

TECHNOLOGICAL SUPPORT INITIATIVES IN LIVING AND LEARNING COMMUNITIES: INSIGHTS FROM UNDERGRADUATE STUDENTS EXPERIENCES

M. Khumalo*

<https://orcid.org/0009-0008-8160-5349>

I. Manatsa*

<https://orcid.org/0000-0002-1723-2030>

S. Mbuyazi*

* Centre for Excellence in Teaching and Learning (CELT)

Durban University of Technology

Durban, South Africa

ABSTRACT

In the past decade, the prevalence of electronic media has witnessed a notable escalation in use predominantly attributed to the increasing sway of digitalization. Covid-19 pandemic caused significant disruptions across the global educational landscape, precipitating digitalization. The widespread cessation of in-person lectures necessitated a swift transition to eLearning modalities and other institutional digital platforms. Despite the student's status in terms of technology use preparedness, online classes and resource have been rolled out to ensure a continuation of education delivery in universities. Durban University of Technology (DUT) adopted an integrated learning management systems for its classes and introduced courses aimed at training students on the use of institutional digital platforms. These transformative efforts, assist students in the adjustment to the unexpected educational paradigm shift despite persistent challenges for technology literacy. Undergraduate students grapple with the constraints of disadvantaged technological skills, educational backgrounds, despite the infusion of supplementary support programs. The Technology for Learning (TFL) is a learning program introduced to train first year students on all DUT online learning management systems like Moodle, Office 365 suite, Ms Teams and OneDrive system in their Living and Learning Communities (LLCs). The primary focus of this research was to examine the contribution of TFL to the technology adaptation of undergraduate students into university life guided by the Technology Acceptance Model and the Social Constructivism theory. A qualitative approach was applied. Two focus group discussions involving 20 first-year student participants engaged in TFL training sessions across two LLCs were used to gather invaluable insights and experiences. The findings suggest, as a support program, TFL significantly impacted undergraduates' students learning by fostering the adoption and

understanding of learning management systems use in HEIs. Key themes emerging from the study included heightened confidence in information search and grasp. There was an indication of better understanding of institutional learning management systems. Based on these results, the study recommends a continuation of the ongoing development of TFL support initiatives within LLCs housing undergraduate students. These initiatives have the potential to provide additional support education to technologically disadvantaged students navigate a fast-paced learning environment, thereby ensuring that no student is left behind.

Keywords: First year/undergraduate students, living and learning communities, technology for learning and learning management systems.

INTRODUCTION

In the evolving landscape of digital advancements, Higher Education Institutions (HEIs) are increasingly allocating resources towards the development and integration of e-learning platforms, notably Learning Management Systems (LMS), to enhance the educational process (Islam 2013; Opoku, Pobee, and Okyireh 2020). Studies indicate the advantages of LMS in struggling and transitioning HEIs students (Mtebe and Raphael 2018; Yakubu and Dasuki 2018; Bidin and Ziden 2013). In addition, Yakubu and Dasuki (2018) argue that, although the academic discourse on technology in education has extensively addressed the factors contributing to the successful deployment of LMS, the challenge of fostering an engaging learning environment remains a pivotal aspect of the educational experience (Shraim and Khlaif 2010). One critical aspect is the effectiveness with which students engage with LMS platforms as a crucial determinant of learning outcomes and overall educational experience (Balash, Yong, and Bin Abu 2011; Yakubu and Dasuki 2018). In South Africa, a sizeable number of students enrolling in HEIs often lack essential skills, support networks, role models, and the cultural capital deemed necessary for academic achievement (Council on Higher Education 2013).

Students enrolling in public universities, like the Durban University of Technology (DUT), are predominantly from historically marginalized often suffering from inadequate educational infrastructure, limited economic resources, and a wide range of complex social challenges. Subsequently, the preparedness of these students for university life particularly at DUT, along with their overall academic performance, tends to be adversely affected (Pirthiraj 2017; Pather et al. 2017; Kanyane 2023). A significant hurdle among the myriad challenges faced by these students is technological illiteracy (Kanyane 2023). Most undergraduate students struggle with technology adaptation (Faloye and Faniran 2023).

South Africa is widely recognized as one of the world's most unequal societies, a status that is manifest in various social ills, including a pronounced technological divide. This divide,

often referred to as the digital gap, describes the disparity between individuals in terms of access to, and the skills necessary for, using technology (Faloye, Ajayi, and Raghavjee 2020; Jantjies 2020). Makhado and Tshisikhawe (2021); Nyahodza and Higgs (2017) trace the origins of the digital divide back to the apartheid era. During that period access to technology was allocated along racial lines, thereby disadvantaging mainly students from the black townships. This historical discrimination has had a lasting impact on Higher Education Institutions (HEIs) in the post-apartheid era (Jantjies 2020; Lembani et al. 2023).

