OPENING DOORS TO POSTGRADUATE STUDIES: THE ROLE OF DIGITAL TECHNOLOGIES AND SOCIAL MEDIA

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ABSTRACT

Regardless of an expansion in enrolments, South Africa continues to encounter a shortage of quality postgraduate output particularly at the Masters and Doctoral levels. Studies have highlighted various explanations behind this shortage. These range from but are not limited to; a poor basic education, pressure from the labour market, curriculum patterns, family and financial responsibilities and a shortage of qualified supervisors. There is a paucity of studies on undergraduate experiences in South Africa and their possible effect on progression to postgraduate studies and knowledge creation in South Africa. The aim of this study was to gain an understanding of the factors that influenced the formation of professional academic identities and factors that made it possible for students to progress to and access postgraduate studies within their chosen fields. To achieve this, qualitative methods were used to collect data from postgraduate students at two universities, and from various faculties. The data was analysed using NVIVO software. It was found that there are many variables that contributed to the development of professional identities and access to postgraduate studies. This article presents two factors which contributed to facilitating access to postgraduate studies which are technology and social media. Taking into consideration South Africa's higher education context, the funding implications will also be discussed. They form part of a larger model called Tlou Model of Professional Identity Formation, which can be used to help undergraduate students progress to postgraduate.

Keywords: professional identity, digital technology, social-media, funding, undergraduate, postgraduate

INTRODUCTION

The South African higher education system has a paucity of postgraduates especially at the Masters and Ph.D. levels. It was found that the higher education system has low postgraduate research in the form of publications from this group (Cloete, Mouton, and Sheppard 2015; Essop 2020). The high attrition rates in Masters and Ph.D. courses where students drop out and do not complete their studies also contributes to the shortage of Masters and Ph.D. graduates and research throughput (Cloete et al. 2015). Some Masters and Ph.D. students also take longer than the allotted time to complete their studies at various higher education institutions in South

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Africa (Cloete et al. 2015).

The enrolment and graduation figures lag behind when compared to other countries statistics (Mouton 2011). To avoid an even larger higher education crisis in future, the number of academics and lecturers and doctoral supervisors has to increase exponentially (DHET 2018). To become competitive at the global level and also become a knowledge economy, an increase in postgraduate research is important (Styger, Van Vuuren, and Heymans 2015). Postgraduate research largely comes from Masters and Doctoral graduates in South Africa.

It seems there were further developments within higher education, however, insufficient to fulfil the requirement for more postgraduate research and knowledge practitioners (Cloete et al. 2015). It has been suggested by Cloete et al. (2015) that one of the reasons behind this trend is the influence that the labour market has on graduates. In addition, how undergraduates go to work immediately after finishing their first degrees rather than pursuing postgraduate studies.

Funding is also an important factor in access and success in postgraduate studies in South Africa. It remains a contentious issue in the higher education landscape. The discussions on funding in higher education have centred around the funding models, the ability and adequacy of government to support higher education institutions needs and the student protests against annual tuition fee hikes (Wangenge-Ouma 2012). Large numbers of formerly disadvantaged students managed to access higher education but due to insufficient resources and government subsidies, they also struggle to complete their studies (Motala, Sayed, and De Kock 2021).

Governments support Ph.D. education through a variety of funding initiatives. These include performance-based funding, giving funding to centres of excellence and various Ph.D. programs. Some governments also concentrate on Ph.D. funding in top research higher education institutions (Herman 2011). The funding plan for higher education had to meet both demands for equity and for efficiency amidst resource limitations (Motala 2020). Government funding did not match the sharp increase in higher education access. Funding mechanisms were introduced to try increase access and participation in higher education by previously disadvantaged students. However, this still remains a difficult goal to achieve (Wangenge-Ouma 2012).

South Africa still needs knowledge practitioners because it is a developing country. As a result, numerous studies have been conducted to determine why South Africa has a paucity of postgraduate researchers and knowledge practitioners. Numerous causes for the shortage have been identified in studies. Despite the fact that there is a wealth of literature about identity formation, current literature and studies are scant on the encounters and experiences that undergraduates have during their studies that aided in shaping professional identities and facilitated their access into postgraduate studies.

