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The Role of a Community of Practice During Digitally Simulated Life Science Teaching Encounters: A Reflection on Lessons Learned

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ABSTRACT

In the field of teacher education, the traditional approach to teacher preparation is not enough to equip life science pre-service teachers with the practical skill sets and pedagogical insights they need to be effective teachers. Life science pre-service teachers often struggle to transition from theoretical coursework to the practical reality of teaching, even during simulated teaching experiences. Therefore, there is a need to introduce digitally simulated teaching encounters within a community of practice to promote the professional development of life science pre-service teachers. The purpose of this study is to investigate the role that a community of practice played during pre-service teachers' engagement in a digitally simulated teaching encounter. This qualitative case study, guided by Ubuntu theory, describes how the life science pre-service teachers' engagement in a community of practice prompted authentic, peer-supported and reflective learning opportunities. These learning opportunities helped refine pre-service teachers' teaching skills, enhance their classroom management and deepen their understanding of the intricacies of delivering high-quality life science education. Future research could include a larger sample size and varied simulated teaching encounters to provide more diverse perspectives on the role of a community of practice during a digitally simulated teaching encounter.

Keywords: Life science education; pre-service teacher development; communities of practice; Ubuntu theory.

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INTRODUCTION, BACKGROUND AND RATIONALE

Traditional teacher preparation in initial teacher education often fails to effectively equip pre-service teachers with the knowledge base required for them to demonstrate applied competence, commitment and responsibility as academically and professionally qualified life science teachers. This knowledge base should include mastery of subject content, knowledge of learners and their educational contexts and pedagogical content knowledge (Subali & Handoyo, 2021). The development of practical skills and pedagogical insights is an essential part of teacher education and is an outcome of Sol Plaatje University's Bachelor of Education (B.Ed) programme. The B.Ed programme offers pre-service teacher development through structured courses, practical teaching opportunities, and work-integrated learning initiatives.

One way to improve pre-service teachers' practical teaching abilities is through computer-based teaching simulations. Computer-based teaching simulations provide pre-service teachers with opportunities to practice and develop the ability to teach in a controlled context. During these simulations, pre-service teachers teach, interact, and manage digital avatars that are pre-programmed to be 'virtual' learners (Lee et al., 2021). The digital avatars are customised in terms of appearance, behaviour, and interaction (Zimmermann, Wehler & Kaspar, 2023). Lindberg and Jönsson (2023) add that the use of computer-based teaching simulations enables pre-service teachers to experiment with their teaching within a safe environment, fostering a growth mindset and encouraging exploration. This approach has been found to increase pre-service teachers' confidence in teaching and managing a classroom context (Chen et al., 2020). Furthermore, the computer-based teaching simulations are based on real-world, life-like classroom scenarios, programmed by the lecturer. These scenarios challenge pre-service teachers' ability to solve classroom management problems and engage in decision-making skills, providing excellent preparation for real-life teaching (Nguyen & Hudson, 2021).

However, pre-service teachers specialising in life science teaching have expressed frustration with managing and engaging avatars during a simulated teaching experience. In particular, they have struggled with maintaining discipline in the behaviour of avatars, especially during events where the avatars are programmed to challenge pre-service teachers' ability to maintain classroom discipline. Others have found it challenging to engage avatars in learning activities, particularly when avatars are programmed with diverse learning needs and abilities. As the module lecturer, I realised that more needs to be done to support pre-service teachers in engaging with computer-based teaching simulations. One way of offering support is by enabling them to operate within a community of practice, where they can engage in computer-based teaching simulations collectively (Dalgarno et al., 2020). This paper aims to report on the role that a community of practice played in pre-service teachers' engagement in digitally simulated life science teaching encounters.

Problem statement

Within the context of initial teacher education, the traditional approach to teacher preparation often falls short in effectively and adequately equipping pre-service teachers with the necessary practical skill sets and pedagogical insights for effective teaching. An international study by Brouwer and Korthagen (2021) showed that the disjuncture between theoretical coursework provided by teacher education programmes and the authentic teaching experience during work-integrated learning is commonly perceived as a stumbling block for pre-service teachers. Nationally, the work done by Maphosa and Ndamba (2022) confirmed that teacher development programmes still struggle to close the gap between theory and practice, which limits the readiness of pre-service teachers for real-world teaching dynamics. Kavanagh and Danielson (2020) seemingly remind us that the transition from theoretical coursework to the dynamics of teaching still poses a significant challenge for pre-service teachers. Consequently, there is a pressing need to address this issue through the introduction of simulated teaching sessions within a community of practice. The purpose of this study was to capture the reflective accounts of pre-service teachers on the role of a community of practice approach during digitally simulated teaching encounters. Conducting this study was important for several reasons. For example, the reflective accounts will shed light on those successful practices and strategies employed by pre-service teachers within a community of practice (Kelley et al., 2020). Moreover, the reflective accounts provide valuable insights into the scholarship and discourse on the role of communities of practice in teacher development.