As Higher Education Institutions (HEIs) evolve, they encounter several challenges in teaching and learning processes, notably in students' execution and completion of academic tasks (Jerrim 2018). Brown (2010) conclude that the main cause of dropping out, concerned failure of students to adapt to the demands of higher education, This directly related to the school system inadequate preparation of students, resulting in struggles to adjust to the demands of higher education. Bond et al. (2020); Buzzetto-Hollywood, Elobeid, and Elobaid (2018) highlight a specific challenge; students' lack of relevant skill sets for competent technology application. The widespread adoption of hybrid learning systems in HEIs has brought the digital divide into sharp focus. An illustrative example is the use of Moodle, a platform intended to facilitate learning, inadvertently features disparities in digital literacy and access among students (Lembani et al. 2020). In response, HEIs over time have launched comprehensive student support programs aimed at providing foundational education and bridge the disparities exacerbated by the growing enrolment of non-traditional students, including those from underprivileged backgrounds and first-generation college students (Webbstock and Fisher 2016). Jama (2016) advises that providing access to HEIs to students without support does not constitute an opportunity.

The TFL program is an off-campus initiative designed to offer supplementary assistance to first-year students residing in DUTs LLCs. This support focuses on enhancing students' proficiency with online learning management systems (LMS), technology adaptation, a critical component for successful navigation of the academic environment and ultimately achieving timely graduation. This article discusses TFL as an additional LMS first year students' program in DUT LLCs.

LITERATURE REVIEW

University readiness for LMS

Institutional backing is characterized by encouragement from upper management and the provision of sufficient resources to university departments, as highlighted by (Igbaria, Parasuraman, and Baroudi 1996). It is imperative to acknowledge the pivotal role that

universities fulfil in fostering a positive reception and utilization of systems among university personnel and students. The support extended by these institutions significantly impacts the use of systems within the educational settings (Davis, Bagozzi, and Warshaw 1989). In supporting, Al-Busaidi and Al-Shihi (2012) observed that the attitudes of university staff and students towards system utilization were largely shaped by management. The preparedness of a university begins with its management, which is responsible for ensuring the effective operation of Learning Management Systems (LMS), and the availability and efficiency of network and Internet access.

Challenges of LMS in Universities

In the wake of the COVID-19 pandemic, the world experienced a fundamental shift, necessitating universities and broader society to reassess and adapt their roles to meet community needs more effectively. This period of global challenge prompted a significant transformation in how education institutions, particularly traditional universities, approached the delivery of education. Dlamini and Ndzinisa (2020) observed that the situation compelled universities to significantly increase investment into digital technologies to support comprehensive online learning platforms. However, this shift towards digital education raises concerns about accessibility, particularly in regions with limited internet penetration. Mhlanga and Beneke (2021), estimate that 54 per cent of the South African population has access to the internet at home. This statistic is particularly alarming. Computer literacy rates across the population, remain to be fully understood. Given that, a considerable portion of the black South African population faces challenges related to limited technological access and originates from poor backgrounds it is reasonable to infer that the proportion of individuals proficient in computer usage within these communities is potentially low. This situation paints a critical disparity in access to online education, highlighting the necessity for innovative solutions to bridge the digital divide and ensure that the shift towards digital learning platforms does not exacerbate existing inequalities within the educational landscape.

In the periods both preceding and following the onset of the COVID-19 pandemic, it became evident that universities were compelled to transition their teaching and learning activities to digital, online platforms. Dlamini and Ndzinisa (2020) point out that the shift, necessitated by the pandemic, brought the digital divide to attention, thereby posing significant challenges to the educational process. They contend South Africa faces a pressing need to acknowledge and enhance its educational infrastructure to support the transition. Both students and staff were currently underprepared for a migration to online learning environments. Dlamini and Ndzinisa (2020) further highlight the stark disparities within communities, marked

by areas suffering from inadequate or non-existent internet connectivity, unreliable electricity supply, and a general lack of technical proficiency among students. These factors combine to create substantial obstacles to the effective implementation and accessibility of online learning, give emphasis to the urgent need for comprehensive strategies to address these barriers and ensure equitable educational opportunities for all students.

The process of digital transformation within Higher Education Institutions (HEIs) in South Africa is not a recent development, but has been gradually evolving over several years (Butler-Adam 2018). Kanyane (2023) observed that historically white institutions exhibited a more advanced adoption and integration of e-learning systems compared to their counterparts at predominantly black public universities. This observation is further supported by Reddy Moonasamy and Naidoo (2022), who identified a significant digital divide characterized by disparities in infrastructure and digital literacy, particularly affecting low- and middle-income groups. Pather and Booie (2020) pinpointed the readiness of students in terms of resources as a primary obstacle to the successful implementation of eLearning in South African universities. This challenge is compounded by factors identified by Kopp, Gröbinger, and Adams (2019), which include resistance to change, the rapid pace of technological advancement, the need for specific technological competencies, and financial constraints. These barriers can lead to students experiencing apprehension and discomfort when removed from familiar learning environments, despite the positive intentions of educators.

