CREATING CONDITIONS FOR STUDENT SUCCESS

**Social justice
perspectives from a
South African university**

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"I HAVE A VOICE!"

DESIGNING EMPOWERING LEARNING EXPERIENCES FOR ADULT LEARNERS IN A BLENDED LEARNING PROGRAMME

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INTRODUCTION

Adult learners enter higher education (HE) with a wealth of experience, emotional intelligence, ethical understanding and cultural literacy with which the curriculum and the design of programme offerings are not necessarily congruent (Viljoen 2018). This was the experience of students in the postgraduate diploma in Nursing Education (PGDipNE) offered by the Department of Nursing and Midwifery at the Faculty of Medicine and Health Sciences (FMHS) of Stellenbosch University (SU). In order to attract a wider range of adult learners, a blended learning approach, consisting of a combination of block contact and online learning, was adopted for the PGDipNE (Crowley 2017). However, low throughput and completion rates and a lack of student engagement were causes for concern which necessitated an examination of the challenges that adult learners with varying levels of prior exposure to information and communications technology (ICT) experience in a blended learning environment (Fürost 2018).

Effective education of nurse educators is critical to enhancing the development of student nurses and, in doing so, improving the quality of patient care (Breier, Wildschut & Mgqolozana 2009; Meyer & Van Niekerk 2008:8). Nurse educators' levels of competency, knowledge and attitudes will either promote or discourage learning, thereby directly influencing the personal, professional and academic development of nursing students (Blaauw, Ditlopo & Rispel 2014; Bruce, Klopper & Mellish 2011:107; Mekwa 2000).

The main aims of the research were to identify the challenges that adult learners experience with the use of technology in a blended learning environment and to investigate ways in which more empowering learning experiences could be designed for effective learning to occur. Educational design research (EDR) was used as a

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methodology to investigate, design, implement and integrate a series of programme interventions. The results of this study are presented in this chapter.

‘LOST VOICES’: ADULT LEARNERS AS NEW KNOWLEDGE MARKETS FOR HIGHER EDUCATION

Across the globe, countries are demanding a more educated and skilled workforce (OECD 2012). While the nature of work is continuously changing, some authors argue that the role of the student is changing too (Barber, Donnelly & Rizvi 2013), with a growing demand for lifelong learning opportunities (Qalehsari, Khaghanizadeh & Ebadi 2017). The reality that higher education institutions (HEIs) are facing is an increase of access for a broader segment of the population from diverse socio-economic circumstances and cultural and educational backgrounds demanding flexible programme offerings to cater for their diverse needs (Buchler, Castle, Osman & Walters 2007; Fisher & Scott 2011; Viljoen 2018). Amongst this diversity of students, adult learners are becoming increasingly prominent.

Adult learners are characterised as being older, having delayed their post-secondary enrolment, and preferring part-time attendance in order to work while studying (Schreyer Institute of Teaching Excellence 2007). Adult learners also require a different mode of delivery from full-time contact teaching and learning due to factors like work and family commitments (Buchler et al. 2007; Schreyer Institute of Teaching Excellence 2007). The use of digital technologies that enable flexible modes of teaching and learning can address adult learners’ unique needs (Grajek & Reinitz 2019). Technology thus affords innovative and creative ways of designing and delivering course content that can cater for the diverse needs of adult learners (Grajek et al. 2020).

Yet, the ‘voices’ embodying the needs, circumstances and characteristics of adult learners are often lost in HEIs’ exploration of these new knowledge markets. My study (Davidse 2020) found that when a blended learning approach was adopted for the PGDipNE programme, no changes to the programme structure or course content were made. Whereas the students expected a programme that would be accommodating their particular needs and circumstances in the form of, inter alia, online educational resources and support, the lecturers were driven by their own teaching philosophies (Fürst 2018), had little to no interaction with the students and limited interest in integrating technology into their modules (Fürst & Hugo 2018). The lack of interaction resulted in students feeling overlooked, a programme design that they found confusing and a learning experience that they found wanting. Learning experiences should be supported by a learning design framework that directs the

choices about what, when, where and how to teach (Smart Sparrow 2018) – in this case such a common learning design framework was lacking. Furthermore, Laurillard (2012:2) argues that “technology has much to offer, but it is up to the academic teaching community to define and defend the role technology should play”. She argues that educators must lead technology development by using their knowledge of what technology can offer, and so gain confidence in the use of technology to go beyond mere awareness to full exploitation (Laurillard 2012:2). This too was not evident in the PGDipNE.

