

# Are academics adapting to students' technology learning preferences? A South African study of teaching identities

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Traditionally, academics in higher education relied on lectures, seminars, and textbooks for face-to-face instruction. However, technology integration in education has transformed the landscape, enhancing engagement, active learning, and personalised instruction, prompting academics to rethink their teaching methods. Anchored in social constructivist theory, our study explores how students' technological learning preferences impact academics' professional identities. Data from semi-structured interviews with nine academics at the University of the Free State, South Africa, selected through convenience and purposive sampling, were coded and thematically analysed. Our study found that although technology provides innovative curriculum design and collaborative learning benefits as students engage with diverse web-based platforms for personalised learning, academics must reassess their teaching approaches by iteratively balancing traditional and technological approaches. They thereby shift from being knowledge transmitters to learning facilitators, despite their limited digital literacy skills. Therefore, we recommend that all higher education stakeholders and web-based companies work together on practical professional development and mentorship programs. These programs will focus on improving academics' skills in digital literacy and innovation skills relevant to web-based learning spaces.

## Introduction

Traditionally, academics at higher education institutions relied on lectures, seminars, and textbooks for face-to-face instruction. However, technology integration in education offers the potential to enhance student engagement, facilitate active learning, and enable personalised instruction (Grant & Basye, 2014; Means et al., 2013), leading academics to undergo a shift in their perspectives and pedagogical approaches as they juxtapose these two modalities (Andrews Graham, 2019). The intertwining of technology with education has progressively provided a wide array of tools and resources to support the teaching and learning processes. Ranging from learning management systems such as Blackboard and Moodle (Mashau & Nyawo, 2021) to interactive multimedia platforms and educational applications, technology has transformed how educators (academics) conceptualise, deliver, and evaluate learning encounters (Alharbi & Drew, 2014; Febriyanti et al., 2022; Greenhow & Lewin, 2016; Marachi & Quill, 2020; Rosenbusch, 2020). These platforms have been embraced by universities and colleges across various regions, such as the United Kingdom, the United States of America, and the Middle East, with South Africa being no exception (Alharbi & Drew, 2014; Mashau & Nyawo, 2021). Despite the challenges associated with technology, adopter institutions have integrated such platforms to facilitate blended learning support (Mashau & Nyawo, 2021).

However, the effectiveness of using these platforms and tools relies on their availability and academics' compatibility with students' diverse learning preferences or platforms.

Importantly, there has been a growing research interest in understanding students' perspectives and perceptions of technology-enhanced learning, rather than simply assuming that students embrace all forms of educational technology (Conole et al., 2008). For instance, a survey of undergraduate students in Hong Kong found that the main predictors of students' technology use for learning were the compatibility of the technology with their learning styles and needs, the availability of encouragement and support from peers and teachers, and their overall attitudes towards technology use (Lai et al., 2012). This indicates that simply providing more technology in the classroom may not necessarily lead to increased student engagement and satisfaction and that thoughtful integration of technology, with attention to student needs and preferences, is crucial. Another study of community college students found that while students expect a certain level of technology integration in their courses, their satisfaction is not as strongly tied to the number of technological resources used, as popular opinion might suggest (Crocker & Mazer, 2019).

This is particularly relevant due to the rise of a new class of students known as digital natives (Henne et al., 2024), who may most likely have different skill sets and expectations regarding technology platforms. As these students engage with these technological tools and platforms, educators (academics) need to familiarise themselves with them (Piersiala, 2023) because they bring unique skills and expectations to their educational journeys. The students' adeptness at technology and inclination towards multimedia-rich, adaptable learning environments necessitate a shift in pedagogy among academics. Vysochan et al. (2024) posited that digital transformation has enabled tailored learning experiences that cater to individual students' needs, preferences, and learning styles. Nevertheless, the crucial question remains, whether academics can adjust their teaching methods to these preferences by embracing a more student-centred approach to technology instruction, departing from and reconsidering conventional paradigms to accommodate students' learning preferences. Thus, it is imperative to comprehend and contemplate how academics can effectively navigate these changes by aligning with students' learning technology preferences.