Reddy et al (2022) highlight disparities in the competency and proficiency levels of students in using Learning Management Systems (LMS) as contributory to feelings of isolation negatively impacting motivation, a sentiment echoed by Aboagye (2020). Pather and Booie (2020) further ascribe the lack of access to both appropriate devices and broadband internet represents as a significant barrier, putting students without access or the necessary digital skills at a higher risk of academic failure. This situation emphasises the need for comprehensive strategies to address the challenges and ensure equitable access to digital learning resources for all students.

Students' readiness for LMS

Several factors have been identified as pivotal in influencing the readiness for Learning Management System (LMS) adoption within educational institutions. These determinants encompass self-efficacy, computer literacy, previous exposure to similar technologies, and the availability of technical support (Abbad 2011; Al-Busaidi and Al-Shihi 2010; Alharbi and Drew 2014). Self-efficacy, Bandura (1978), is an individual's belief in their capability to execute tasks successfully. Dlalisa and Govender (2020) posit that low self-esteem serves as an

impediment to the effective utilization of LMS, contrasting with individuals who, despite possessing lesser experience, exhibit greater confidence. As a suggestion, fostering confidence through the provision of requisite training and robust technical assistance can ameliorate this barrier, thereby enhancing the overall efficacy of LMS adoption.

THEORETICAL FRAMEWORK

This study integrates two theoretical frameworks; the Technology Acceptance Model (TAM) proposed by Davis (1989) , and social constructivism propagated by Vygotsky (1978). The TAM theory was preferred for its well-established utility in assessing user acceptance of systems Zhou et al. (2019), a factor crucial to the investigation at hand. Al-Gahtani (2016) highlighted that the TAM's widespread endorsement by researchers within the information systems domain, emphasised its relevance and adaptability to this study. On the other hand, social constructivism posits that learning transcends a mere passive or internal endeavour, suggesting it is instead significantly shaped by cultural and environmental contexts (Vygotsky, 1978). Applying social constructivism to the experiences of undergraduate students accentuates the importance of interaction, collaboration, and active participation in the learning journey. This approach advocates for the creation of educational spaces, both on and off campus that are attuned to the diverse requirements and backgrounds of students. An inclusive and supportive environment aids undergraduate students' transition to HEIs, thereby enhancing their educational outcomes and fostering personal growth.

METHODS

Design and setting

Two focus group discussions were conducted with students who had participated in TFL sessions within their respective LLCs. The objective was to investigate the influence of TFL on their adaptation to the use of technology in a South African University of Technology context.

Sample and recruitment

Purposive sampling was applied to the selection of undergraduates housed in officially recognized residences of DUT. These students, enrolled in various faculties, resided in LLCs acknowledged by DUT. The study excluded students who were not in their first year or who resided outside of DUT-accredited LLCs. Furthermore, participation was limited to students who had attended TFL sessions. In total, 20 students voluntarily participated in the discussions held across the two respective LLCs.

Measures

Demographic information about the participants was collected from the Student Housing and Residence Life offices. Resident Advisors were approached for additional details and were asked to motivate students to attend TFL sessions via WhatsApp groups for their residences. A discussion guide was created to document the experiences of the participants. Focus group discussions were conducted in both English and isiZulu, with each session lasting at least 20 minutes.

Data collection

An invitation, including a brief overview of the study, was disseminated through a WhatsApp group. The invitation was posted as a daily announcement within the group for a week in each LLCs. It contained a study description, a link for students to confirm their participation, and an emphasis of the ethical considerations, particularly the principles of voluntary consent and anonymity. A total of 30 students responded to the invitation. Data collection took place between September and October 2023, utilizing discussions held in the common rooms of the LLCs. Students were prompted to share their post-evaluation perspectives on the TFL program. To ensure no valuable insights were lost, discussions were consensually recorded.

Ethical considerations

Before commencing the study, permission was obtained from the chosen institution and the Department of Student Housing and Residence Life. Ethics clearance was granted by the Institutional Research Ethics Committee (Reference Number: IREC 087/23). Students were eventually approached to be participate voluntarily; only 20 eventually took part. Privacy and confidentiality was maintained throughout the study.

Data analysis

Thematic analysis was employed to examine the collected data. The aim was to identify patterns, commonalities, and divergent viewpoints within the responses. Independent analysis of the recordings, in search of for recurring themes that emerged during the discussions was undertaken. Themes that accurately represented student experiences with TFL were identified and catalogued using a personal coding system.