THEORETICAL FRAMEWORK

Acknowledging 'Ubuntu' as a community of practice in pre-service teacher support and development

In South Africa, there is a well-known proverb that says, "I am because we are". This proverb is closely related to the concept of "Ubuntu," which is a philosophy that emphasizes the interconnectedness of individuals within a community of practice (Dillard & Neal, 2020). When it comes to teacher development, Ubuntu encourages a sense of togetherness and interdependence among a group of pre-service teachers (Ngubane & Makua, 2021). By working together and sharing resources, pre-service teachers can benefit from diverse perspectives, problem-solving, and a shared commitment to professional growth. This collaborative environment promotes a culture of continuous learning and contributes to the development of a shared identity within the pre-service teaching cohort (Mutanga, 2022). The concept of Ubuntu underscores the idea that the well-being and performance of one pre-service teacher are closely linked to the general well-being of all pre-service teachers within the community. Through peer-to-peer support, pre-service teachers can benefit from the collective expertise of their fellow peers, gain fresh perspectives, and collectively work towards improving the overall quality of teaching instruction. This collaborative approach not only contributes to the professional growth of pre-service teachers but also strengthens the effectiveness of teaching practices across the educational community. By fostering a sense of collaboration, responsibility, and mutual support, Ubuntu encourages pre-service teachers to work together to solve educational problems and promote quality teaching. Ultimately, the goal of Ubuntu is to promote educational excellence by emphasizing the importance of solidarity, collaboration, and collective responsibility. Given the context of this study, Ubuntu theory, with its focus on solidarity, collaboration, and collective responsibility (Dillard & Neal, 2020) was a perfect fit for creating a conducive learning environment where pre-service teachers can engage in digital teaching encounters while drawing on the collaborative support of their peers. This approach enables pre-service teachers to tackle challenges related to simulated teaching head-on while relying on constructive feedback from their peers.

LITERATURE REVIEW

Conceptualising a digital teaching simulation encounter

The use of digital teaching simulation encounters is beneficial to pre-service teacher development since it provides a simulated and immersive learning environment for up-and-coming educators. These digital teaching simulation sessions enable pre-service teachers to practice and refine their teaching methodology in authentic yet simulated classroom scenarios (Dalinger et al., 2020). By engaging in digital teaching simulations, pre-service teachers also develop important teacher skills such as interpersonal skills and classroom management skills (McGarr, 2021). This approach allows pre-service teachers to be confronted with diverse teaching practice issues such as addressing behavioural issues, adjusting lesson presentations to cater for learning needs, creatively engaging learners in inclusive learning and planning and executing assessments effectively. What makes the digital teaching simulation encounter so immersive is the fact that the digital learners also referred to as 'avatars', are programmed by the lecturer.

The lecturer, therefore, has the ability to write the scripts of each of the digital learners which results in a simulated classroom experience that is authentic. Apart from scripted scenarios, the avatars also have a level of Artificial Intelligence (AI) which further adds to the level of immersion and realism to the teaching scenario. This approach results in the avatars reacting in a real-life manner. Such a digital teaching simulation takes place in a safe space within a small group format and the pre-service teacher has control over when to pause and to resume the simulation. This approach comes in handy to allow pre-service teachers to consult with their peers on how to deal with certain classroom scenarios. In the context of teacher education, digital teaching simulation encounters have been considered an effective tool for pre-service teacher preparation since it offers a practical "hands-on" teaching experience that promotes their ability to demonstrate knowledge of learners' learning, knowledge of pedagogy, knowledge of assessment and knowledge of the curriculum in a safe and non-intimidating space. The link below provides a glimpse into the use of a digital teaching simulation encounter in a real-life context: https://acesse.one/AfTg7

METHODOLOGY

The study adopted a qualitative research approach. The study population consisted of senior pre-service teachers in their final year of undergraduate studies in the Bachelor of Education programme at a selected South African university. From this population, a purposive sample of 12 pre-service teachers was selected who formed part of a life science education module. These 12 pre-service teachers specialised in life science teaching at a secondary school level. Given this sample, the study also adopted an intrinsic case study research design. The case included that of these 12 pre-service teachers who are specialising in the teaching of life science education and their reflective accounts on the role of a community of practice approach during digitally simulated teaching encounters. Footage of their engagement was also captured in the form of photographs and faces were blurred to ensure anonymity. The 12 pre-service teachers provided consent to participate in the study and ethical approval was obtained from the Senate Research Ethics Committee of the selected University. Aspects related to data collection and procedures are briefly described below.