### **Problem statement**

The increasing integration of technology in South African higher education institutions, particularly at University of the Free State (UFS), involves the use of web-based learning, learning management systems such as Moodle, and social media platforms. This integration enhances student engagement, facilitates active learning, and enables personalised instruction. However, the increasing number of digital native students, who bring distinct expectations and abilities to their educational experiences through their technology preferences, compels academics to readjust and adapt their teaching approaches to align with these preferences. This adaptability is particularly challenging given some academics' unfamiliarity and limited skills with these web-based platforms. This may have led to a significant shift in teaching methodologies and subsequent influence on academics' construction of their teaching identities as they strive to accommodate a wide range of student technological learning preferences.

## Research aim

The purpose of this study was to explore academics' experiences with students' technology learning preferences and the implications on their teaching identities at the UFS, South Africa.

## Research questions

1. How do academics navigate students' technology learning preferences at the UFS?
2. How does navigating these students' technology learning preferences influence academics' professional teaching identities at the UFS?

## Literature review

Academics are at a confluence of traditional and technological advancements within the continuously changing environment of higher education. Andrews Graham (2019) argued that academics who started in a conventional classroom environment are adapting their teaching methods to suit the online education system, which may influence how they now construct their teaching methodologies. This is because academics' professional teacher development involves gaining new knowledge and skills to enhance their expertise, improving both their performance and student learning (Bon & Inpin, 2024). With the integration of various learning technologies, academics and students acquire new technological skills that effectively promote active engagement and enhance students' agency and cognitive and behavioural patterns (Ajani, 2023; Marín, 2022). Greenhow and Lewin (2016) suggested that while some research has indicated the potential benefits for educators to focus on students' interactions with Web 2.0 technologies, others have highlighted young individuals limited educational use of social media (Greenhow & Lewin, 2016). Greenhow and Lewin (2016) further emphasised the inadequacy of current theoretical frameworks in using social media as a tool for informal learning. Moreover, there is a significant discourse on the advantages and drawbacks of incorporating social media into learning routines, but little exploration of how these technologies bridge formal, non-formal, and informal learning settings (Greenhow & Lewin, 2016; Lange & Costley, 2015).

This underscores the importance for academics to incorporate student-centred Web 2.0 technologies such as "web-based tools, social networking platforms, collaborative approaches, and self-directed learning strategies" (Ajani, 2023, p. 2) to transform their teaching, despite challenges from varying student engagement levels. Consequently, while redefining their teaching identities and roles in light of these evolving dynamics of digital pedagogy's demands and possibilities, academics must navigate the complexity of teaching in alignment with their professional identities and students' technological preferences.

Academics' identity construction is a multifaceted process influenced by various factors, including disciplinary norms, institutional cultures, societal expectations, and the impact of change in higher education on academics' roles (Clarke et al., 2013; Folabit et al., 2023), such as multimedia technologies for teaching (Younie & Leask, 2013). Yang et al. (2022)

contended that academics consistently engage in the process of negotiating and working to resolve identity tensions related to elements, components, and disruptions within identity systems. Teachers' beliefs about their identity shape their professional development, decision-making, and classroom practices, as these identities are constantly negotiated in response to student and institutional expectations (Kamil, 2022). In parallel, the emergence of student-centred technology platforms has transformed teaching practices in higher education, which may have implications for academics, forcing a re-evaluation of their instructional techniques and professional identities (Folabit & Jita, 2024). Greenhow and Lewin (2016) asserted that navigating the digital terrain is not without challenges, because academics often grapple with tensions related to pedagogical autonomy, digital literacy, and the blurring of professional boundaries. Resistance to change and concerns about pedagogical integrity can further complicate the adoption of student-centred technology in the academic context. Thus, practical approaches, including professional development initiatives and collaborative partnerships, can empower academics to embrace technology as a means to enhance teaching and learning using innovative technologies (Price & Kirkwood, 2014; Ragupathi & Hubball, 2015).

Alharbi and Drew (2014) claimed that scholars are proficient implementers of these platforms due to their utilisation in educational settings. This is attributed to the transformative impact of technology, which has introduced different forms of blended virtual learning and innovative educational materials but has also transformed curriculum design and assessment methods, offering significant opportunities to enhance teaching and learning beyond traditional classroom boundaries (Kee et al., 2024). Consequently, technology may have instigated a shift in pedagogical strategies, prompting academics to explore creative approaches to instruction that influence academics' capabilities of engaging with technologies that empower learners. Various perspectives in the literature debate this matter, suggesting that the effective integration of technology can democratise education by granting access to diverse resources and fostering collaborative learning environments that align with students' digital preferences (Vysochan et al., 2024; Yu, 2024).

