Academic Perspectives on the Acquisition of Task-Fit Digital Devices in an Open Distance Learning University: Challenges, Constraints and Hassles

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DOI: https://doi.org/10.36941/jesr-2022-0151

Abstract

There is an increasing awareness of the prominence of the virtual setting environment as education shifted from conventional face-to-face teaching and learning to a blended environment that includes distance education. This phenomenon has also affected how teaching is delivered in Higher education institutions. The purpose of this study was to determine the factors that limit the provision of task-fit digital devices in an Open Distance Learning (ODL) University in South Africa. The article emanates from data collected from a collaborative project by different universities entitled “The dynamics of space and place in Sub-Saharan higher education institutions”. This study deployed qualitative research methodology and data was collected through semi-structured interviews. The Task-Technology Fit model was used as a theoretical framework. The investigation led to several critical findings which were categorised into the following themes: deficient technologies, delayed procurement of digital appliances, supplying used computers to newly appointed academics, negative implications of pedagogical practices and finally, poor ICT support.

Keywords: Digital devices, institution of higher learning, open distance learning, task technology fit digital devices

1. Introduction

The provision of education the world over has evolved, particularly in the form in which it is delivered to students. The traditional mode of delivery is face to face, where lectures were delivered in person by academics in the lecture halls. This practice is still evidenced in many full time universities. This means that students and lecturers are expected to be physically present in the classrooms. Modesto and Gregorieose (2016), Ofole (2018) and Snyman and Van den Berg (2020) note that in ODL there is physical separation between the instructor and the student and technology is used to facilitate teaching and learning. Arko-Achemfuor (2017) asserts that there is an increasing demand and need for continuous learning through the ODL mode that is gaining popularity across the world for diverse reasons, and this is made possible by the advent of ICT. Ahmed, Hussain and Farid (2018) are of the view that ODL is found not only in developed countries but also in those that are developing.

Through distance education, different types of learners are given an opportunity to access education which is offered with the assistance of digital devices. As argued, Higher education institutions (HEIs) previously relied heavily on traditional classroom settings, which are characterised
by lecturer–student face-to-face interaction. The phenomenon of online distance learning (ODL) originated in the nineties (Wallace, 2003) when tuition was first delivered through distance mode in HEIs using ICT. Al Ghamdi, Samarji and Watt (2016) note that there is an increasing awareness of the prominence of the virtual setting environment as education shifts from explicit conventional face-to-face teaching and learning to a blended environment that includes distance education. Singh (n.d) claims that distance education is a cost measure and provides access to education to students from different backgrounds and socio-economic standing.

2. Literature Analysis

2.1 Theorization of the concept open distance learning

Distance education is delivered using an integrated approach and is made easier by varied ICT tools such as media, audio aids, broadcasting, computers, cell phones, smart boards, projectors, LCDs and teleconferencing (Kirkup & Kirkwood, 2005; Kaware & Sain, 2015; Gupta, 2017). Consistent with the above assertions, Martens, Bastiaens and Kirschner (2007) postulate that developments in technology in the past decade have had considerable impact on the distribution of content, learning tasks and assignments in training and distance education. On the contrary, Cox and Marshal (2007) hold the view that there is little evidence of the ways in which a wide range of ICT-based instructional and curricular plans affect student learning. Similarly, Karamti (2016) and Gamage and Tanwar (2018) assert that recently several authors have stated that the expectations created around the impact of ICT in the educational context have not been satisfactorily fulfilled.

Through the medium of online tutoring, students are able to receive tuition in their preferred environments such as their homes and offices. Despite the escalating costs involved in building online platforms, training personnel, developing online-friendly curricula and purchasing software and computers, e-learning is aggressively embedded within learning models worldwide. Barr and Miller (2013) contend that online learning institutions are on a drive to embed an extensive variety of technologically based learning platforms, delivery methods and educational technology components into the learning setting.