Results

This section outlines the thematic findings derived from the post-evaluation focus group discussions. The analysis encompasses four key themes, including participant experiences, the perceived significance of the TFL program, post evaluation and recommendations for program improvement.

THEME 1: EXPERIENCES OF TFL SESSIONS

Students provided feedback on their overall experiences of the TFL sessions. The program was positively evaluated by the participants. They reported that the delivery of content was aligned to the expected standards of technological support lessons. This assessment was derived from the subsequent reflections shared by the members:

“I was not really exposed to a computer I did not understand that much in class because it was too quick for me... This program gave a chance to learn in a relaxed environment helping me to understand some functions...” (Participant Q).

“It was useful for me because I was not familiar with using a computer. When I heard it is about Office 365, I knew I had to attend.” (Participant M).

“I found the program useful because the tutors knew the computer and excel...” (Participant F).

Students perceived the program as beneficial and enhancing computer literacy skills. Notably, some participants had attended high schools where computer education as predominantly theoretical rather than practical. This program offered them a valuable opportunity to deepen their understanding and apply practical skills in computing. However, a significant challenge emerged; students had to borrow laptops to participate, while others were unable to attend due to the lack of personal laptops. Lack of resources underscores some limitations in the program's impact. It highlights the continued restricted access to computers in the personal environments of quite a sizable number of the student population. Additionally, there was a divergence in perspectives among the participants. Four students believed the program was overly generic, arguing that it failed to enhance their computer skills since they were already familiar with several of the functions being taught. This sentiment was particularly noticeable among students from upper quantile schools, here a higher level of computer literacy is prevalent. This observation suggests that the impact of the program is also contingent upon the educational background of individual students. It can be inferred that this support program is primarily beneficial to students with limited exposure to information communication technology skills.

THEME 2: ACADEMIC USEFULNESS

Despite students expressing a generally positive perspective on the program, the primary objective of this study was to investigate the effectiveness of the TFL program for students across various disciplines, focusing on its influence on their coursework and academic performance. Participants from diverse academic faculties reported that the program, in particular certain aspects of Office 365, Microsoft Word, Excel, Power Point, Moodle, and Outlook had significantly made a difference to their learning experiences a key tenant of the social constructivist perspective. These sentiments were captured in the reflections provided below:

“TFL taught me how to combine data, present data using pie charts in Excel... I am also an accounting student, and we use Excel a lot.”

“I did not know how get assignments and notes for my classes, after learning Moodle it became easy and I have not struggled since learning about it...”

“When they talked about OneDrive, I was like what is that.... now I know OneDrive is better than using a USB, my information will not be stolen or damaged. Even if I get mugged, I know my information is safe.”

“It helped me know that information I need to know about my program is sent to me on my dut4life email. When you use social media to get information it could be fake or a scam.”

“With Ms Teams I learnt that I could engage other students and work together on one document as a group despite being far from one another.”

“Power Point I learnt to do presentations in class, I am from Management Sciences group assignments are very important for our course work.”

This theme was paramount to the study for its critical examination of the role TFL played in the academic development of undergraduate students, particularly in their adaptation to technology. The discussions revealed that students benefited from the diverse technological software’s introduced through TFL the ability to execute assignments, source information, and secure data was facilitated. These competencies were highlighted as areas previously unexplored by the students, underscoring the added value of the TFL approach. It can be argued that successful adaptation to university-level learning technologies necessitates a foundational knowledge in not only sourcing relevant information and securing data but also in the effective presentation of ideas. This assertion underlines the significance of integrating TFL

methodologies in the LLCs framework to bolster the technological fluency of incoming university students, thereby enhancing their overall academic preparedness.

THEME 3: POST PROGRAM EVALUATION

Evaluation is significant in the determination the value of a program, students' feedback on the sessions was important to the understanding of the participants' opinion of the content and its delivery. There were generally mixed feelings on how the content was delivered and the value of the information. This was a matter of comprehending information which would aid in the development of technology proficiency. Their thoughts were captured in the following statements:

“I think it was a great session. We learnt a lot for example basic computer use and navigating the DUT software packages.”

“I wish to see the people conducting the trainings they can have more confidence on how they talk. I wish they can have one or two more sessions a week like continuous classes so that we do not forget.”

“We learnt some new stuff, there is an app called Ms Teams where we can do some group work together. I can do video calls; I was to examine the contribution of TFL to the technology adaptation of undergraduate students into university life did not know that existed. It was very impactful.”

“It is a great initiative especially how to use excel. I learnt how to generate data. I did not know how to operate a computer. The problem is that they were too fast.”