Conversely, critics have highlighted potential drawbacks, such as superficial engagement, digital distractions, and exacerbation of educational disparities. For instance, Mashau and Nyawo (2021) contended that while South African higher education institutions prioritise the incorporation of learning technologies and e-learning tools to enhance teaching and learning, the Department of Higher Education and Training has concurrently stressed the promotion of internationalisation through satellite learning and online distance education without providing directives for the implementation of technology in education. Subsequently, higher education institutions have taken it upon themselves to incorporate these technologies independently to improve the quality of education within the context of global educational reform (Mashau & Nyawo, 2021). As such, these institutions' challenges in implementing technology in teaching and learning, including insufficient digital skills, technological disruptions, faculty involvement, and financial constraints, may be attributed to this autonomous integration (Mashau & Nyawo, 2021). In this context, our paper examines academics' experiences in navigating the complexities of constructing their teaching professional identity amidst the integration of student-centred technology in

higher education. By examining the implications of this complexity, our study contributes to a deeper understanding of the evolving roles of academics in contemporary educational landscapes.

### **Theoretical framework: Social constructivist theory**

This study is anchored in social constructivist theory developed by Lev Vygotsky in 1962 (Vygotsky, 1978). The theory views learning as a complex and dynamic process where students must actively develop and understand concepts through social interaction and guided learning, rather than passively absorb information (Burhanuddin et al., 2021). This may mean that learning does not happen only through traditional teaching methods; students can discover knowledge through experience (Adom et al., 2016; Alanazi, 2016). This is because realities are socially constructed in a continuous and dynamic process, in which interpretation and knowledge are used to reproduce reality (Thomas et al., 2014). With technology, students and academics actively shape how educational tools are seen and integrated into teaching and learning processes, emphasising their agency in building their social environments. In the context of technology, academics need to create an active, engaging, and interactive learning environment that aligns with students' technology learning preferences. According to Amineh and Asl (2015), social constructivism is a sociology and communication theory that focuses on individuals' collective knowledge and understanding of the world. It assumes that understanding, significance, and meaning are developed in coordination (Amineh & Asl, 2015).

Amineh and Asl (2015) further added that the theory of social constructivism posits that human beings rationalise their experiences by creating models of the social world and that language is an important system for constructing reality. The theory emphasises the importance of culture and context in understanding society and knowledge construction. It posits that reality does not exist in advance, knowledge is socially and culturally constructed, and learning is a social process that occurs through interaction and collaboration (Amineh & Asl, 2015). This means that students' technology preferences are shaped by their experiences and the social context in which they are immersed. Therefore, when academics adapt their teaching methods to align with these preferences, they acknowledge the constructed nature of knowledge and the importance of the culture of tools (technology) that students use.

### **Research method**

This study employed a qualitative case study to explore academics' experiences of adapting students' technology learning preferences and the implications of this on their teaching identities. According to Hennink et al. (2020), qualitative research enables researchers to explore issues from the participants' viewpoints, uncovering the meanings and interpretations they attribute to their actions. Qualitative research can be used to explore complex social problems (Bailey, 2008). Due to the complexity of the phenomenon, a case study approach was employed. Heale and Twycross (2018) described a case study as a social science methodology involving an in-depth examination of a specific group,

individual, or unit which is not intended to be generalised. In our study, the focus is on academics at the UFS. We used constructivism, which emphasises the subjective meaning individuals assign to their experiences, rather than narrowing it down to a few categories (Creswell, 2009), to understand academics' adaptation to students' learning preferences. The researchers aimed to rely on participants' views of the situation being studied, as they learn much from their own experiences. This highlights the complexity of academics' meanings as they navigate the adaptation process and how it influences both their teaching and the ongoing construction of their professional identities.