For these reasons, academic staff or lecturers must be provided with the relevant technological devices in their attempts to deliver tuition to students. The efficient provision of ICT is critical to academics in the successful delivery of the academic calendar and agenda. During the time of COVID-19 it is even more critical because most academics (if not all) worked (some still working) from the comfort of their homes. When these academics are provided with fit for purpose digital devices such as computers and printers, they are able to teach without constraints. On the other hand, the absence or inadequate provision of these resources constrains the academic project. The challenge that academics face is the provision of enabling ICT to ensure that teaching takes place effectively. The purpose of this study was to determine the factors that constrain the provision of task-fit digital devices in an ODL context in South Africa.

Ngubane-Mokiwa (2017) asserts that ODL is characterised by the use of new Web 2.0 tools that allow more interaction between the lecturer and the students, the students and the learning environment, fellow students, and the students and the institutions with which they are affiliated. By their very nature, ODL institutions provide educational opportunities to mature non-traditional working students who are often unable to access higher education in full-time, contact and campus-based institutions.

2.2 A digitally driven open distance education

García-Peñalvo (2021) posits that technology shifts in Higher Education enable new educational and operating models and transform an institution’s operations, strategic direction and value propositions. ICT is essential in curriculum delivery, particularly in ODL mode. For this reason,
Ahmed, Hussain and Farid (2018) believe that “the revolution in technology has led to new approaches towards open and distance learning, particularly in the form of e-learning which is responsible for governing the system of modern education by using ICT”. Sallai (2012) identifies two vital categories of ICT, namely ICT for education and ICT in education. For this author, ICT for education is designed for teaching and learning purposes and ICT in education is the general components of ICT used in the teaching–learning process.

Thus, providing ICT tools to academic staff helps them execute their duties with confidence and commitment. This also motivates them in their support of ODL students, who rely mostly on their lecturers as they are isolated from one another. ICT includes a variety of technological resources and has two components: Information and Communication Infrastructure (ICI) which refers to physical telecommunications systems and networks (cellular, broadcast, cable, satellite, postal) and the services that use them (internet, voice, mail, radio and television), and Information Technology (IT) which refers to the hardware and software of information collection, storage, processing and presentation (Sarkar, 2012).

ICT has for some time been a critical factor in the ODL space for both developed and developing countries (Isuku, 2018). Without enabling ICT infrastructure, it is very difficult for HEIs to deliver distance education to students. For this reason, Isuku (2018) asserts that ODL requires ICT infrastructure to effectively provide learning opportunities to students who are not in the conventional schooling system. The introduction of ICT use, integration and diffusion has initiated a new age in educational methodologies and radically changed traditional methods of teaching and learning patterns in the domain, as well as offering contemporary learning experiences to both instructors and students (Ololube, Ubogu & Ossasi, 2007). On another note, Barr and Miller (2013:2) emphasise that “the emergence of modern technology has allowed students at all levels, young and mature, the opportunity to participate in advancing their education in an environment that is diversified, rich in best practices, yet progressive enough to allow students to proceed in a self-paced manner”. Through ICT, teaching and learning in higher education was developed further and this created access for those individuals, especially adults, who were previously unable to study. Consistent with this view, Trivella (2017) notes that ICT is the main factor upon which ODL bases its development as an alternative way of learning, mainly for adults.

2.3 Digital challenges in open distance education

ICT not only gained popularity in higher education, but also presented challenges on many fronts. Academics in HEIs face multiple challenges in the use of ICT; this article identifies digital access and digital proficiency in particular. These constraints limit the ability of academics to ensure that the academic agenda is executed. The first challenge is digital access. Research has found that institutions pose a challenge to academics by not providing digital devices such as computers on time; sometimes they are not provided at all. Wilkens et al (2021) maintain that HEIs have the responsibility to provide accessible ICT. Often what staff do receive are old computers and other ICT tools. This has negative implications for the work of academics. The provision of efficient ICT devices enhances teaching (Selwyn, 2010) and not only assists academics to teach effectively but also helps students solve complex situations and problems.