Advancements in ICT take place at a rapid pace. As devices (computers, laptops, tablets, smartphones) are updated and enhanced, the software that communicates with the device and allows other programmes to run, known as the operating system, is also updated (Christensson 2016). Every update of the operating system implies new features that have to be learnt by the user community. As an engineer and technologist, and in this case as the researcher, I have often been confronted with the sluggish pace of adoption of ICT in the HE environment, the rapid pace at which devices or software applications are released into the market, and the diversity of technology needs across an institution like SU.

Diverse technology needs are often driven by the requirements, at a certain point in time, of the lecturer, division or faculty, the delivery mode of a programme, the portfolio of the students who enrol, the availability of the applicable software or a new academic appointment who challenges the status quo. The situated context of an institution has a significant effect on its strategic priorities and how those strategic initiatives are supported. In many HEIs, blended learning approaches have been adopted without academic staff necessarily understanding how educational technologies could be applied to the educational setting or how this would affect the design of the learning resources (Laurillard 2012).

In the case of the PGDipNE, a blended learning approach was adopted to widen programme participation, but only then did it become clear that the lecturers needed additional knowledge, skills and resources to assist students with the use of technology. Even though computer literacy is a prerequisite for admission to the programme, the lecturers and administrator of the PGDipNE had no assessment mechanism in place to test or evaluate the digital literacy skills of prospective students (Crowley 2017). The lack of a mechanism to test the digital literacy skills of the students implied that students were accepted for the programme, but lecturers were not sure whether the students would actually be able to cope with the blended learning approach and practices (Fürst 2018). The lecturers commenced with the teaching and learning process with limited information about what the students wanted to

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achieve in selecting the programme. This gap between lecturers' intentions and students' expectations (Fürst 2018) positioned the study for interpretation through the lens of the capabilities approach. The capabilities approach requires the evaluation of the real opportunities that each student should have to choose and achieve what they value (Unterhalter 2009:218).

THE STUDY

The chapter reports on a study in which the collaborative nature of EDR assisted me, over a period of two years, in developing a better understanding of the challenges adult learners face with the use of technology in teaching and learning. In order to create a controlled setting for the study, I purposively selected a programme that had adopted a blended learning approach, had a combination of block contact and online learning, and a student population who were mostly adult learners and were diversified in terms of their experience in the use of technology in learning and teaching.

EDR is conducted in the 'messiness' of a real-world setting and involves several complex variables (Collins 1999). This messiness of the real-world educational setting, the fact that the researcher does not work with research subjects but with research participants, and that the researcher incorporates this shared expertise into a practical intervention, sets EDR apart from other kinds of research (Barab & Squire 2004). Although EDR exhibits some similarities to action research, such as the identification of real world problems associated with subsequent actions to improve the situation, there are also distinct differences between the two methodologies (Reeves, Herrington & Oliver 2005). Like action research, one of the major goals of EDR is to develop and test a prototype or intervention to address a particular practical need. However, EDR goes further than seeking solutions to practical problems by also identifying generalisable design principles that others may apply in other contexts (Reeves, Herrington & Oliver 2005). Plomp (2010:9) defines EDR as "a systematic study of designing, developing and evaluating educational interventions as solutions, which aims at advancing our knowledge about the characteristics of these interventions and the process to design and develop them". EDR has various functions that should echo the type of research question to be answered, namely to describe, to compare, to evaluate, to explain or to predict, and to design and develop (Plomp 2010). In this study, EDR was used as a methodology to investigate, design, implement and integrate a series of interventions to improve the learning experiences of adult learners in a blended learning environment, and to then identify generalisable design principles from the investigation.

The Integrative Learning Design Framework (ILDF) was used as the guiding framework for the research design. The ILDF consists of four phases: 1) Informed exploration; 2) Enactment; 3) Evaluation: local impact; and 4) Evaluation: broader impact (Bannan 2010:54). Each phase is informed by the results of the previous phase, which necessitates the integration of systematic processes that combine the best of design research and the diffusion of educational innovations (Bannan 2010:53). Within a technology-based intervention, the focus is placed on the effort to improve the technology system because the “emphasis [is] on the learning that can result in the context and activity of design” (Bannan 2010:55).