### **Participants**

The target population of this study included academics at the UFS who adopt the different technologies used by students for teaching their content and student engagement. Thus, these academics were targeted by incorporating convenience and purposive sampling techniques. These techniques were used because the target participants used different web-based learning platforms, not limited to Blackboard, gamification, and social media platforms. In addition, they were easily accessible and willing to participate in the study. Furthermore, the researchers could easily obtain data from this sample type because they had access to the studied institution (Etikan et al., 2016). Nine participants were interviewed, of whom four were female and five were male. The participants were lecturers from various faculties, including education, humanities, economics and management sciences, and health sciences, ranging from lecturer to associate professor. All had doctorate degrees except one who held a masters degree and was pursuing a PhD. Ethical considerations were strictly adhered to. Participants verbally invited to participate in an interview were given a consent form. The form informed them of their right to withdraw from the interview at any point if they felt uncomfortable. Participants were required to sign the consent form before the interview took place. The researchers obtained authorisation from the research unit under protocol number HSD2023/2261. To further ensure confidentiality and anonymity, participants were asked to choose a pseudonym with which they felt comfortable. They agreed to be referred to as "P" followed by a number (ascending from 1 to 9).

### **Data analysis procedure**

Data were collected from semi-structured interviews conducted between March 2024 and April 2024 that lasted between 26 and 57 minutes. The interview recordings were transcribed using the Otter.ai online software program and the transcripts were then compared with the audio recordings for accuracy. The researchers then read and re-read the data while making comments, which helped them to familiarise with the data and to gain deeper insights into the participants' subjective experiences. Next, the researchers coded the data, a key step in the analysis process, as it provides a link between the data and conceptualisation (Ritchie & Spencer, 2002). They started with open coding by grouping segments of quotations and assigning them codes. These codes were then categorised and combined into subthemes, which were ultimately integrated to form overarching themes. Subthemes that overlapped or lacked sufficient data to support them were consolidated. The data were then analysed thematically.

## Findings

The study explored academics' experiences with students' technology learning preferences and the implications on their professional teaching identities. The researchers sought to determine if academics aligned with students' technological preferences in learning. The questions to be answered related to how academics navigate students' technology learning preferences, and how these preferences influence their professional teaching identities. Our findings reveal two distinct perspectives. On the one hand, participants agreed that they were making significant efforts to incorporate technology into their teaching by developing skills and staying current with technological advancements to enhance student engagement. However, it is important to note that simply providing more technology in the classroom may not necessarily lead to increased student engagement and satisfaction. Thoughtful integration, with attention to students' learning styles and preferences, is crucial for success (Conole et al., 2008; Crocker & Mazer, 2019; Lai et al., 2012). On the other hand, it appears that participants' incorporation of students' technology learning preferences has shifted their professional identities, as they now seek out various teaching methodologies for their classrooms.

### Academics' experiences navigating diverse web-based platforms

From the participants' narratives, it appears that they adopted a student-centred learning approach by engaging with students' preferred technologies that learners are excited to engage with. For instance, P2, P3, P5, and P8 claimed that the different platforms students associate with do benefit teaching and learning. P5 had no difficulty meeting students' learning needs through technology. He emphasised the benefits of technology in achieving lesson goals, module objectives, and skills development in the process. For him:

[platforms such as] Google Classroom have prompted me as a lecturer to develop the requisite skills that I am now using to share and receive information with my students.

[He added:]

... the thing is, if you do not engage in these platforms, then the objectives of your module will probably not be attained, especially as these students sleep and wake with technology by their bedside; they don't read physical books. (P5)

In the case of P2 and P8, it was all about assessing the suitability and appropriateness of different technologies for students' needs. For P2:

My role is to look at technology, see if it's suitable, and see if my group (students) ... whatever their role as students that they're supposed to play, whether it fits with what they have. (P2)

P2 further revealed that regardless of the type of technology used by students — whether it be social media or other platforms — their role as facilitators was to remain focused on transmitting knowledge through any medium (traditional or technological). P6 was

committed to guiding students towards learning achievements, as learner-centred teaching is now the model. For him:

Most of what we teach is already available in various sources, but as academics, our role is to help students identify the specific knowledge relevant to my module. (P6)

P8 explained:

I encourage them to research because I think that is one of the fundamental things that students kind of like ... and to find information themselves online [by] watching videos on YouTube ... TikTok ... and read in the textbook (soft copies). (P8)

For P5:

[because there is] so much information out there today, it is just for me to select the things ... relevant to whatever the module is.  
[He mostly:]  
... selects and presents to the learners or tells them that, 'Okay, these are the things that you need for this particular module' (P5)

Since information is readily accessible, P1 encouraged students to engage with various platforms at their convenience. For him, "there are so many ways of implementing these technologies." In support of P8's assertion, he added that sometimes:

... you (academics) can use videos ... PowerPoints and refer the student to LinkedIn courses, to do the courses online. (P8)