The general trend in South African higher education is that undergraduates are exposed to research, from their last year of study or their honours year. Research skills and professional identity could be nurtured from this stage in students' academic career rather than starting later at postgraduate level. It was crucial to investigate how professional identity develops during undergraduate and how this may have enabled graduates to pursue postgraduate studies and understand what role knowledge from their domains plays in society, given the low percentage of postgraduates South African higher education produces.

This article is centred around undergraduates' experiences with social media and technology during undergraduate studies and how they assisted with development of professional academic identities and facilitated access to postgraduate studies. Although the study never incorporated funding in the data collection, it is an important component that has been highlighted, as funding of digital technologies and ICTs in South African higher education institutions, especially historically disadvantaged institutions remain an issue. This is followed by a discussion of the findings and how the work contributes to existing scholarly work on professional identity and access to postgraduate studies.

CONTEXTUALISING THE STUDY WITHIN THE SOUTH AFRICAN HIGHER EDUCATION LANDSCAPE

Despite large graduation numbers this does not translate into an equally proportionate number of postgraduates. Graduates obtaining a junior degree were n=227 188 in 2018 (DHET 2020). The number of Masters graduates in South Africa was n=8610 in 2018 (DHET 2020). Doctoral graduates in South Africa were n=3344 in the 2018 academic year (DHET 2020).

The number of Masters and Doctoral graduates is much smaller in comparison to undergraduate graduation numbers. From the latest postgraduate statistics, the graduation rates are 73 per cent for Honours, 21 per cent for Masters and just 6 per cent for Doctorates (CHE 2020). The postgraduate numbers are not on par with the undergraduate alumni numbers and what might be generally anticipated from such an enormous number of graduates. There is an incredibly high divergence in numbers between undergraduate degrees and attainment of postgraduate degrees in South Africa.

Evidence implies that South Africa is struggling internationally as well; in comparison to the University of Sao Paulo in Brazil, which had around 90 000 students and published 8 200 ISI publications, South Africa had about 900 000 students and produced just over 9 000 publications (Cloete 2014). Germany, Canada, the United States, and the United Kingdom already produce a much larger number of doctoral graduates than South Africa (Cloete et al. 2015).

Funding for higher education is an important factor in discussions on access and success in higher education. Student voices on funding also demonstrate and foreground how lack of funding also has a compound effect on everything. From struggling to procure textbooks, accommodation fees and registration fees and these also affect the student's ability to just concentrate on their studies (Motala, Sayed, and De Kock 2021; Ruswa and Gore 2022). Funding is not only needed for food, textbooks, accommodation and tuition. There are also other miscellaneous needs that have to be attended to such as internet access, laptops, tablets, printing and transport (Ruswa and Gore 2022). Students sometimes lack the resources needed to successfully complete their studies. The compound effect of not being able to pay current tuition fees on top of the following years tuition fees added to the strain and also worsens student poverty (Ruswa and Gore 2022). Students from previously disadvantaged backgrounds also suffered mental health issues as a result of financial hardship and a lack of funding. This contributed to dropout rates and academic exclusions (Ruswa and Gore 2022).

Funding for doctoral students allows them to spend time on their studies and the aim is for them to complete on time or at least within an acceptable timeframe. The NRF funds a majority of Ph.D. programs in South Africa, it cannot support the entire production of the Ph.D.'s in the country (Herman 2011). The NRF only funds Ph.D.'s for three years. This is a problem in higher education. Ph.D.'s in the Humanities and sciences generally take longer than this. What ends up happening is that students drop out and go find work before completing the Ph.D. (Herman 2011).

These statistics presented above reveal that there are problems related to access of postgraduate study in South Africa. What is often overlooked as mentioned earlier in the article are the processes and experiences with digital technologies that students have during undergraduate that contribute to their academic success, the development of professional identity and how these contribute to ongoing education through to postgraduate studies.