The fact that each phase provides input or feedback to the next phase contributes to the articulated improvement of every phase. The impact of any changes as collected during the iterative cycles must be considered across the entire scope of the research from initiation to implementation and adoption (Bannan-Ritland 2003). The significance of ILDF lies in the learning that occurs because of the data generated during each phase as the context of the environment is understood, applied and refined during these cycles (Bannan 2010). The repetition in the cycles of operation between the phases not only assists in improving the design of the intervention, but also contributes to a deeper understanding of all the variables that influence the educational practices (Bannan 2010).

Multiple data collection methods were employed. In the first phase, unstructured interviews were conducted with the programme coordinator, the programme administrator and the lecturers to understand what the underlying issues were as this helped with the problem identification. The findings from the problem identification were used as input for the student survey in the form of an online questionnaire to identify their current level of exposure to technology and to determine their digital literacy levels. The questionnaire was designed after reviewing testing procedures from various training institutions and reviewing the existing digital training resources of the Nursing Division. The questionnaire was distributed to 77 participants of whom 39% responded. The survey was followed up with focus group discussions with students to add richness to the needs analysis and to verify the survey data. The focus group, which consisted of 36 students, was divided into 10 smaller groups of three to four participants per group. One of the members in each group acted as a scribe and technical staff assisted with graphic illustrations to capture the gist of the small group discussions.

The research was conducted in collaboration with the programme coordinator for the PGDipNE, the programme administrator, the lecturers, the students, and the system administrators through a process of iterative cycles of intervention in the

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current educational setting. Students in the PGDipNE are adult learners (Spies, Seale & Botma 2015) in the age group of 25-58 years with attributes such as financial independence, full-time employment, having dependants and studying part-time (Kenner & Weinerman 2011:87-88). Another notable characteristic is that 50% of the students had not previously studied at SU, but registered at this institution for the first time in 2018 (Kleinhans 2018). This means that 50% of the students had a qualification or qualifications from other institutions.

Ethical clearance and institutional permission for the study were granted by the appropriate research ethics committee and the Division for Institutional Research and Planning respectively.

In the following sections the variables that influenced the adult learners are highlighted with reference to the shortcomings in the social arrangements – in the language of the capabilities approach (Unterhalter 2009) – and what the adult learners did not find at the university. The findings are supported by the expectations of the adult learners, the enhancements to address the adult learners' expectations, and the adult learners' feedback after the enhancements and interventions were evaluated.

FINDINGS

From the data gathered in the informed exploration phase I arrived at findings on shortcomings in the social arrangements of the institution and on what the adult learners expected from technology in teaching and learning.

Shortcomings in the social arrangements

Amongst other things, the social value of education is articulated in the capabilities approach (Unterhalter 2009). Central to the capabilities approach is the notion of social arrangements that aim to expand people's capabilities – their freedom to promote or achieve 'functionings' which are valuable to them (Walker 2009). Functionings are defined as "the various things a person may value doing or being" (Sen 1999:75). In this study, what the students valued doing or being was taken for granted, depriving the students of their agency to negotiate the social context within the university. Their use of technology for social purposes created excitement amongst students about the possibilities of technology in teaching and learning and they looked forward to experiencing what technology could offer when incorporated in a blended learning environment. They expected the integration of technology to be intuitive, user friendly, engaging, adding value to the context they found themselves in, and creating a personalised learning environment for each one of them. However,

they were disillusioned with the educational practices in the educational setting and failed to see how technology added value to the programme.

Even before entering the campus, the culture and norms of the university and what the institution valued were made clear in a welcome letter (Fürst 2018) which many participants felt failed to address the context and needs of prospective students who came from different training institutions and social contexts. One of the participants explained:

You receive a general letter welcoming you to Stellenbosch University that makes assumptions about your understanding about the university and mentioning so many terms that is familiar to Stellenbosch University students. I am not sure what they use because the letter refers to 'SUNLearn' as if I am a returning student at this university. I am not sure what an interactive telematics session is, what the e-learning platform 'Virtual Nurse' is?

Another student mentioned a gap between the information communicated in the welcome letter and the reality when she arrived on campus: "There is no integrated view of my academic portfolio or a useful resource that assisted with the orientation of the PGDipNE." One of the other students shared that "when you finally learn what SUNLearn is, understanding how to get to it is even worse because just finding information on SUNLearn is a nightmare. We don't have months to find our way through a platform that is not organised". Another student added:

There is no computer literacy training for students, especially older students who are not tech savvy. If the only way of connecting to the students are through the use of technology, it can be very costly and if students have no way of connecting to the platform, they don't have access to their study material.