While P6 acknowledged the abundance of accessible knowledge, he emphasised the importance of filtering and identifying the specific information that would benefit students, as not all online content is suitable for their learning. He said:

Though you may give them assessments and tell them to find out information, you still have to be specific so that they don't waste their energy and resources.  
(P6)

A shared perspective from participants was adopting a student-centred learning approach by integrating technology that students are excited about. They recognised the importance of using various digital platforms to enhance teaching and learning, ensuring that these tools meet students' needs and facilitate engagement and skill development. Although they understood the emergence of a new cohort of digital natives who are knowledgeable about using technology to source information online as they (students) most likely have different skill sets and expectations regarding technology platforms (Henne et al., 2024), they (academics) felt the need to guide these students by identifying relevant information from the vast array of available online resources to optimise their learning outcomes.



Adapting teaching methods to meet students where they are is crucial in today's classrooms because as these students engage with different technological tools and platforms, educators must also familiarise themselves with them (Piersiala, 2023). In light of students' increasing use of digital tools and platforms, teaching methods must be adjusted accordingly. Academics can achieve this by surveying, understanding, and familiarising themselves with the platforms that attract students before incorporating them into teaching and learning. For P3:

As a lecturer, it's kind of pushing to say I must keep abreast of information on the technology that the learners are using. Then I should bring it into my class. How do I use that to help my learners be more focused and knowledge-oriented so that they can achieve the goals of the institution? Because if you keep doing it the old way, they will not be there again. They have moved, and we need to move and meet them where they are. (P3)

Traditionally, the class attendance register was recorded manually on booklets to monitor students' learning activities. However, technology has changed how things are done today; students can now use their smartphones to scan a QR code and register for the class. This is because to adapt to students' learning preferences and fulfil their roles in ensuring effective teaching methodologies, P1, P4, and P8 introduced a QR code system for capturing class attendance. According to P1:

I have two types of registers. There's one, they do the QR code. I was introduced to this by one of my colleagues. He does that on Microsoft Forms. And when I start the class, I have my QR code on the first slide. My kids (students) walk in and bring their smartphones and they take that register (attendance). Now, because I'm sensitive to inclusivity – remember I mentioned that I have to help the physical and the few learners who might not have cell phones. But to me, the QR code and the registration that I do are magical. They (learners) like it. They look forward to coming and registering for my lesson. To me, that's the best way of introducing our class. It sounds simple to most people who are not observant. When they walk in, they see the QR code and know they are registered, [even though] learners from low-income backgrounds without smartphones and access to technology tools cannot meet up with this, [so much so that with this challenge] I have to strike a balance by having physical register where they can sign manually against their name ... (P1)

In the case of P4, she used QR code for assessment. For her:

In class, when I pop in some Google Forms with a QR code for answering questions on the board and they answer on their phones, I put them on the board, and they start comparing. It's a powerful way because of the way it's taking place; it's easier for them, as I see, than if they had to write questions on their books, but they can quickly see how some of their colleagues are giving feedback. And they can quickly give feedback when a colleague saves a question.

For P8, “it (QR code system) saves time ... that’s being wasted on administrative things.” The participants demonstrated a hands-on approach by combining QR code systems, Google Forms, and the old way of recording student attendance, which proved engaging. Participants’ experiences of integrating all these technology learning tools into a single-class session streamline processes and boost engagement and inclusivity. This engaging experience between the academics and the students indicates that integrating technology effectively can democratise education by providing access to a wide range of resources and promoting collaborative learning environments that cater to students’ digital preferences (Vysochan et al., 2024; Yu, 2024).

On the other hand, P2 encouraged her students (pre-service teachers) to sort information for their teaching practice lessons from ChatGPT and Copilot to create videos using a tool called Visla. She further explained that these tools have also assisted her in enhancing and making the learning environment more engaging and exciting. For her:

So, I asked them (students) to prepare videos using a tool called Visla. So, they use Visla, which is an artificial intelligence tool, to create videos. And then they use either ChatGPT or Copilot ... to research the topic they’ll be teaching. They take whatever Copilot or ChatGPT gives them, put it in the Visla tool, and then create a nice video which is one minute long so that learners can watch that video as a way of introducing their lesson. So, those are some of the examples that I’ve been using lately to sort of try to enhance and make the learning environment sort of exciting.