SOCIAL MEDIA AND TECHNOLOGY IN HIGHER EDUCATION

The overall emphasis in research on technology has switched from technology use to how students can adapt technology and social media platforms to aid them in their studies (Corrin, Lockyer, and Bennett 2010). It is becoming increasingly impossible not to rely on social media and technology for everyday needs (Schlebusch 2018). Students and staff in academic settings use technology and social media as a source of information for their own personal development or for their work (Schlebusch 2018).

Technology also enables students to see their work visually rather than only on paper (Henderson et al. 2015). Students can view ideas and information in a variety of formats due to

technology, which enables 3D representations of work when necessary (Henderson et al. 2015). Podcasts are another internet resource that students claim to have used to assist them with their academic work (Kirkwood and Price 2014).

The downside of social media and technology is that some students have difficulties with accessing it or have very little access to technology tools and the internet (Crocker and Mazer 2019). In some cases, the use of technology in higher education is mostly for routine tasks and where students need more support to use technology effectively and therefore students are sometimes not as familiar with technology as they ought to be (Ashour 2020). When some participants had access to technology and internet services, they also experienced issues with technology malfunctioning. Additionally, it was discovered that students had very little technological proficiency (Lusigi 2019). Furthermore, it costs a lot of money for individuals, as well as institutions of higher education, to access technological tools for both teaching and learning (Lusigi 2019). There is a wealth of information and literature about the advantages and disadvantages of using social media and technology in higher education.

Access, success and digital technologies in postgraduate education also have funding implications and these cannot be separated from each other. There is unequal funding of digital technologies and ICTs between historically disadvantaged institutions and historically advantaged institutions. In 2014, the Department of Higher Education and Training devised a program where students could have access to tablets in historically disadvantaged institutions. This was to increase their access to online resources and also support their learning and research activities (Munyoka, Runhare, and Dzimiri 2019). Some of the historically disadvantaged institutions also used social networking technologies in their teaching and learning activities and also used technology-assisted learning (Munyoka et al. 2019).

There is still a large gap between the technology capabilities in between historically disadvantaged institutions and historically advantaged institutions. One way to address this is to redirect more funding and investment for ICT service delivery to historically disadvantaged institutions (Lusigi 2019; Munyoka et al. 2019). Staff and students training on different digital technologies will also be needed in historically disadvantaged institutions to also try close the gap in research capabilities. Digital technology should be used to enhance and increase equity, access, and quality (Lusigi 2019).

In order for higher education institutions and countries to stay competitive and participate in the knowledge economy effectively, it is important for technology to be upgraded (Lusigi 2019). Technology and social media are an important part of today's society. Many people rely on technology and social media for many functions and tasks in society. Without these, many tasks would be impossible to achieve.

THEORETICAL FRAMEWORK

The situated learning theory by Lave and Wenger and Boud's reflective model are drawn upon in this study. They enable reflection on interactions and connections with technology and social media, as well as how these tools aided students to pursue their postgraduate degrees.

Communities of practice can be found in households, businesses, universities, schools and in any setting where there are shared understandings and knowledge (Castello et al. 2015; Wenger 1998). According to Wenger (1998), a community of practice has its own distinct ways of doing things. Different traditions (including approaches to team- and problem-based learning) that view learning as socially and culturally constructed and impacted by the socioemotional context in which it occurs, recognise the relevance of the group as a potent training instrument (Boud, Cohen, and Walker 1993). Members of these communities of practice learn how to participate in these practices together.

Legitimate peripheral participation requires practice-based learning and a flexible type of membership in a community of practice (Lave and Wenger 1991; Warhurst 2008). To acquire new skills and knowledge, beginners must move from being newcomers to being full participants; this is a continuous process (Lave and Wenger 1991). This can be achieved through reflection. According to Boud (2001), reflection is a technique used to transform experience into learning by examining it in order to acquire new things. This is in addition to learning new knowledge. Participants in reflective activities must make links between new knowledge and what they already know, search for connections between concepts that are both new and old and evaluate the validity of the thoughts and feelings that have developed (Boud 2001; Mezirow 1991). Similar to this, long-term engaged members of a community of practice alter their involvement and identity (Lave and Wenger 1991). The ongoing development of identities is a component of learning.