Data collection and procedures

The study responded to the following research question: What are the reflections of pre-service teachers on their engagement in a community of practice approach during digitally simulated teaching encounters? With this research question in mind, a series of data collection techniques were used to gather empirical data for the study. Initially, a focus group discussion was conducted with the researcher and 12 pre-service teachers to capture participants' reflective accounts of the role of a community of practice approach in digitally simulated teaching encounters. The focus group discussion, conducted by the researcher, took place after participants' engagement in the digital teaching simulation on campus. A characteristic of a focus group discussion is the free flow of information sharing that occurs through open dialogue between the researcher and participants (Bruggeman et al., 2021). In following this approach, the pre-service teachers had the freedom to share their personalized account on how they perceived the community of practice when they engaged in digital simulated teaching. Important here is that the focus group discussion should be anchored by several open-ended questions (Bruggeman et al., 2021) that align with the focus of the study.

In this case, the focus group discussion was guided by a specific set of questions, namely, “what was your experience of engaging with the digitally simulated teaching encounters?”, “what were your observations of your fellow pre-service teachers when they engaged in a digitally simulated teaching encounter?”, “What were some of the significant aspects of the digitally simulated teaching encounter?” and “How do you think others perceive the digitally simulated teaching encounter?” By posing these questions to the pre-service teachers during the focus group discussion, I generated qualitative data on their individualised viewpoints, insights, and cognitive processes regarding the role of a community of practice in digitally simulated teaching encounters. The verbal data from the focus group discussion were verbatim recorded and thematically analysed to generate themes. The themes generated corresponded to the key features of a community of practice that will be discussed in more depth in the findings section.

To support the rigour of the empirical data collected from the focus group discussion, the study also incorporated the photo-voice methodology. This approach aimed to capture the experiences that emerged during the digitally simulated teaching encounters, particularly when pre-service teachers discussed how to adjust their lessons to fit this context. The use of photo-voice methodology is valuable for representing experiences and creating a powerful narrative (Kile, 2022). As a result, it acts as a catalyst for discussion, allowing pre-service teachers to analyse images and share their insightful perspectives on the key events.

Methodological rigor in the study was ensured by drawing on measures such as “confirmability”, “credibility” and “neutrality” (Hirose & Creswell, 2023). The aspect of confirmability was assured through the element of open dialogue that was reflected between the pre-service teachers as participants and me as the researcher throughout the focus group discussion. The measures of “credibility” and “neutrality” were ensured through the prolonged interactive engagement with the pre-service teachers during an afternoon course on campus. Finally, all findings were shared with the team of pre-service teachers to ensure that the empirical data accurately represented their reflective accounts.

FINDINGS

Valuable lessons were learned from the pre-service teachers' engagement in a community of practice during digitally simulated teaching encounters. In particular, empirical data generated through the focus group discussion suggested that their engagement in a community of practice resulted in a) in-lesson reflective practices, b) collaborative practices, c) problem-solving practices and d) post-lesson reflections that centred around their simulated teaching practices. These themes are described next.

Theme 1: In-lesson reflective practices

The first prominent theme that emerged relates to the aspect of reflective practices *during* digitally simulated lesson presentations. In-lesson reflective practices serve as a process where pre-service teachers deliberately and systematically reflect on their teaching and assessment methods, learner engagement, classroom management, and instructional decisions during the course of a teaching experience (Salmon et al., 2020). This process requires pre-service teachers to demonstrate real-time awareness of the effectiveness of their teaching during the course of a simulated teaching encounter (Goker, 2021). The element of personal reflections during the simulated teaching encounter can be witnessed in the response of a participant 3 below:

So what I like about the simulations is that we were safe, we could teach to the avatars but also when we felt like stuck and don't know what to do we could pause the simulation and try and think of ways to improve the lesson and then resume the lesson. This one time I tried to explain to the digital learners how the process of protein synthesis works only to find that they are lost. I had to pause my presentation which I did. Upon reflecting on the lesson, I realised that more should be done to make my explanation of the process of protein synthesis clearer by including media and resources. Then only could I pick up that the group is finally understanding.