Several students expressed disappointment at what they perceived as the lack of involvement from lecturers. Their shared view was that the current format of SUNLearn did not encourage collaboration nor the ability to have online discussions or chats to engage with the lecturers. These students were disillusioned by the reality of the situation, with one commenting that "you walk into the contact session expecting an engaging environment but what you find is a traditional lecture hall layout with death by PowerPoint". Yet another student added: "[T]he use of technology is encouraged but access to the Wi-Fi is limited, registering for Wi-Fi is even more difficult and expensive and if the lecturer does not know how to use the technology in the correct manner and if the technology fails there is no backup plan." This response was supported by a student stating: "I fail to see how technology is really applied in this

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programme. I don't need any training to use any of my social media platforms but with SUNLearn you need a manual just to understand how to log in."

Adult students' expectations of technology in teaching and learning

Most of the participants felt that technology should be "fast, simplistic, economical and convenient". One group expressed their experience as follows:

In all honesty, it takes months to work through everything that is just dumped on the platform. You browse from one module to [the] next and it feels like you are in a different programme because there is no structure or consistency between the modules of the programme. We don't have months to understand how to use the platform and it is easier not to use the platform.

One of the participants shared similar opinions about SUNLearn, stating that "the front page is far too cluttered with unnecessary information. You should use soft colours, clear guidelines, there are too many columns and have one page that gives an overview". Participants agreed that the programme did not accommodate distance learners, there was a lack of awareness about how poor infrastructure could affect access to learning resources, and the format of the podcasts made them too time-consuming to download. The consensus was that technology is important for a programme with a combination of block contact and online learning but then technology should be used and applied to accommodate the delivery mode.

The overwhelming majority of the participants accentuated how technology can be used for professional development, as indicated below:

Technology can be used as a starting point for self-directed learning but that means understanding the skills you require in your field of study. The programme should have interaction with the community for job opportunities or skills required for industry.

For these students, it was not only critical that technology should be integrated in their teaching and learning, but also that it would contribute to the skills development for their professional development:

It is important that our presentation skills as lecturers/nurse educator are upskilled, [with the] ability to collect data from the computer [and to] disseminate the data needed as an educator. We are unaware of any specific limits if technology is applied and used appropriately and that has been proven by how social media apps are developed.

It became evident that the students, as adult learners, were clear about their goals and their expectations of technology. Furthermore, their expectations were not limited to the PGDipNE but extended to how they would be able to collaborate in professional

development communities, for example, “communication with employers and colleagues, job hunting in terms of advertising and applying, administration for statistical purposes or planning, in-service training and ability to perform diagnostic investigations”.

There was agreement amongst the participants that technology is part of their being (social life, student life and careers) and only varies in how it is used. This conviction was articulated as follows: “Call it by any name – computer literate, digital literate, even play around with terminology. The fact remains: irrespective of distance, connectivity is important; relevance to the field of study and an absolute must is the appropriate use of technology.”

Design, enactment and testing of the interventions

Following on the informed exploration of Phase 1, I could proceed with the design and enactment of various interventions to address the students’ concerns. The series of interventions included a digital literacy course that was designed in a shareable content object reference model (SCORM) as part of the programme, but which could also be used as a standalone course. Even though the programme coordinators and lecturers identified low levels of *computer* literacy as the problem, an in-depth literature review of health professions education and especially nursing education identified *digital* literacy as one of the required core competencies. Digital literacy is defined as the ability to use ICT to find, understand, evaluate, create and communicate digital information. The digital literacy course was aimed not only at facilitating the students’ learning, but also preparing them for the future workplace. Secondly, a procedural guideline for the course structure with design principles that considered the target student population was developed. The third intervention was a generic template for course content to assist the lecturers with the redesign of their modules. Lastly, using multimedia principles, I developed an exemplar for the Didactics module.

The digital literacy intervention involved formative evaluation through gathering information in the early stages (self-evaluation, one-to-one evaluation/walk-through) as well as small-group evaluation aimed at testing the practicality and effectiveness of the intervention (Tessmer 1993). The four interventions were further strengthened by using alpha, beta and gamma testing (McKenney & Reeves 2012:137-138):

- Alpha testing is about the early assessment of design ideas (McKenny & Reeves 2012:137). As part of the alpha testing stage the detailed design specifications are verified in terms of functionality. The goal of the test is to collect data to check the soundness and feasibility of the design. The soundness is tested by using the ideas

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underpinning the design as part of the needs analysis, and how the implications of the findings of the needs analysis are illustrated in the design (McKenny & Reeves 2012).