From the above, the extent to which participants engaged different technologies in teaching and learning shows that they had acquired digital skills as they integrated different technologies, perhaps due to their willingness to adopt these technologies. Hence, it may be inferred that academics are proficient implementers of these platforms (Alharbi & Drew, 2014). This is because it is attributed to the transformative impact of technology. Technology has not only introduced innovative forms of blended virtual learning and innovative educational materials. It has also transformed curriculum design and assessment methods, offering significant opportunities to enhance teaching and learning beyond traditional classroom boundaries (Kee et al., 2024). As such, this transformative impact has prompted academics to consistently engage in the ongoing process of negotiating and working to resolve identity tensions related to elements, components, and disruptions within identity systems (Yang et al., 2022).

### **Iteratively adjusting teaching methodologies**

All nine participants considered different technologies that significantly influenced their engagement in technology-integrated classrooms in diverse ways. P1 explained that although technology is a valuable tool to assist in the classroom, his role as a teacher remains indispensable. For him: “you’re not the main source of knowledge, but you guide the sources of knowledge and technology to obtain outcomes.” This highlights the importance of ensuring that technology aligns with students’ needs and learning

preferences, rather than assuming that more technology automatically enhances learning outcomes.

P4 also felt that technology has made things easier, as her main role is now primarily to facilitate learning. For her:

I see myself not just as a teacher but a facilitator, since I'm there ... to guide my students through learning ... [because] they (students) know what they are looking for; they know what is expected of them. (P4)

In the case of P8: "I will give them links to certain materials, and I will ask them to read and prepare for class discussions." P7 believed that integrating the students' technology preferences into teaching methodologies posed a challenge for those unfamiliar with these platforms, as it required them to adjust their methods to enhance student engagement. For her:

It's a challenge having to keep the pace of what the students prefer, you know (laughs).  
[She emphasised that:]  
It seems you are in their boat, controlled by what they want, I mean, the type of technology. (P7)

In the case of P3, he felt it was a struggle to constantly switch teaching approaches. For him: "... this is challenging because I have to constantly change the approach I use for teaching." He believed that "the traditional method is smooth", but that one then has "a goal, which is to get your students engaged." P6 attested that engaging in students' learning preferences has shifted their teaching approaches. For him: "so my method of teaching has shifted to suit that of the learners in terms of technology."

P9 explained that technology at his current institution was very evident compared to previous institutions, as lecturers must use technology to facilitate students' learning. For him: "where I came from, we were not using as much technology as this," because it was not prioritised as a teaching medium, as "the highest was the use of laptops for, maybe, some administrative roles that are attached to your teaching and learning", and as a result, "when I got here based on the basic knowledge that I had before, it helped me to be able to adapt easily." Thus, P9 outlined how he was building skills through workshops and exploring the technologies at his disposal. He explained:

So, every day, what I do is look at ways to make changes. For example, I attended this program on Blackboard last year, and with that ... I don't need to organise face-to-face assessments for my students. I can ... set the questions here and put them on the Blackboard for them. So, I'm moving away from the traditional way of doing it ... to the new thing. (P9)

P7 supported this:

You can't use technology if you're not trained to use it. Through training in technological skills, you should be able to function properly with the technology that presents itself ... especially technology that students are comfortable using.  
(P7)

From the above, the nine participants discussed how the available technologies that students prefer significantly influenced their engagement in technology-integrated classrooms. Besides the value of using various technology platforms for teaching and learning engagement, navigating the digital terrain is not without its challenges because academics often grapple with tensions related to pedagogical autonomy, digital literacy, and the blurring of professional boundaries (Greenhow & Lewin, 2016). The value of technology as a tool in the educational context does not render academics' teaching roles obsolete. Instead, technology serves to aid the learning process, allowing academics to adapt their methods by engaging those technologies that students feel comfortable with. In addition, the challenge of adjusting their strategies to effectively engage students' learning experience emerged in this study. One such challenge would be using technology to teach auditory learners in an inclusive classroom where resources are limited for such learners, questioning the notion of inclusivity and access. P1 shared the sentiment that:

... technology at my institution only deals with or favours this particular type of learner (mainstream) because, as you know, skills are different. They are those learners who are auditory learners, and as you know, these types of learners are kinaesthetic learners. But when you use technology, it depends on how you use it. (P1)

Participant P1 proposed that this area needs to be researched. Speaking from his experience, he thought that those types of learners do not fully engage with technology and proposed that research be done in that context. What the researchers understood regarding the participant's suggestion is that conducting research that examines the complexities of integrating technology in a classroom with such learners and its implications on academics' roles will be debatable going forward.