Participant 5 shared a similar response by stating:
Something that I often struggle with as a PGCE student is that I'm always questioning whether my intro is good enough, we are always taught that the intro should be catchy right? Mursion created a space for me to pause my teaching and then really consider whether my introduction was effective or not. Many times it was not and I did not get a nice response from the digital learners but the nice thing is that I could retry my intro until it worked better. This really improved my confidence to teach.

Both responses hinted to the possibility of engaging in reflections during the simulated teaching encounter. In both instances, pre-service teachers were able to express how they were able to re-think and re-adjust elements of their teaching which in this case included "making the lesson more engaging through the use of media and resources" (participant 3) and "reworking the introduction to make the topic catchy" (participant 5). This approach aligns with the work of Sprenkle (2023) who suggest that 'in-lesson' reflections come in handy to support pre-service teachers to engage in a process of self-assessment and critical analysis aimed at adjusting the pedagogy of teaching on the spot. Tran (2022) adds that this approach is critical in the continuous professional development of pre-service teachers since it enables pre-service teachers to identify their strengths, areas of improvement aimed at optimizing quality teaching.

To support these verbal responses, photographic evidence encapsulating the reflective practices observed during the lesson was also provided, as shown below:

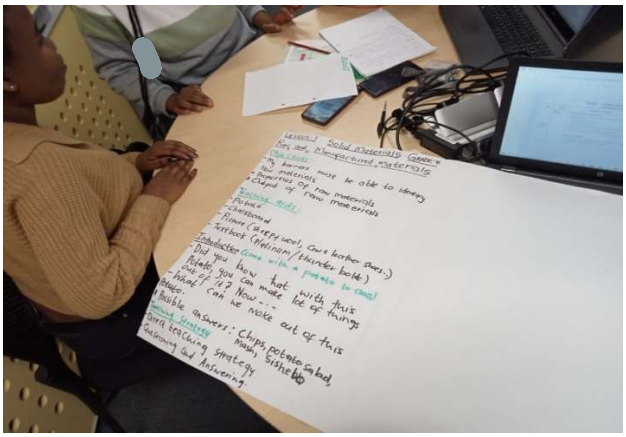

Image 1. *The collective engagement of pre-service teachers in reflecting on the lesson presentation.*

From this footage, one can observe how the pre-service teachers collectively brainstormed ways to improve the lesson. In particular, aspects of the lesson introduction, assessment activities, and teaching strategies are being redefined to fit the context of the simulated teaching encounter.

Theme 2: Collaborative practices

The second prominent theme that surfaced revolved around collaborative practices within the community of practice. Specifically, pre-service teachers articulated their capacity to provide mutual support in the context of digital teaching scenarios. This collaborative engagement facilitated a reciprocal exchange of ideas and feedback, ultimately geared towards elevating the overall quality of teaching in the digital realm. The essence of peer-to-peer collaboration is vividly captured in the following verbatim quotes shared by the respective participants.

Participant 9 had the following to say:
To be honest guys, teaching is tough man, I don't know why but I usually I tend to 'freeze' and don't know why that's happening, maybe I'm unsure of myself when I teach. But I must admit that Mursion helped a lot in seeking help from colleagues when I'm stuck during the online micro.

Participant 6 shared a similar response:
The ability to rely on my group to assist me when things go wrong was such a benefit. When I'm stuck I pause the simulation and then seek advice from the group on where I maybe went wrong. The feedback I got from the group members put me on the right path.

The verbatim quotes provided pointed to the element of collaboration that surfaced throughout the simulated teaching encounters thanks to the community of practice. In both instances, pre-service teachers voiced how the element of collaboration and mutual support from their group members were beneficial in paving the way forward for a more engaged and meaningful digital teaching experience. Phrases such as "seeking help from colleagues [peers]" (participant 9), and "rely on my group to assist when things [lesson instruction] gone wrong" (participant 6) are testimony of the collaboration that took place amongst the pre-service teachers throughout the community of practice. This approach, according to Berisha and Vula (2021) encourage a sense of community, interdependence and togetherness among pre-service teachers, which in turn, fosters a conducive environment where pre-service teachers share insights, strategies, and successful experiences. In this case, the pre-service teachers worked together to solve teaching-related issues with the wish to promote the quality of the digital simulated teaching encounter.