Participants engaged in reflective evaluation session regarding the information disseminated by the facilitators. The consensus among the attendees underscored the pivotal nature of the TFL sessions, particularly for individuals lacking a foundational background in computing. This observation underlines the necessity of the sessions for students experiencing difficulties with computing fundamentals, enabling them to acquire proficiency in utilization of computers and various online technologies essential for their academic endeavours. Additionally, the critique extended to the pedagogical approach, specifically the delivery of content. The participants held a consensus that, facilitators needed to exude confidence during presentations. A perceivable deficiency in confidence amongst tutors when disseminating information, potentially engendered scepticism regarding the reliability of the content presented, consequently impacting the efficacy of the learning experience during the sessions.

THEME 4: RECOMMENDATION

The students offered several suggestions aimed at enhancing the efficacy of the program, centring primarily on aspects related to the scheduling and the qualifications of personnel involved. These recommendations emerged not from a standpoint of negative criticism but were posited in a constructive manner, aiming to contribute positively to the program's development. This constructive approach was exemplified in the comments provided by the students, which emphasized their intent to foster improvements rather than merely identify shortcomings.

“I suggest that the TFL trainings must be done frequently each and every day in our residences because of the students are there.... Sometimes we have difficulties in submitting. If they do trainings for house coms so that they can assist students.”

“I think they should mock tests so that we can get used to the application such as Moodle Ms Teams and Excel... PowerPoint too, all the Microsoft 365 package.”

“I recommend that the trainers to do a proper course or a full course based on Microsoft 365 because I think basic will not help, there are some features that I will be able to use if I have learnt basic stuff.”

Students expressed a strong appreciation for the TFL program, while also suggesting several improvements to enhance its effectiveness. One key area identified was the need for more comprehensive training for tutors, emphasizing not only the delivery of content but also the importance of boosting tutors' self-confidence. This highlights the necessity for a structured approach in preparing tutors, who often are senior students looking for employment opportunities compared to seasoned professionals, to effectively engage with their audience. There was also unanimity on the need for more frequent sessions, as a single session proved insufficient for mastering the diverse range of applications covered in the program. Students with prior computing experience suggested extension of the curriculum beyond basic training. For instance, students specializing in Accounting and Engineering expressed a desire to delve deeper into advanced Excel formulas, indicating a demand for more specialized and advanced training tailored to their specific fields of study. Furthermore, advocacy for the implementation of assessments to measure progress and mastery of the content presented was made. This feedback stresses the students' desire for a more rigorous and structured learning experience, allowing them to track their learning outcomes and ensure they gained the necessary skills and knowledge from the TFL program.

DISCUSSION

This study investigated the adaptation of technologically driven support initiatives program designed for undergraduate students across three faculties at the Durban University of Technology (DUT): Applied Sciences, Management Sciences, and Accounting and Informatics. The focus of the TFL program was to enhance students' proficiency in key DUT learning management systems, Office 365, Microsoft Teams, Moodle, and OneDrive, to facilitate their adaptation to the technological demands of their academic environment. The findings suggested that the program was generally well-received across the board based on its usefulness, usefulness, indicating success in aiding students in technology adaptation. This being confirmed of TAM model, which posits that technology acceptance is influenced by its usefulness (Davis 1989). Notably, the training on Office 365, Microsoft Teams, Moodle, and OneDrive was found to be instrumental in this regard. These tools were essential for academic collaboration, research, and communication, highlighting the importance of digital literacy amongst undergraduate students.

However, the study also uncovered a nuanced appreciation of specific applications within Office 365. Variance occurred according to the academic programs in which the students were enrolled. For instance, Accounting and Informatics students' faculty exhibited a stronger preference for Microsoft Excel, a tool integral to data management and analysis, which aligns closely with the curriculum requirements of their programs. Conversely, students in Management Sciences showed a greater affinity for Microsoft PowerPoint, reflecting the program's emphasis on presentations and business communication skills. This differential engagement with Office 365 applications suggested a selective approach to the utilization of digital tools, shaped by the specific academic and professional needs of the students. Despite this variability, central applications such as OneDrive and Microsoft Teams were universally valued across faculties. This indicates a broad recognition of the importance of these platforms for academic research, information retrieval, and collaborative learning.

The level of attendance raised concerns; however, factors such as the availability of resources, rather than mere disinterest, played a significant role. First-year students showed appreciation for the program. Nonetheless, most of the learners lacked personal gadgets like laptops, relying instead on university facilities to access computers. This reliance significantly restricted student reach and participation. The absence of necessary resources not only discouraged student attendance but also underscored how resource scarcity continued to impact educational engagement (Pirthiraj 2017; Council on Higher Education 2013). The perceived depth of the sessions emerged as another critical factor influencing participation. While some students regarded the training as too basic for their preferences, those without prior computing

skills found it highly beneficial. Divergence in perception highlights the challenge of designing a program that adequately addressed the varied skill levels and educational backgrounds of its participants.