The second constraint and challenge identified in higher education is digital proficiency. The focus on digital competence continues to grow in popularity in higher education (Yu Zhao, Pinto Llorente, and Gomez (2021)). The concept of digital competence can be defined as a set of abilities to use technology to optimize daily lives effectively (Yu Zhao, Pinto Llorente, and Gomez, (2021)). Academics face the challenges of acquiring technology skills for the purposes of teaching (Islam, Beer & Slack, 2015). It is not enough to provide academics with digital resources if they do not have the proficiency to use them. To do this, digital self-efficacy is critical. Computer self-efficacy is the degree to which an individual can perform a specific task/job using a computer (Agarwal, Sambamurthy & Stair, 2000). Martin (2002) argues that digital literacy contributes to self-efficacy in ODL education.
and teaching outcomes. Further, Martin (2006) describes digital literacy as an individual’s ability to use the internet to achieve outcomes.

3. Theoretical Orientation of the Study

In this study, the Task-Technology Fit model was used as a theoretical lens. The Task-Technology Fit (TTF) model was developed by Goodhue and Thompson (1995). This theory explored the impact of ICT on performance. Further, Wu and Chen (2017) focused on the relationship between the technology characteristics and the task conducted. According to this model, the technology should fit the functions that employees fulfil. Put simply, the technologies that are deployed in an organisation should enable performance and not constrain it. Consistent with this assertion, El Said (2015) postulates that both task and technology characteristics should affect the TTF, which in turn determines users’ use of technology and their task performance. The provision of ICT by HEIs should enhance the functions of academics. The devices should be fit for purpose and be delivered to academics immediately after appointment. Goodhue and Thompson (1995) identify and explain the following critical concepts of the theory which are apposite to this study, namely:

- **Technology**: tools used by individuals in carrying out their tasks. In the context of information systems research, technology refers to computer systems and user support services provided to assist users in their tasks.
- **Tasks**: the actions carried out by individuals in turning inputs into outputs.
- **TTF**: the degree to which a technology assists an individual to perform his or her portfolio of tasks.
- **Use**: employing the technology to complete tasks. Measures such as the frequency of use or the diversity of applications employed must be used.
- **Performance**: the accomplishment of a portfolio of tasks by an individual. Higher performance implies some mix of improved efficiency, improved effectiveness and/or higher quality.

The TTF model suggests that users will give higher evaluations based not only on technology characteristics, but also on the extent to which that technology meets users’ task needs and their individual abilities (i.e., task-technology fit).

4. Methodological Account

For the researcher to be able to investigate the problem, this study deployed qualitative research approach which was within the interpretative paradigm. McMillan and Schumacher (2006) are of the view that qualitative studies are helpful when the researcher wants to have an understanding of a human phenomenon. This approach enabled the researcher to understand the experiences of the participants and in this case academics. McMillan and Schumacher (2006) posit that interactive qualitative inquiry is an in-depth study using face-to-face techniques to collect data from people in their natural settings. Using Cohen, Manion and Morrison’s (2005) views on sampling, I selected academics who provided rich data to enhance the quality of research. In doing that, I selected ten lecturers in an ODL institution. The criteria for the selection were several characteristics: a mix of gender and academics (three women and seven men) who had been not less than five years uninterrupted service in the sampled institution. Permission to conduct the research was given by the university ethics committee. The choice of data collection strategies is vital in the research process, and it is at the heart of the research process. The inappropriate choice of data collection techniques invalidates the study and makes the research outcomes unreliable. Data was collected through semi-structured interviews and the academics provided the information rich data. I also took field notes during the interviews. I applied the measures of trustworthiness through various strategies such as prolonged interaction, member checking and the recording of the interview sessions. Further, I
ensured that unsupported deductions were avoided. The researcher ensured that the participants confirmed data by sharing interview transcriptions with the participants after the interviews. Paton (2016) describes data analysis as a very long and logical process of organising, structuring and making sense of the vast amount of data collected by a researcher. This process was carefully conducted and my positionality as a researcher did not affect the analysis of data. During analysis, the data was used to construct rich understanding of factors that constrain the provision of fit-for-purpose digital devices to academics.