Undergraduate and postgraduate students also need to participate and learn within their community of practice or discipline. When a student emulates what a professor in their field does and how they interact with knowledge then this also changes what the student knows including their identity (Baker and Lattuca 2010; Lave and Wenger 1991). Students would not be able to develop their professional identity without the knowledge in their field and what is expected of them (Baker and Lattuca 2010; Lee and Boud 2003). Without this knowledge, students cannot become members of the community of practice. Professional identity is formed within the context of the knowledge domain (Baker and Lattuca 2010) and learning and sharing of knowledge also changes individuals and their identity (Lave and Wenger 1991).

MAIN RESEARCH QUESTION

What experiences with technology and social media during undergraduate helped you develop your professional academic identity and access postgraduate studies?

STUDY SAMPLE

The sample consisted of postgraduate students from two South African universities. The universities were a Research Intensive University and a Comprehensive University. The Universities of Technology could not be included as there were financial, capacity and time constraints. The University of Technology in Gauteng was not able to give the researcher permission on time to collect data and had not concluded the ethical clearance process on time. The researcher had to collect data from the two universities where ethical clearance, review of instruments and permission to collect data were given timeously.

The study required a specific sub-set of the postgraduate population in South Africa. Postgraduates had to be selected for the sample because the study was based on experiences from undergraduate studies that facilitated access to postgraduate studies. Most importantly, the participants had to have completed their postgraduate or be registered for postgraduate at the same institution that they had completed their undergraduate studies in. Sampling was purposive because students that had completed their undergraduate at the same institution were selected and only postgraduate students from sciences, humanities, commerce and engineering were invited to participate.

There were n=27 for the qualitative portion of the study. This study consisted of the following:

- Postgraduate students from Honours, Masters and Ph.D.
- Enrolled at the same institution for both undergraduate and postgraduate.
- The respondents had to be fulltime and part-time postgraduates studying or completed in the two South African universities. The two South African universities are a Comprehensive University and Research Intensive University.
- Fields: Engineering, Social sciences, Business and Economic studies and BSc
- Students that were enrolled at the same institution for both undergraduate and postgraduate regardless of nationality.

METHODOLOGY

The approach used to gather the data was qualitative. Participants from two universities in South

Africa were interviewed. A semi-structured interview schedule was used for data collection. The questions aided in determining the participants' undergraduate experiences and connected this to their postgraduate studies and knowledge creation. The questions assisted them to reflect on their experiences with social media and technology that influenced professional identity formation during undergraduate studies.

THE BROADER STUDY

Data for the broader study was collected using mixed methods. The broader study investigated the socialisation and experiences that postgraduates went through during undergraduate in order to develop their professional identities. In addition, how these undergraduate experiences and professional identities helped graduates to comprehend the significance of postgraduate research knowledge development.

In the wider study, everybody who works in academia is also considered a professional, as well as anyone who works in industry. Therefore, the term professional identity was further partitioned into professional academic identity, professional industry identity and well-rounded professional identity (which comprises of individuals working in both industry and academia) in the wider study. In the wider study, it was found that numerous factors structure and shape some aspects of undergraduate experiences, having an impact on the development of professional identities and the production and transformation of new knowledge in both academia and industry through postgraduate research.

The key themes that emerged from the wider study were mentorship, autonomy, application of knowledge, creative problem solving, visual images and symbols, web-based entertainment, social media, technology, business ventures, family influences, friends, university culture, resources and networks outside to the university and influence from communities (Msimango 2020). These variables were used to build a model called the Tlou Model of Professional Identity Formation (Msimango 2020). The model is proposed as a framework that can be utilised to encourage university undergraduates to engage with academic and industry-based research information and expose them to research skills from their first year of study. The focus of the model is to help university undergraduates to explore and learn through their journey from undergraduate to postgraduate. It could possibly assist graduates that are working and unemployed graduates to access postgraduate studies.

DATA USED FOR THIS STUDY

Only the qualitative portion of the data is used for this study and only two variables technology and social media are used in this article. The two variables are expanded upon to understand

how they supported students access to postgraduate studies and professional identity. This is achieved through the analysis of responses to the research question. The theoretical framework used in the wider study is also expanded upon in this article.