A crucial factor in determining the program's success is the timing. Discussions revealed that some students believed the program would have been more beneficial had it been conducted at the beginning of the academic year, rather than in the second semester. This belief was grounded in student experiences with assignments and assessments that would have benefited from the knowledge gained through the program. Essentially, students suggested that their performance in certain assessments might have been improved had they been technologically better equipped earlier (Faloye et al 2020). This feedback brought attention to the importance of early exposure to the program, suggesting that initiating it sooner could significantly enhance students' proficiency and confidence in the application of required technological skills.

The presentation of information as noted significantly affects its credibility and validity. Inadequate presentation skills can diminish students' concentration and their confidence in the presenter. essential soft skills, like public speaking and communication, skills need to be more prominently encouraged among tutors. DUT undertook a commendable initiative by employing its own students to facilitate classes, thereby providing valuable employment opportunities to those lacking experience. However, the initiative also highlighted a deficiency in soft skills among these student facilitators. Based on this observation the importance of incorporating soft skills training into the curriculum, ensuring that future tutors are not only knowledgeable in their subject areas but also proficient in effectively communicating and engaging with their audience cannot be over emphasized.

There is a clear necessity for continuous sessions to ensure that students have fully grasped the use of the taught software. A single session has proven insufficient for effectively imparting essential technological literacy skills. Although there were noticeable outcomes from these initial sessions, significantly more can be achieved if the classes were conducted repeatedly, ideally at least four times a month. This approach would not only reinforce learning but also provide ample opportunity for practice and familiarization with the software. The implementation of assessments designed to allow students to test their knowledge and skills would further validate the effectiveness of the training. These assessments could serve as a measure of how well students have mastered the basic training, thereby highlighted areas of success, and identified opportunities for further instruction and improvement.

CONCLUSION

In conclusion, this research was primarily focused on investigating the adaptation of technologically driven support initiatives, tailored for undergraduate students housed within Living Learning Communities (LLCs) at the Durban University of Technology (DUT). To achieve the outlined objective, the study adopted a qualitative research methodology. Accordingly, it facilitated two focus group discussions, encompassing a collective participation of 20 first-year students who had engaged with the TFL program implemented across two distinct LLCs at DUT.

The outcomes of this inquiry were organized into four distinct themes: (1) Experiences of the TFL Program, (2) Academic Usefulness, (3) Post-Program Evaluation, and (4) Recommendations. Regarding the first theme, participants conveyed that the TFL program was a positive encounter that aligned well with their initial expectations. In terms of academic utility, delineated under the second theme, the students acknowledged the program's significant role in bolstering academic activities across the diverse disciplinary fields represented within three faculties at DUT. Specifically, the application of Microsoft Excel was highly valued by students in Accounting and Engineering disciplines, PowerPoint was predominantly favoured by those studying within the management faculty. The utility of source searching and data security tools, like OneDrive and DUT's online systems, was recognized as beneficial across the various faculties, underscoring the program's comprehensive support in enhancing students' academic adaptation and digital literacy.

In relation to the third theme, which focused on the post-program evaluation, the feedback was predominantly positive, though with certain reservations. Most students perceived the program as having a substantial impact on their ability to adapt to the technological demands prevalent within Higher Education Institutions (HEIs). However, a fraction of the cohort deemed the program to be somewhat elementary, attributing this perspective to prior exposure to computers and technology, which suggests a variance in baseline technological proficiency among participants and possibly the entire student population.

The fourth theme concentrated on eliciting recommendations from the students; common suggestion being the continuation and regular repetition of the program to reinforce learning and prevent the erosion of newly acquired skills, encapsulating the adage that practice makes perfect. A consensus was held on the necessity of initiating this program at the commencement of the academic semester, to facilitate an early adaptation process by the students. Facilitators needed to learn more soft skills before engaging facilitation.

The findings from the study the TFL program's efficacy in enhancing first year students' competencies in key areas like computer literacy, information retrieval, data presentation, and

security. This training emerged as a pivotal element in aiding student transition into the highly demanding fast-paced environment of HEIs. Nevertheless, the feedback highlighted a scarcity of resources and indicated that a single session was insufficient. This limitation might lead to information overload, resulting in students forgetting vital knowledge. The study, therefore, suggests that while the TFL program is instrumental in equipping students with essential technological skills, its structure and delivery need to be revisited to maximize its benefits and ensure comprehensive student support.

LIMITATIONS AND RECOMMENDATIONS

The study recognizes inherent limitations, primarily stemming from the restricted access to the DUT LLCs. This constraint was notably influenced by a scarcity of funding, necessitating the selection of only two DUT LLCs that were geographically accessible and housed undergraduate students. The financial limitations not only curtailed the scope and duration of the study but also confined the execution of the TFL programs to a single session. The program efficacy of was inherently restricted to students who had access to laptops within their respective LLCs, thereby excluding a potentially significant segment of the student population possibly lacking resources.