Obtaining the skills required to help participants integrate technology correctly, especially about students' comfort levels, presents another challenge. These skills must be acquired by participating in technology-focused training programs. These practical approaches, including professional development initiatives and collaborative partnerships, can empower academics to embrace technology as a means to enhance teaching and learning using innovative technologies (Price & Kirkwood, 2014; Ragupathi & Hubball, 2015). This aligns with social constructivist theory, which argues that reality does not exist in advance, knowledge is socially and culturally constructed, and learning is a social process that occurs through interaction and collaboration (Amineh & Asl, 2015). Our study argues that students' technology preferences are influenced by their experiences and the social context they are immersed in. When academics adapt their teaching methods to align with

these preferences, they recognise the constructed nature of knowledge and the significance of the cultural context surrounding the technological tools students use.

## Discussion of the findings

Our study revealed that students, as digital natives, have distinct preferences for learning technologies, such as Google Classroom, YouTube, TikTok, and artificial intelligence (AI) tools like ChatGPT and Copilot. This aligns with the literature suggesting that technology can enhance student engagement, facilitate active learning, and enable personalised instruction (Grant & Basye, 2014; Means et al., 2013). Academics have had to adapt by integrating these tools into their teaching methodologies to meet students' expectations and preferences. For instance, our study noted the benefits of using varied web-based platforms to achieve lesson goals, develop skills, and meet module objectives. This shift reflects a broader trend where the integration of learning management systems such as Blackboard and Moodle has transformed educational practices (Mashau & Nyawo, 2021). The adaptation process often involves a significant transformation in academics' professional roles, moving from being traditional knowledge transmitters to facilitators of learning. Adapting to technologies that excite students unavoidably has profound implications for academics' professional identities. As highlighted in the literature, academics are at a confluence of traditional and technological advances, requiring them to reconcile their established pedagogical approaches with new, technology-enhanced methods (Andrews Graham, 2019). This shift necessitates continuous professional development and a re-evaluation of their teaching roles.

Academics are transitioning from being the primary source of knowledge to facilitators who guide students in finding and applying information. This role shift is crucial for creating an engaging and effective learning environment, as suggested by Greenhow and Lewin (2016). To remain effective, academics must engage in ongoing professional development to master the technologies preferred by students (Piersiala, 2023). This need for upskilling aligns with the literature, emphasising the importance of training and support in the digital age (Alharbi & Drew, 2014; Ragupathi & Hubball, 2015). While technology offers numerous benefits, it also presents challenges. Our findings indicate that academics often grapple with issues such as digital literacy, the availability of resources, and the need to balance inclusivity with technological advances. These challenges are echoed in the literature, which discusses the tensions related to pedagogical autonomy and the potential for digital distractions and disparities (Greenhow & Lewin, 2016). Despite these challenges, technology's transformative potential is undeniable. It provides opportunities for innovative curriculum design and assessment methods, enhancing teaching and learning beyond traditional classroom boundaries (Kee et al., 2024). The effective integration of technology can democratise education, making it more accessible and collaborative (Vysochan et al., 2024; Yu, 2024).

The adaptation of teaching methods to align with students' technology preferences can be understood through Vygotsky's social constructivist theory. This theory posits that learning is a social process that occurs through interaction and collaboration (Amineh & Asl, 2015; Vygotsky, 1978). Technology integration in education creates a more interactive

and engaging learning environment where knowledge is constructed socially and culturally. Digital tools foster collaboration among students, supporting Vygotsky's idea that learning is a social activity. For instance, our study found that using AI tools and multimedia platforms encourages students to work together and engage in collective problem-solving. Students' technology preferences are shaped by their cultural context, and academics must align their teaching methods with these preferences to facilitate effective learning. This alignment acknowledges the constructed nature of knowledge, the importance of students' cultural tools, and the social learning process that occurs through interaction and collaboration (Amineh & Asl, 2015). This process of co-constructing knowledge influences academics' professional identities in teaching.

### **Limitations of the study**

This study had some limitations. For instance, the small sample size and focus on a single case may have limited its representativeness, making it challenging to generalise the findings to a larger population. Nonetheless, this study allowed for a deeper understanding of the researched phenomenon, enabling a profound insight into participants' perspectives.