5. The Study Findings

Several themes emerged from the process of rigorous data analysis and synthesis. These emerged themes were presented thematically using descriptive analysis. The perceptions of the participants were captured verbatim, and the following important themes were identified:

- Deficient technological devices
- Poor ICT support
- Negative implications of pedagogical practices
- Delayed ICT tools procurement and supply of used computers to newly appointed academics

5.1 Deficient technological devices

As argued previously, the provision of fit-for-purpose technological devices to academics is very important in enabling the execution of their pedagogical practices. In this study, “technological devices” are items but not limited computers, laptops, docking stations and printers. These are basic hardware (technological tools of the trade) that every staff member employed at a university needs. This applies particularly to an ODL context because tuition is provided through distance mode. In this study, most participants lamented the quality of the technological tools provided by the institution in which they are employed. One participant said:

“"The technology is just a problem. Number one, you know working at this institution, because we work with so many students, we need equipment that are intact".

Printers are essential for academics to carry out their duties. A number of participants felt that in this regard they are taken for granted by their employer. All the participants said that they were not provided with portable and personal/individual printers; instead, they used printers that are strategically placed for use by several academics. One academic remonstrated that:

“We struggle with printers. Imagine the whole of Building 10 without a proper functioning printer. Even at main campus, it’s just a struggle. Printers are white elephants that are not functioning. I think management must do something about these issues. With the docking station, it is used to work but now it stopped working”.

This participant further expressed his view as follows:

“"ICT in its entirety. I mean this is an ODL institution. Why are we struggling so much with ICT and including printers? The credibility of our practices is at stake because of utter incompetence at some levels.”

Expressing similar frustrations, another academic expostulated:

“I remember my docking station was not working. It took a long time to fix it. Because I
insisted, calling them every week until I got this right guy who came to fix it. So sometimes it’s difficult to use it.”

5.2 Questionable support and delayed turnaround time from the ICT support division

The ICT department developed a communication protocol wherein academics must log a call by either e-mail or phone; they then receive a reference number to prove that they will be attended to. The participants were scathing about the technical support they received from the ICT department, and most were dissatisfied. Here is how one academic echoed her frustrations:

“You know sometimes logging a call with ICT is a nightmare. Again, the university got rid of foreigners who were so helpful regarding technical support. Some of the services at ICT are just not of quality you know. There needs to be a little jerk up to the support provided to the academics”

Taking this argument to the next level, this academic noted staff incompetence as one of the challenges they face. The views were expressed as follows:

“There is a need to increase the number of ICT skilled personnel. One of the lack of quality support is due to the status of these guys. Most of them are contracted and their stay here is not guaranteed. So they do not have much encouragement as their job is always on the ice. I think ICT is like petrol to the car, because without gasoline, there is no movement. So without highly skilled ICT people, there is no quality performance by academics”.

In addition, other participants complained about how long it took to receive assistance, which affects their performance. One said:

“I think once I have logged a call for technical assistance, ICT must have a turnaround time to assist me. We are reliant on ICT, if it is a problem, we cannot be efficient. My responsibility is to report and in turn, I have to be assisted’ and the assistance must be as of yesterday because delays is affecting a student who is far from the university and cannot walk and see the lecturer.”

5.3 Negative implications of pedagogical practices

The findings indicate that inadequate provision of ICT tools to academics constrains pedagogical performance because the tools are not fit for purpose. This position was maintained by one of the participants:

‘Ok, where things are not really coming together, it is always my responsibility to make sure that I work. So whether I get support or not, work must still be done. Because our situation and the ICT must be strong for a successful and fruitful work experience. The fact that I am in control of my own work makes me to realise that my success is in my hands. But honestly, it can’t be if things are not made available for us to succeed in our work. So the people who must make sure that ICT is ok and that our work situation is good must do their work. What I am trying to say is that these delays in giving us technical support and gadgets that are not up to standard, they influence my work, I try my best but really my efforts are affected big time”.

5.4 Delayed ICT tools procurement and supply of used computers to newly appointed academics

The appointment of new staff is a continuous human resource process in any organisation. The human resource division should budget so that by the time vacancies are advertised, fit-for-purpose devices should have been purchased for the newly appointed staff members. This is standard practice. Most participants indicated that when they were appointed it took close to six months before they were provided with important ICT tools, particularly computers and printers. One indicated that she was asked to use her own computer and was not even given any financial assistance for doing this:
“It is bad really. ICT I had to wait for a laptop for about six months. They said I should use mine. This is inappropriate. The printers are not working. We struggle with printing. When a call is logged, ICT takes their time. I think they must just replace these printers. The Chair of Department must do her work and write motivation. You know the printer is personal, so I did not even ask. I was also told when I tried login in that it is personal, regardless of the fact that it was used for work purposes am still waiting for it up to now. So you just end up giving up. If you don’t have money to buy resources you need, you just give up”.