Considering these findings, two recommendations to enhance the future implementation of TFL programs are proposed. Primarily, initiatives of this nature must be integrated into the orientation week schedule; a period when students exhibit heightened eagerness and enthusiasm towards embarking on their university journey. Such timing may not only capitalize on the students' initial motivational peak but also facilitate a smoother transition into the academic environment. To avoid the limitations imposed by the lack of personal computing devices, it is recommended that university computer laboratories be leveraged during this crucial orientation period. This approach may ensure broader accessibility and participation in the TFL programs, thereby maximizing the potential impact on enhancing students' technological proficiency and academic preparedness.

ACKNOWLEDGEMENTS

The authors acknowledge the contributions of the participants.

ETHICS STATEMENT

The study was approved by the Durban University Technology Institutional Review (IREC)

Reference	number:	Ethics	Clearance	Number:	IREC	087/23
-----------	---------	--------	-----------	---------	------	--------

POTENTIAL CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Abbad, Muneer. 2011. "A conceptual model of factors affecting e-learning adoption." 2011 IEEE Global Engineering Education Conference (EDUCON).
- Aboagye, Emmanuel. 2020. "COVID-19 and E-learning the challenges of Students in tertiary institutions in Ghana." *Social Education Research*. doi: 10.37256/ser.122020422.
- Al-Busaidi, Kamla Ali, and Hamed Al-Shihi. 2010. "Instructors' acceptance of learning management systems: A theoretical framework." *Communications of the IBIMA* 2010 (2010):1–10.
- Al-Busaidi, Kamla Ali, and Hamed Al-Shihi. 2012. "Key factors to instructors' satisfaction of learning management systems in blended learning." *Journal of Computing in Higher Education* 24:18–39.
- Al-Gahtani, Said S. 2016. "Empirical investigation of e-learning acceptance and assimilation: A structural equation model." *Applied Computing and Informatics* 12 (1):27–50.
- Alharbi, Saleh, and Steve Drew. 2014. "Using the technology acceptance model in understanding academics' behavioural intention to use learning management systems."
- Balash, Farhad, Zhang Yong, and Bahrain Bin Abu. 2011. "Lecturers and educational technology: Factors affecting educational technology adoption in teaching." 2nd International Conference on Education and Management Technology IPCSIT.
- Bandura, Albert. 1978. "Self-efficacy: Toward a unifying theory of behavioral change." *Advances in behaviour research and therapy* 1 (4):13–9161.
- Bidin, S, and A Ziden, A. 2013. "Adoption and application of mobile learning in the education industry." *Procedia-social and behavioral sciences* 90:720–729.
- Bond, Melissa, Katja Buntins, Svenja Bedenlier, Olaf Zawacki-Richter, and Michael Kerres. 2020. "Mapping research in student engagement and educational technology in higher education: A systematic evidence map." *International journal of educational technology in higher education* 17 (1):1–30.
- Brown, Byron A. 2010. "Teachers' accounts of the usefulness of multigrade teaching in promoting sustainable human-development related outcomes in rural South Africa." *Journal of Southern African Studies* 36 (1):189–207.
- Butler-Adam, John. 2018. "The fourth industrial revolution and education." *South African Journal of Science* 114 (5-6):1–1.
- Buzzetto-Hollywood, Nicole A, Magdi Elobeid, and Muna E Elobaid. 2018. "Addressing information literacy and the digital divide in higher education." *Interdisciplinary Journal of e-Skills and Lifelong Learning* 14:077–093.
- Council on Higher Education. 2013. A proposal for undergraduate curriculum reform in South Africa: The case for a flexible curriculum structure. Council on Higher Education Pretoria.
- Davis, Fred D. 1989. "Technology acceptance model: TAM." *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*:205–219.