Another potential limitation of the study is the bias that may have resulted from participants' self-reported data. Participants might have felt compelled to provide expected responses rather than their actual experiences, possibly inflating their use or proficiency with technologies and skewing the results.

The subjective nature of this qualitative approach may have introduced researcher bias in the data reporting process, even though qualitative research entails interpreting participants' experiences, feelings, and actions and developing themes based on these interpretations. The study's findings might be constrained by potential bias. The researchers reported the data exactly as described by the participants and interpreted their direct quotes appropriately to minimise this bias.

### **Conclusions and implications**

This study argues that the technological learning preferences of students have a substantial impact on the professional identities of academics. This is due to the crucial role technology plays in education, which does not diminish the significance of academics as educators, but rather enhances the learning process by allowing academics to adapt their methods to incorporate the technological inclinations of students. However, the influence of students' preferences for technology on the professional identities of academics cannot be underestimated. For example, the preference of students – who are considered digital natives – for platforms such as Google Classroom, YouTube, TikTok, and AI tools, which promote engagement and personalised learning, has restricted the traditional teaching and learning techniques of academics. This is because academics are required to adjust to these preferences by integrating such technologies into their teaching practices to meet learning objectives and enhance student engagement. Although this adjustment consequently alters academics' roles from being disseminators of knowledge through

traditional methods to facilitators of learning through technology, this shift in their identity is constrained by limited digital literacy skills and access to resources. This highlights the importance for academics to acquire proficiency in new technologies through continuous professional development training programs and reassessing their teaching methods.

However, the advantages of technology in education, such as creative curriculum design and the establishment of inclusive, collaborative learning environments, are evident. The research emphasises that harmonising teaching strategies with students' technological preferences can lead to improved learning results. This alignment can be interpreted through Vygotsky's social constructivist theory, which regards learning as a collaborative process facilitated by interaction and cooperation. By adapting to these preferences, academics can create more stimulating and efficient educational experiences, thereby contributing to a learning environment that is more diverse and dynamic.

This research recommends the establishment of a collaborative learning environment that facilitates the interaction between students and scholars to investigate and integrate innovative technologies within the educational context. Moreover, in light of the perpetual technological evolution and dynamics, all higher education stakeholders and web-based companies should work together on practical professional development and mentorship programs. These programs will focus on improving academics' skills in digital literacy and innovation skills relevant to web-based learning spaces.

### **Suggestions for future research**

Technology is widely accepted as a teaching and learning tool in higher education. Since it has influenced academics to adapt their teaching methods to students' technological preferences, future research should investigate the most popular technologies and web-based platforms that students prefer. Comparative studies across different contexts could assess the effectiveness of these tools, providing a better understanding of their benefits and limitations for both academics and students. This research could guide stakeholders and policymakers in developing strategies for inclusive technology use in education. Furthermore, our study adopted a qualitative approach to investigate the perspectives of academics within a single institution. Future research could benefit from quantitative analyses or a mixed-methods approach, adopting a longitudinal study with a larger sample size to better understand various variables. Longitudinal studies may establish a roadmap to engage students' and academics' perceptions of using specific technologies for teaching and learning. This approach will help bridge the gap between students' expectations and academics' aptitudes, leading to improved alignment and enhanced educational practices, experiences, and professional development for academics.

### **Acknowledgements**

The authors acknowledge the South African National Road Network (SANRAL) Chair Office, University of the Free State, South Africa, for funding this study.

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## Appendix: Semi-structured Interview questions

1. Discuss how you perceive your role as a teacher in technology-integrated classrooms.
2. Describe how technology has shaped your interactions with students and the learning environment.
3. In what ways has the incorporation of technology in classrooms influenced your teaching methods and approaches?
4. How do you perceive students' preferences for using technology in their learning?
5. In what ways do you adapt your teaching practices to accommodate these preferences?
6. How do students' technology preferences impact your professional identity as a teacher?
7. In your opinion, what are the key factors that contribute to the successful integration of technology in your teaching practice?

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**Please cite as:** Folabit, N. L. & Jita, L. C. (2024). Are academics adapting to students' technology learning preferences? A South African study of teaching identities. *Issues in Educational Research*, 34(4), 1241-1259. <http://www.iier.org.au/iier34/folabit.pdf>