Another challenge participant mentioned is that they received used computers when they were appointed:

“Okay, this gadget, when I was given this gadget it was not new, it was used by somebody previously. Then I tried to get a new one, because it is giving me problems, they said they can only fix it for now until it is ready to be replaced, but for now, it is only the maintenance. That is when I then resorted to using mine temporarily”.

Contrary to all these challenges cited by the academics above, there was one academic who painted a positive picture of the situation. She intimated that she was lucky to be provided with a fit-for-purpose computer within the first three days of her appointment.

“Luckily with me, I got the laptop within three days from my arrival at work.”

6. Discussion

This study investigated the constraining factors in the provision of task technological fit devices to academics in an ODL environment. The findings of the study portray a very disturbing picture of the provision of these important tools to academic staff members. The reflections of the participants indicate that the academic project faces a challenge as it is very difficult to deliver when the tools of trade are deficient and questionable. For an example, if basic equipment such as printers and computers are not provided on time, this defeats the purposes and the mission of the case under investigation. It can further be argued that provision of ICT devices by the university in which these participants work negates the principles of the TTF model developed by Goodhue and Thompson (1995). The academics lament the fact that they are provided with deficient technological devices, which has serious implications for their performance and may lead to poor learning outcomes. As Wu and Chen (2017) argue, there is no match between the tasks academics do and the technological characteristics.

Technical support for the academics is critical because they are not specialists in technology. Nawaz and Qureshi (2010) posit that ICT tools in HEIs are sophisticated and therefore demand technical expertise for their effective use. It is of great benefit for employees to receive technical support, and HEIs must ensure that technical departments are occupied by well-trained ICT professionals who must consistently maintain and upgrade the infrastructure, train the users and continuously provide technical support when required (Nawaz & Qureshi, 2010). Academics are employed to teach and nothing else. They should receive maximum technical support to enable them to teach and support students without disruption. Consistent with this argument, Gray, Ryan and Coulon (2003) maintain that the success of eLearning projects is often dependent on the skills and quality of the technical support provided to end-users.

ICT’s benefits to higher education have been well documented by a number of researchers. ICT is meant to make teaching and learning easier and help to reach as many students as possible. Lakkala and Ilomäki (2015) and Almerich et al (2016) posit that ICT is critical in the pedagogical practices of academics. Supporting these views, Livingstone (2012) and Trivella (2017) maintain that the promise of the internet is that it enables most or all technologies that enhance learning. It can be deduced that failure to provide fit-for-task devices has a negative impact on the pedagogical practices...
of academics, which in turn results in poor learner performance. The theory of TTF espoused by Goodhue (1995) promotes providing technology which helps enhance the work of academics. In this case, the findings suggest the practice at the institution under study goes against the theory and that the technology provided does not enhance higher performance or improve practice, effectiveness and quality. The TTF model suggests that users will give high evaluations based on technology characteristics and the extent to which that technology meets users’ task needs and their individual abilities. The views of the participants suggest that these conditions are not met.

7. Conclusion

This study sought to explore the views of academics on the provision of fit-for-purpose ICT tools to use in their academic work. Relevant literature on the use and benefits of ICT in ODL contexts was explored and discussed. This study was qualitative in nature and the researcher engaged cademic lecturers in semi-structured interviews. To frame the study, the Technology Task Fit model of Goodhue was used as a theoretical lens. The investigation led to a number of findings which were categorised into themes, namely: deficient technologies, delayed ICT tool procurement and supply of used computers to newly appointed academics, negative implications for pedagogical practices and poor ICT support. The results of this study added to the body of knowledge insights because an emphasis was made on the critical importance of the provision of fit for purpose technological tools for academics.

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