- Davis, Fred D, Richard P Bagozzi, and Paul R Warshaw. 1989. "User acceptance of computer technology: A comparison of two theoretical models." *Management science* 35 (8):982–1003.
- Dlalisa, Sizwe Frances, and Desmond Wesley Govender. 2020. "Challenges of acceptance and usage of a learning management system amongst academics." *International Journal of eBusiness and eGovernment Studies* 12 (1):63–78.
- Dlamini, Reuben, and Nqobile Ndzinisa. 2020. "Universities trailing behind: Unquestioned epistemological foundations constraining the transition to online instructional delivery and learning." *South African Journal of Higher Education* 34 (6):52–64.
- Faloye, Samuel T, Nurudeen A Ajayi, and Rushil Raghavjee. 2020. "Managing the challenges of the digital divide among first year students: A case of UKZN." 2020 IST-Africa Conference (IST-Africa).
- Faloye, Samuel T, and Victor Faniran. 2023. "Integrating technology in teaching and learning practices: students' competencies." *South African Computer Journal* 35 (1):101–114.
- Igbaria, Magid, Saroj Parasuraman, and Jack J Baroudi. 1996. "A motivational model of microcomputer usage." *Journal of management information systems* 13 (1):127–143.
- Islam, A.K. M Najmul. 2013. "Investigating e-learning system usage outcomes in the university context." *Computers & Education* 69:387–399.
- Jama, Mpho P. 2016. "Academic guidance for undergraduate students in a South African medical school: can we guide them all?" *Journal of Student Affairs in Africa* 4 (2):13–24.
- Jantjies, Mmaki. 2020. "How South Africa can address digital inequalities in e-learning." *The Conversation* 29.
- Jerrim, John. 2018. "Immigrant student achievement and educational policy in England." *Immigrant student achievement and education policy: Cross-cultural approaches*:19–33.
- Kanyane, Modimowabarwa. 2023. "Digital work—transforming the higher education landscape in South Africa." In *New Digital Work: Digital Sovereignty at the Workplace*, 149-160. Springer.
- Kopp, Michael, Ortrun Gröblinger, and Simone Adams. 2019. "Five common assumptions that prevent digital transformation at higher education institutions." *Inted2019 Proceedings*.
- Lembani, Reuben, Ashley Gunter, Markus Breines, and Mwazvita Tapiwa Beatrice Dalu. 2020. "The same course, different access: the digital divide between urban and rural distance education students in South Africa." *Journal of Geography in Higher Education* 44 (1):70–84.
- Lembani, Reuben, Kabwe Mulenga, Peter Mwewa, Lydia Mhango, and Nchimunya Chaamwe. 2023. "Are we leaving students behind? Self-directed learning in an ICT challenged country." *Education and Information Technologies* 28 (3):3475–3492.
- Makhado, Mashudu, and Tshifhiwa Tshisikhawe. 2021. "How Apartheid Education Encouraged and Reinforced Tribalism and Xenophobia in South Africa." In, 131–151.
- Mhlanga, David, and John Beneke. 2021. "The fourth industrial revolution: Exploring the determinants of internet access in emerging economies." *Studia Universitatis Babes-Bolyai Oeconomica* 66 (3):77–92.

- Mtebe, Joel S, and Christina Raphael. 2018. "Key factors in learners' satisfaction with the e-learning system at the University of Dar es Salaam, Tanzania." *Australasian Journal of Educational Technology* 34 (4).
- Nyahodza, Lena, and Richard Higgs. 2017. "Towards bridging the digital divide in post-apartheid South Africa: a case of a historically disadvantaged university in Cape Town." *South African Journal of Libraries and Information Science* 83 (1):39–48.
- Opoku, Daniel, Frederick Pobee, and Rexford Okyireh. 2020. "Determinants of E-Learning System Adoption among Ghanaian University Lecturers: An Application of Information System Success and Technology Acceptance Models." *American Journal of Social Sciences and Humanities* 5:151-168. doi: 10.20448/801.51.151.168.
- Pather, Subethra, and E Booi. 2020. "An assessment of student resource readiness for online learning during COVID 19: A South African case study." ICERI2020 Proceedings.
- Pather, Subethra, Najwa Norodien-Fataar, Xena Cupido, and Nosisana Mkonto. 2017. "First year students' experience of access and engagement at a University of Technology." *Journal of Education (University of KwaZulu-Natal)* (69):161–184.
- Pirthiraj, Anisha. 2017. "Factors affecting the motivation of first-year students in the Department of Construction Management and Quantity Surveying at the Durban University of Technology."
- Reddy Moonasamy, Avashni, and Gedala Mulliah Naidoo. 2022. "Digital Learning: Challenges experienced by South African university students' during the COVID-19 pandemic." *The Independent Journal of Teaching and Learning* 17 (2):76–90.
- Shraim, Khitam, and Zuheir Khlaif. 2010. "An e-learning approach to secondary education in Palestine: opportunities and challenges." *Information Technology for Development* 16 (3):159–173.
- Webbstock, D, and G Fisher. 2016. "South African higher education reviewed: Two decades of democracy." *Report, Council on Higher Education, Pretoria.*
- Yakubu, Nasir, and Salihu Dasuki. 2018. "Assessing eLearning systems success in Nigeria: An application of the DeLone and McLean information systems success model." *Journal of Information Technology Education: Research* 17:183–203.
- Zhou, Min, Lindu Zhao, Nan Kong, Kathryn S Campy, Shujuan Qu, and Song Wang. 2019. "Factors influencing behavior intentions to telehealth by Chinese elderly: An extended TAM model." *International journal of medical informatics* 126:118–127.