- Beta testing is conducted as a functional intervention with a focus on use in context (McKenny & Reeves 2012:138). It explores local viability and institutionalisation. Local viability looks at how the intervention persists in the immediate context (McKenny & Reeves 2012:138), while institutionalisation explores its possibilities as a future endeavour and how the intervention could be disseminated.
- Gamma testing takes place before the intervention is implemented. Its purpose is to determine the effectiveness and impact of the intervention. The effectiveness of the intervention determines to what extent the intervention meets the requirements when it is implemented on its intended scale (McKenny & Reeves 2012:138).

Reflecting upon the design, enactment and evaluation of the four interventions led me to uncover four generalisable design principles that can inform other educators and researchers working in the fields of adult learning and technology in teaching and learning (Reeves, Herrington & Oliver 2005). They are discussed in the next section.

Design principles to enhance the voice of adult learners

Design for diverse levels of digital literacy

The digital literacy course was designed to enhance digital literacy in Microsoft Word, Microsoft Excel, and Microsoft PowerPoint in the specific educational setting, but also in the future workplace. The course equipped students with word processing skills to create and edit documents, with skills to create and manipulate spreadsheets for calculations, and skills to create graphs, tables and charts. It also equipped them with presentation skills to use slides to tell a story and to add narrations, transitions, or recordings.

The main objective of the newly designed digital literacy course was: 1) to provide students with the necessary electronic resources and required support; 2) to develop the ability to collaborate by using, for example, the co-authoring feature of the different applications; 3) to provide them with the built-in functionality to organise their content and use a feature like the design ideas of Powerpoint, teaching them how to construct their information into a coherent presentation; 4) to provide them with a means to design professional reports; and 5) to develop their ability to use the application and share information. The course was structured in a way that allowed every student to proceed at her/his own pace and focus on what her/his most urgent needs were at a particular point in time.

Students' diverse levels of readiness should inform the selection of technologies and how the course content should be designed. The learning design process in HEIs should be aligned with the growing needs of students in parallel with the exponential growth in technology development that consequently impacts the skills required to utilise these technologies. Digital literacy transcends gaining isolated technological skills to generating a deeper understanding of the digital environment, enabling intuitive adaptation to new contexts and co-creation of content with others (Adams Becker et al. 2017:24), and contributes to the development of the top four skills required by graduates namely creativity, creative problem-solving, critical thinking and collaboration (Stauffer 2020; World Economic Forum 2017).

The process of integrating technology into education should aim at better teaching/learning experiences that result in higher learning outcomes that consider the student lifecycle (Grajek et al. 2020). The design should provide flexibility and include applications that students are familiar with and clear individual paths for student choices (Baker 2017; Mayer 2009).

Design in a personalised way

When they enrolled, the students displayed a level of confidence in using technology that refuted the lecturers' assumption that adult learners were struggling with the use of technology. The students' expectations were that elements of what they experienced in the context of social media would be incorporated in a blended learning environment. Social media added value in terms of being user friendly, convenient, simple and keeping them connected, and provided a way in which they could integrate their everyday activities to accommodate their context as adult learners. Taking their familiarity with using technology for purposes of social media as a point of departure assisted me in designing appropriate interventions. Furthermore, creating a personalised learning environment for each student on the learning management system (LMS) made a huge difference to the student experience.

Adult learning theory places the emphasis on the adult learners' work experience, which was pertinent in the study given the vocational nature of the programme and the criticality of adult learners' employment opportunities (Youde 2018). Adult learning theory furthermore recognises the lack of homogeneity amongst learners and learning situations, that the learning process is a multifaceted activity and that the model can be leveraged as a starting point to create learner-centred approaches (Knowles, Holton & Swanson 2015). Ultimately, technology is selected to support learning and the student experience through an understanding of the learners'

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context, prior experiences, their professional development needs, learning objectives, motivation and resources (Baker 2017; Smart Sparrow 2018).

Design context specific activities

Initially the students' expectations of the PGDipNE were not met which underlined the weaknesses in the course design in terms of the structure and content. The adult learners expected the educational environment to complement their professional development. Applying multimedia principles to design digital media in the form of video with animation, voice overs, text and images demonstrated how the effective use of technology could enhance the students' interaction and engagements. Also, the instructional design of the multimedia scaffolds in the Didactics module can be used as an exemplar for future module development or improvement.