ANALYSIS

The data analysis for the interview data included a Word Frequency and Word Tree analysis in NVIVO qualitative analysis software. Data was coded using nodes or codes feature in NVIVO. Thematic content analysis approaches were employed by the researcher to find recurring themes in the study (Pluye and Hong 2014). The results of investigations using qualitative methods were examined to create the thematic codes. The patterns recognized, processed, and organized qualitative data and themes were created.

The research findings have been grouped into categories in order to focus attention on the role that technology and social media during students' experiences at university. The findings discussed here are fundamental to understanding how the use of technology and professional identity influenced students to pursue postgraduate study. These themes were then used for the write up of the findings.

RESULTS

The participants reported that they used technology and social media during their undergraduate studies. They also indicated that social media and technology had an impact on how they developed their professional identities as undergraduates and facilitated their entry into postgraduate studies.

The platforms that the participants used were also thoroughly explained by them. The survey participants had access to a variety of social media sites. They had used well-known media such as blogs, TED talks, YouTube, Instagram, podcasts, LinkedIn, and Facebook. A participant from the Research Intensive University reported that,

"At some point I developed a blog for young women in my field. It was a way for us to share ideas and our experiences. I made friends with ladies as far as Malaysia, India, the UK." (Interview 14R) (Msimango 2020).

Another participant but from the comprehensive university mentioned podcasts,

"I also used to listen to podcasts, those cover a variety of topics. I enjoyed the ones from early career professionals regardless of which field, especially important was the information on self-development." (Interview 4C) (Msimango 2020).

Research intensive university participant said the following,

"There were also acquaintances I met through LinkedIn and Facebook and these were people in my discipline. Some had only one-year work experience others twenty years of experience but everyone had different advice to give and all were valuable." (Interview 6R) (Msimango 2020).

Another participant from the research intensive university said,

"I've heard a lot of individuals in my field talking on the radio, giving advice or even raising awareness about particular topics; I used to think that could be me one day." (Interview 8R) (Msimango 2020).

This participant from the comprehensive university was part of a WhatApp group with a lecturer,

"One of my lecturers mentored me and a few of my second-year university colleagues, we kept contact via a WhatsApp group. We didn't only discuss course work." (Interview 5C) (Msimango 2020).

Online engagements also opened up opportunities to engage with successful individuals in the same field. A respondent from the research intensive university stated that,

"We felt secure enough to ask a successful woman in our field personal questions about how she achieved success and any difficulties she may have had." (Interview 19R) (Msimango 2020).

Comprehensive university participant said the following,

"I had a lot of interaction with my cousin and his friends as they were postgraduates. They were also interested in gaming (computer games) like me. The fact that they were postgraduates inspired me to enrol for postgraduate studies." (Interview 2C) (Msimango 2020).

Another respondent from the Comprehensive university reported that,

"I followed Kofi Anan and Banki Moon on Instagram and Facebook, they had a significant impact on both my personal and professional identities." (Interview 16C) (Msimango 2020).

A respondent from the research intensive university said,

"I aspire to be like Elon Musk, he is one of the tech giants. I enjoy and engage with his online posts." (Interview 21R) (Msimango 2020).

Of the participants that mentioned taking free online courses it was only respondents from the research intensive university. The participant from the research intensive university mentioned that,

"There were these online courses that we could do for free and learn about other courses. There were some courses that I did, they were in Engineering, Statistics, Philosophy, Sociology, many other areas. They were not difficult. It was a way for me to break away from the monotony of my university courses." (Interview 5R) (Msimango 2020).

Another participant at the Research Intensive University had the following to say,

"There were also online courses I used to do, my favourite was Coursera. Coursera is an online platform where you can do short courses through some American universities. There are courses in engineering, statistics, social sciences. You can pick your pace and you can enrol in more than one course for free." (Interview 7R) (Msimango 2020).

