committee of the UWC. In a study that involves human subjects, the rights of the targets of the research need to be protected (Polit and Hungler 2013). In this study, ethical issues such as voluntary participation, the confidentiality of information and the anonymity of the participants were taken into account.
Findings and Discussion

The findings of this study indicate that students with little or no exposure to technology before joining the university often face challenges in using the computer for their academic work, which can lead to first-year dropout or failure. These findings are supported by Hill and Lawton (2018) who claim that some students lack prerequisite computer background knowledge such as switching on a computer and how to use the keyboard. Oyedemi and Mogano (2018) argue that most students are challenged when using the computer as they do not know how to insert punctuation marks such as hyphens and forward slashes for particular website names and other functions. This is in line with what Jones and Bridges (2016) called the digital divide concept that includes the “haves” and the “have-nots”. According to Cohron (2015), the “haves” are the individuals who own or have access to information technologies and the “have nots” are the ones who do not have access to technology.

This claim is in line with the findings of Nash (2009) who argues that to manage the use of technology demand students need a general understanding of computer concepts and a range of basic computer skills as first-year students. In addition, the participants reported that the use of a computer was frequently required for their academic work. Makoni (2012) argues that the underpreparedness in HE can be considered one of the factors that can lead to student dropout. (Pierce 2019) supports the findings that first-year students who do not have the background of technological skills before joining the university may not perform well in the use of such technological resources. Consequently, this can affect their academic work. Mukul, Katoch and Chaturvedi (2019) claim that first-year students are expected to know how to use the online learning site and are offered no support in the area of the online learning platform.

Other factors for first-year students dropping out have been emphasised by different scholars such as Letseka, Breier and Visser (2009) who state that many psychosocial factors lead to first-year student dropout. Cohron (2015) argues that the individuals’ skills and access to technology, computers and the Internet in particular, are sometimes determined by their income level, educational level, race, ethnicity and geographical location. The first-year students are encouraged to use technology because the use of technology in education has become a global trend (De Vries 2018). These findings are supported by the new literacies theory that students learn better when they remain relevant with latest technology. Illustrated below are extracts from the different focus groups discussions to present evidence of what first-year students have experienced based on their computer skills.

Focus Group 1

Yoo-hoo, lacking computer literacy at varsity was a huge challenge especially that I was the first generation at home and my high school was not offering any computer lessons for us. I did not know that at the university we were supposed to have it as a skill in order to for our academic work to be done. The assistance you get when you don’t
understand and there is someone next to you whom you can ask to assist. It becomes easier to study and know your work.

I did not know that my academic work was supposed to be typed because all my assignments were handwritten and I was very comfortable with that not knowing that I have to learn how to use a computer as a first-year student, I was so frustrated to here that knowing that I am a slow learner [laughing]. My friend motivated me to use the computer regardless of my fears . . .

**Focus Group 2**

When I arrived at the university I was surprised that they have computer lab that I was expect to book in for my computer lesson and practice. I was very shy to go there alone since I did not have background of computer literacy in high school . . .

I feared to be laughed by others because I haven’t touched a computer, I have only seen it the offices of the teachers at school but have never experience of using it as a person. My roommate was having a laptop where he will teach me of how to use it and allow me to use it in his absence [blushing].

**Focus Group 3**

As a house committee member you were supposed to type and plan meeting and communicate with the management through the use of computer and it was not easy [laughing]. The house committee was mainly to develop my leadership skills which I think I can play a role in working environment and know how to deal with a certain group of people.

To me using computer was not easy while I did have computer lesson at school it was not easy for me to type and minutes and the announcement which we were supposed to send them to our fellow students because my position was required me to do so, Since I have become I member of house committee member, there was nothing that was supposed to be written by hand . . .

For me I would say that you should be open to new experiences because like I mentioned I wasn’t computer literate at all and you know that even your tut you have to type it out, everything that you do, you have to be on the keyboard and know what you doing. So I was open to new experiences and I told myself that I had to finish this year and I don’t know much about this computer thing.

**Conclusion**

In the study, we revealed that most first-year students from disadvantaged backgrounds lack computer literacy and that there are many factors that contribute to this lack of computer literacy. Socio-economic status plays a major role as some students cannot afford such technologies. It has been noted that digital technology plays a vital role in students’ success when they are in their first year at the university. In the study, we confirmed the various reasons for first-year students to use technology to avoid
dropping out. We also indicated that when students have to use the computer for their academic activities, they have anxiety because of their lack of familiarity with how to use the computer. We conclude that first-year students are therefore challenged when having to complete their online assessments, as they are not technologically inclined as a result of their unfamiliarity with the use of technology.

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