The Didactics module plays a vital role in the nurse educators' training. This module equips the students with the competencies to develop instructional design skills that they can put into practice. The qualified nurse educator needs to take responsibility for the selection and application of suitable approaches, methods, media, and technologies within nursing education (Hugo 2018). The instructional design snippets for Didactics were designed with the assistance of a instructional designer and modelled how the students themselves could design learning experiences for student nurses whom they would be teaching in future.

FIGURE 6.1 Didactics snippet (example)
(Source: Davidse 2020:174)

Findings from the literature demonstrate that the development of lifelong digital learners requires explicit exploration of academic and professional practice in digital environments, time and opportunity for academic and support staff to explore changing modes of scholarship and professionalism, recognition of learners' existing knowledge practices as resources for learning, and collaborative exploration of a variety of educational approaches (Littlejohn, Beetham & McGill 2012:554).

Design to build an ecosystem of partnerships

In addition to the researcher and the students, the programme coordinator, programme administrator, lecturers, an instructional designer and technical assistants all played a role in the design, enactments and evaluation of the interventions. This demonstrates that an ecosystem including diverse expertise across an institution could bring about a more intricate and robust understanding of more inclusive teaching for improving student experiences (Alexander et al. 2019). The research has shown that the adoption and implementation of emerging technologies, embraced by lecturers who want to create a student-centred learning environment in HEIs, elevates the instructional design and user experience design (Grajek & Reinitz 2019).

With a plethora of technologies that are rapidly changing the way we operate, a support structure should be put in place to journey with lecturers and to gradually introduce technology that will complement their teaching styles (Griffith 2017). By understanding the lecturers' environment through observation, collaborating with them and supporting them with what they find daunting, the researcher/designer enters into a partnership that will not only enhance the learning experience for the students but will allow lecturers to invite a 'stranger' into their space, building on one another's strengths to create an ecosystem based on trust and rapport (Baker 2017).

Students' feedback on the enhancement and interventions

The participants unanimously agreed that the overall design of the amended programme was excellent, based on good planning to increase user friendliness and accessibility. One of the participants commented that the changes were very user friendly as they created optimal access for students and that the structure was streamlined and meaningful to use. In addition, other students highlighted that the enhancements were particularly appropriate for older students and students who are not technically inclined. Another student added that the way in which the format was organised was helpful for postgraduate students, irrespective of the delivery mode, as they now knew that they would be able to help themselves. The participants found the programme offerings more organised, understandable, efficient and effective in terms of the added enhancements, and appreciated the additions of the reminders for the assignments, quizzes and examinations.

During the demonstration and testing of the technology-based intervention, the students' gratitude expressed by their comments, body language and facial expressions was overwhelming. They were very eager to use the programme. Their excitement was articulated by one student saying that it was like putting cookies in front of hungry kids and telling them not to eat.

PART TWO • IN-CLASS EXPERIENCES**CONCLUSION**

This study has demonstrated that challenges in technology-enhanced programme planning and teaching and learning can be viewed through different lenses. The lens of the programme coordinator drew attention to the shortcomings of adult learners with regard to the use of technology in a blended learning environment. However, from the perspective of the adult learners, it became clear that their expectations of expanded access to learning opportunities within HE were not accommodated in the mode of delivery, and technology in the learning environment did not provide for the needs of a diverse student population. This caused students who had enrolled for the PGDipNE to feel disappointed and misunderstood. Consequently, their voices faded away.

In order for such voices to become audible, the capabilities approach requires us to investigate what it is participants in education have a reason to value (Walker 2009). Within that framework this study asked the question: How can technology be applied to enhance the development of adult learners? Through my design-based research I returned the negotiating power for their social arrangement to the students and assisted in the creation of an educational setting that is conducive to their growth and development. The students who chose the PGDipNE at SU enrolled because of the promises that had been made regarding the programme. However, they entered an environment that lacked the appropriate adoption of a blended learning approach and found a social arrangement and conditions adding complexity instead of serving as a catalyst to advance opportunities.