Respondents also mentioned that they attended seminars. They also received information about the seminars via different social platforms. Comprehensive university participant said the following,

"I used to get messages on email, WhatsApp and Facebook about seminars. These were supposedly not intended for undergraduate students. Anyway, we were never told we couldn't attend these seminars, I attended them anyway." (Interview 26C) (Msimango 2020).

A participant from the Research Intensive University reported that,

"Attending seminars was fun for me since it allowed us to connect with successful people in our field. A chance to ask inquiries on the subject also presented itself. This made it easier for me to apply for my PhD." (Interview 1R) (Msimango 2020).

There was only one participant who mentioned work that was done online. They were from the comprehensive university and it was also part of their course credits. The respondent from the comprehensive university reported that,

"I had an online parttime job related to my studies. I was appreciative of this practical experience, and it just fueled my desire to continue learning after finishing my undergraduate degree. Because of this I am a postgraduate student." (Interview 23C) (Msimango 2020).

The above are some of the responses to the questions on how technology and social media assisted participants to access postgraduate study and also assisted them to develop their professional identity.

DISCUSSION

Social media and digital technologies in higher education

Technology was easily accessible at the two universities. Students at both universities had access to computer laboratories where they could complete their coursework and engage in any other acceptable activities that the institutions supported. While on campus, the participants had access to the internet via LAN cable or WiFi. Many of the participants claimed to have internet and technology access outside of their schools. The fact that the institutions offered computer facilities shows that they were making an effort to alleviate the significant ICT skills shortage in South Africa (Schlebusch 2018). Not every student had access to computers during their basic education. If universities did not provide these tools, it would be very difficult to address this skills shortage (Schlebusch 2018).

In order to increase their self-awareness, the respondents within this study have been able to reflect on their learning, developed technical and non-technical skills and practiced using their knowledge in various contexts which was social media and technology. By interacting with their surroundings, their profession, or their field, respondents developed a sense of who they are and actively participated in creating meaning from what they observed and heard.

Many institutions rely heavily on social media and technology in the performance of their daily tasks (Henderson et al. 2015). The students have also come to rely on social media and technology to help them with their work (Englander, Terregrossa, and Wang 2010). In a number of studies, it was found that technology contributed to student success (Englander et al. 2010).

The participants did not only rely on traditional coursework, they took the initiative to use social media and technology to assist them. The complete person is involved in the process of learning and developing their identity, including their own needs and relationships within the communities of practice they engage with (Lave and Wenger 1991; Tshivhase 2017). New members can only fully participate in a community of practice when they are given the chance to learn, are inspired to do so, are able to reflect on their experiences and what they are learning and can put their newly gained knowledge to use (James 2007; Wenger 1998). The respondents who participated in blogs and podcasts demonstrated the importance of engaging with other students and scholars in their fields and these interactions are facilitated by technology.

A flexible community of practice membership and practice-based learning are necessary for legitimate peripheral participation (Lave and Wenger 1991; Warhurst 2008). Identity is developed in social contexts and via participation in social activities (Mead 1956). Newcomers must transition from being new in the group to full participants in order to learn new skills and knowledge; this is a continuous process (Lave and Wenger 1991). The respondents in the study tried to engage in other activities other than just interacting with the immediate people around them. They also used social media and technology beyond the social aspect of just finding friends online, they tried to seek out individuals that were in the same field or at least involved in scholarly pursuits of the same nature.

Contribution of social media and digital technologies to the development of professional identity, funding implications and access to postgraduate study

The results show that these respondents professional identity developed during university and through participation, involvement, and the sharing of online experiences with their faculties, disciplines or communities of practice and friends. Many of the social media platforms that the participants mentioned allowed them to socially interact with anyone they wanted to at any given time, with local and international friends and colleagues within their field and other fields. Technology facilitated the use of social media through blogs, LinkedIn, and Facebook. This suggests that technology allowed for varied social interactions. It is through social interactions that identity usually develops (Erikson 1959; Lave and Wenger 1991). In this way social media and technology had an influence on professional identity formation of these participants.

Using blogs allowed them to access a community of practice and their professional identity also developed. As a participant from the 14R interview said, this appears to have provided them the opportunity to also reflect on their own learning through the sharing of ideas and experiences with other members of a community of practice.