Interconnectedness as a result of globalisation challenges higher education to change and the rapid advancements in technology challenge traditional teaching and learning strategies in HEIs. Yet, irrespective of the drivers of change, ultimately the needs of the students should remain at the centre of all change initiatives. The diversity of the student population has brought about changes in the kind of student entering HEIs. It is imperative that all voices be heard when planning and implementing programmes, particularly for adult learners. The impact of the pandemic on HEIs has heightened the importance and relevance of this research on educational technologies to add value to the learning experience of learners, as well as the importance of HEIs being able to transform their learning and teaching systems at short notice.

REFERENCES

- Adams Becker S, Cummins M, Davis A, Freeman A, Hall Giesinger C & Ananthanarayanan V. 2017. *NMC Horizon Report: 2017 higher education edition*. Austin, TX: The New Media Consortium.
- Alexander B, Ashford-Rowe K, Barajas-Murphy N, Dobbin G, Knott J, McCormack M, Pomerantz J, Seilhamer R & Weber N. 2019. *Educause Horizon Report: 2019 Higher Education Edition*. Louisville, CO: Educause.
- Baker J. 2017. *Updating the next generation digital learning environment for better student learning outcomes*. <https://bit.ly/3lb2ET5> [Accessed 30 July 2020].
- Bannan B. 2010. The integrative learning design framework: An illustration example from the domain of instructional technology. In: T Plomp & N Nieveen (eds). *An introduction to educational design research: Proceedings of the seminar conducted at the East China Normal University, Shanghai*. Enschede: SLO – The Netherlands Institute for Curriculum Development. 53-71.
- Bannan-Ritland B. 2003. The role of design in research. The integrative learning design framework. *Educational Researcher*, 32(1):21-24. <https://doi.org/10.3102/0013189X032001021>
- Barab S & Squire K. 2004. Design-based research: Putting a stake in the ground. *The Journal of Learning Sciences*, 13(1):1-14. https://doi.org/10.1207/s15327809jls1301_1
- Barber M, Donnelly K & Rizvi S. 2013. *An avalanche is coming: Higher education and the revolution ahead*. <https://stan.md/3l9tYkN> [Accessed 17 May 2017].
- Blaauw D, Ditlopo P & Rispel LC. 2014. Nursing education reform in South Africa – lessons learnt from a policy analysis study. *Global Health Action*, 7:1. <https://doi.org/10.3402/gha.v7.26401>
- Breier M, Wildschut A & Mgqolozana T. 2009. *Nursing in a new era: The profession and education of nurses in South Africa*. Cape Town: HSRC Press.
- Bruce C, Klopper H & Mellish JM. 2011. *Teaching and learning the practice of nursing*. Cape Town: Heinemann.
- Buchler M, Castle J, Osman R & Walters S. 2007. Equity, access and success: Adult education learners in public higher education. In: Council on Higher Education (ed). *Review of higher education in South Africa. Selected themes*. Pretoria: Council on Higher Education. 124-156.
- Choy S. 2002. *Nontraditional undergraduates, NCES 2002–012*. Washington, DC: US Department of Education, National Center for Education Statistics.
- Christensson P. 2016. *Operating System Definition*. TechTerms. Sharpened Products. <https://bit.ly/3yV2Wm9> [Accessed 31 March 2020].
- Collins A. 1999. The changing infrastructure of education research. In: EC Lagemann & LS Shulman (eds). *Issues in education research: Problems and possibilities*. San Francisco, CA: Jossey-Bass Publishers. 289-298.
- Crowley T. 2017. Personal interview (conducted on 11 May).
- Davidse ZAA. 2020. Learning by design: Enhancing the digital literacy of adult learners in a blended learning environment. PhD dissertation, Stellenbosch, Stellenbosch University.