Online learning resources such as Coursera and Udacity were also used by the participants. These platforms make it possible for anyone to enrol in free online courses—not just students. Typically, a certificate is awarded once the course is finished. The interested parties must enrol in the courses through reputable universities. The participants went above what was required of them in their courses at their registered university, despite the workload from the degrees for which they were already registered. This did not disturb their studies. They reported that it only enriched their experiences during undergraduate.

Participants highlighted technology and social media as important components in the development of professional identity. The results suggested that neither university had a problem with giving them access to technology. Participants did not have access to all forms of technology, but they did have access to some of the technology provided by their universities as a result of their registration.

The participants also reported that access to online courses also contributed to them

developing their professional identities. Their choice of online courses demonstrated their professional identity and knowledge interests.

Knowledge is required to access identity and behaviours unique to a particular role, career, or discipline (Baker and Lattuca 2010). Role models, mentors, and experiences have the most significant influences on creating a professional identity, according to the literature (Cruess, Cruess, and Steinert 2019). Some of the respondents had access to role models online and also famous individuals that they considered to be role models.

One of the primary goals of higher education is to prepare students to graduate with a unique professional identity connected to their field (Engelbertink et al. 2021). The path to creating a professional academic identity is not one that is smooth; rather, it is punctuated by successes, failures, and adjustments (Cruess et al. 2019). These respondents in this study learned to navigate their studies and began to develop a professional identity through their different interactions with the communities of practice they came into contact with via online platforms.

Through introspection and comparison with the contexts of their professional work, individuals can also analyze how they feel about "self in practice" and develop their own professional identity (Bruno and Bracco 2016). The idea of legitimate peripheral participation connects with the development of professional identity since continuing social interactions and communication are essential to identity building. This includes communication via technology and social media.

The results also demonstrated that the respondents are connected to their discipline and have strong professional academic identities. This process involved both the development of professional abilities and the comprehension of disciplinary information. Some engaged with individuals and even online courses from other disciplines. However, engagement with a specific community of practice is necessary for sharing fundamental skills, jargon and nuances that are only found in one's discipline or field. They must follow the behavioural and linguistic norms of the community of practices. Interaction with individuals from their fields via social media and technology also helped them to form their professional identity.

The development of a professional identity depends on one's capacity for reflection. With respect to the student's career, reflection blends fresh experiences with innate knowledge and skills. By doing this, they may grasp their professional identities and provide meaning to their experiences.

CONCLUSION

The aim of the article was to demonstrate how social media and technology contribute towards

professional identity formation. Specifically, in a sub-set of postgraduate students who reflected on their experiences from undergraduate about how social media and technology assisted them to develop their professional identities and progress to postgraduate. The article also highlighted the funding challenges that are often faced by students in higher education institutions in South Africa.

The findings indicate that social media and technology had an impact on how professional identity is formed and that they also made it easier for participants to enrol for postgraduate studies. Understanding and being proficient with the different types of technology and social media is crucial. However, students need to be more than just computer proficient. They must be capable of being self-reliant and use technology and social media in a way that advances their career and educational objectives. The responses above showed how social media and technology are effective for postgraduate study progression, professional identity construction and personal growth in this sub-population of postgraduates that was studied.

The study hesitates to provide specific recommendations, the results from the study provide a strong case for universities to explore the following options:

- Social media and technology could be used as a way to support students from undergraduate to access postgraduate studies.
- Each of the factors cannot be addressed in one year.
- This could be phased over the 3 or 4 years that students are registered as undergraduates.
- The model in the broader study would need to be used holistically not just concentrate on one or two factors.
- Funding models have to take into account the ICT and digital technology needs of students and higher education institutions. The models cannot be the same for historically disadvantaged institutions and historically advantaged institutions.

Further data collection from another type of institution, a university of technology and health sciences faculties in all types of universities could be analysed and then be used to generalise to the rest of the postgraduate population.

The aim is to produce scholars that are able to create, apply and transform knowledge. Furthermore, to produce postgraduate output that enables students to contribute to resolving some of the issues facing African and international communities.

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