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- Fisher G & Scott I. 2011. *The role of higher education in closing the skills gap in South Africa*. <https://bit.ly/3A0J0y5> [Accessed 6 January 2017].
- Fürst L. 2018. Personal interviews (conducted on 17 April and 27 June).
- Fürst L & Hugo J. 2018. Personal interview (conducted on 17 April).
- Grajek S & Reinitz B. 2019. Getting ready for digital transformation: Change your culture, workforce, and technology. *Educause Review*. <https://bit.ly/3lalrgq> [Accessed 6 February 2021].
- Grajek S, Al-idrissi T, Aractingi E, Bawa O, Campbell K, Canniff JF, Chu HY, Hancock M, Heslop J, Hubbs C, Lakhavani F, Marasinghe M, Miller S, Perez E, Pillay S, Pomales A, Rhea KK, Scanlon T, Schaefer B, Stadler B, Weil D & Wilhawk P. 2020. *Top 10 IT issues, 2020: The drive to digital transformation begins*. <https://bit.ly/3nkO6D7> [Accessed 6 February 2020].
- Griffith L. 2017. *International trends in higher education 2016-17*. University of Oxford. <https://bit.ly/3C0guP3> [Accessed 11 March 2019].
- Hugo J. 2018. Personal interview (conducted on 27 June).
- Kenner C & Weinerman J. 2011. Adult learning theory: Applications to non-traditional college learners. *Journal of College Reading and Learning*, 41(2):87-96. <https://doi.org/10.1080/10790195.2011.10850344>
- Kleinhans F. 2018. Student statistics [email].
- Knowles MS, Holton EF & Swanson RA. 2015. *The adult learner: The definitive classic in adult education and human resource development*. 8th Edition. Abingdon: Routledge.
- Laurillard D. 2012. *Teaching as a design science: Building pedagogical patterns for learning and technology*. Abingdon: Routledge.
- Littlejohn A, Beetham H & McGill L. 2012. Learning at the digital frontier: A review of digital literacies in theory and practice. *Journal of Computer Assisted Learning*, 28:547-556. <https://doi.org/10.1111/j.1365-2729.2011.00474.x>
- Mayer R. 2009. *Multimedia learning*. Cambridge: Cambridge University Press.
- McKenny S & Reeves TC. 2012. *Conducting educational design research*. Abingdon: Routledge. <https://doi.org/10.4324/9780203818183>
- Mekwa J. 2000. Transformation in nursing education. *South African Health Review*, 2000(1):271-283.
- Meyer S & Van Niekerk S. 2008. *Nurse educator in practice*. Cape Town: Juta.
- OECD. 2012. *Equity and quality in education: Supporting disadvantaged students and schools*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264130852-en>
- Plomp T. 2010. Educational design research: An introduction. In: T Plomp & N Nieveen (eds). *An introduction to educational design research: Proceedings of the seminar conducted at the East China Normal University, Shanghai*. Enschede: SLO – The Netherlands Institute for Curriculum Development. 9-51.
- Qalehsari MQ, Khaghanizadeh M & Ebadi A. 2017. Lifelong learning strategies in nursing: A systematic review. *Electron Physician*, 9(10):5541-5550. <https://doi.org/10.19082/5541>

- Reeves TC, Herrington J & Oliver R. 2005. Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education*, 16(2):97-116. <https://doi.org/10.1007/BF02961476>
- Schreyer Institute of Teaching Excellence. 2007. *Adult learners in higher education*. <https://bit.ly/3tt4K4y> [Accessed 13 September 2017].
- Scott P. 1995. *The meanings of mass higher education*. Buckingham: Open University Press.
- Sen A. 1999. *Development as freedom*. New York, NY: Alfred Knopf.
- Smart Sparrow. 2018. *What is learning design? Keep learners at the center of the design process*. <https://bit.ly/3hmO3Tv> [Accessed 6 February 2021].
- Spies C, Seale I & Botma Y. 2015. Adult learning: What nurse educators need to know about mature students. *Curationis*, 38(2):1-7. <https://doi.org/10.4102/curationis.v38i2.1494>
- Stauffer B. 2020. *What are the 4 C's of 21st century skills?* <https://bit.ly/2YJK11c> [Accessed 5 July 2020].
- Tessmer M. 1993. *Planning and conducting formative evaluations*. London: Kogan Page.
- Unterhalter E. 2009. Education. In: S Denelin with L Shahani (eds). *An introduction to the human development and capability approach: Freedom and agency*. London: Earthscan.
- Viljoen D. 2018. *Higher education – a vast and changing future landscape*. <https://bit.ly/3lb2TgX> [Accessed 22 July 2019].
- Walker M. 2009. Capabilities, flourishing and the normative purposes of action research. In: SE Noffke & B Somekh. *The SAGE handbook of educational action research*. London: SAGE. 301-312. <https://doi.org/10.4135/9780857021021.n28>
- World Economic Forum. 2017. *The skills needed in the 21st century*. <https://bit.ly/2VtYGMA> [Accessed 15 December 2019].
- Youde A. 2018. Andragogy in blended learning contexts: Effective tutoring of adult learners studying part-time, vocationally relevant degrees at a distance. *International Journal of Lifelong Education*, 37(2):255-272. <https://doi.org/10.1080/02601370.2018.1450303>