In addition to the verbal responses, photographic evidence showcasing the collaborative practices observed during the lesson was also provided, as illustrated below:

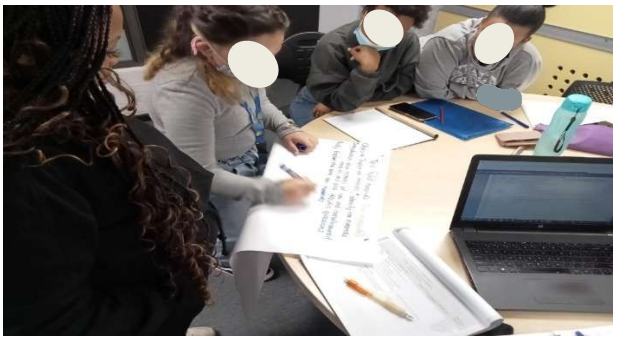

Image 2. *Students engaging in collaborative practices*

The footage demonstrates how the pre-service teachers depended on each other's expertise when adjusting the lesson plans for the simulated teaching encounter. This level of interaction once more indicates a sense of community among the pre-service teachers.

Theme 3: Moments of problem-solving with peers

The third prominent theme that surfaced revolves around the aspect of problem-solving within a community of practice. Notably, findings indicated that pre-service teachers demonstrated a tendency to solicit guidance from their peers when confronted with challenging incidents during their digital teaching endeavours. The participants, specifically, showcased their ability to recognize, analyze, and proficiently resolve issues linked to classroom practices. Of particular note, pre-service teachers highlighted their adeptness in leveraging the collective expertise of their peers, especially in areas like "classroom management" and "quality assessment". This dynamic exchange of insights allowed them to navigate through the complexities of their teaching experiences more effectively. Participant 11 encapsulated this sentiment, expressing the following perspective:

The opportunity to rely on others to give support was extremely meaningful. These avatars can be a difficult bunch of learners and I had difficulty with managing the group and the moment when classroom issues arose and I couldn't manage anymore then I could pause the simulation and ask for advice from others on the way forward.

Participant 2, on the other hand, had the following to say:
I remember this one incident where the avatars just looked at me and they didn't even respond to my questions. This was so discouraging, to say the least. My group then signalled to me that I should pause the simulation which I did. When I went back to my group Thabo and Anna gave me valuable tips on how to address the scenario.

The provided response indicates that within a community of practice, pre-service teachers leaned on each other for solutions to challenging teaching scenarios, such as addressing "classroom discipline issues" (Participant 11) and tackling "issues associated with a lack of learner engagement" (Participant 2). This collaborative approach showcased the pre-service teachers' proficiency in identifying, analyzing, and promptly addressing issues in real-time while sustaining the flow of learning (Csanadi et al., 2021). In this specific instance, the pre-service teachers effectively tapped into the collective expertise of the group to navigate and advise on challenges encountered during the digital simulation. This not only bolstered the presenter's ability to manage her classroom more effectively but also left a positive imprint on the overall quality of her teaching.

Theme 4: Post-lesson reflective practices

The fourth and final theme that emerged pertains to the engagement of pre-service teachers in post-lesson reflective practices subsequent to their participation in the simulated teaching experience. Within the context of teacher development, post-lesson reflective practices entail pre-service teachers actively scrutinizing and evaluating their teaching experiences once a lesson concludes. The verbatim response of participant 8 below sheds light on the aspect of post-reflective practices.

Although it was a bit intimidating, it was also good to meet at the end of the simulation and discuss what worked and what didn't work, you know. Teaching is so dynamic and there is always room for improvement.

Seemingly, participant 1 shared a similar response by stating that:

What really assisted me was the group discussions afterward. I learned so much from the others and I could go back to my teaching and add some nice additions to my lesson plan. Especially, when we talked about classroom management issues and ways how to deal with it.

Both responses point to the benefits of post-lesson reflections. References such as "there is always room for improvement" and "learn so much from others afterward" suggest that the process of post-lesson reflections encouraged pre-service teachers to internalize their teaching methods, assessment approaches and classroom management. The exercise enabled pre-service teachers to identify and share diverse perspectives regarding strengths and weaknesses within their simulated teaching experience and suggest areas for improvement. This approach contributes to the continuous improvement of teaching effectiveness, fostering a commitment to lifelong learning and development within the field of education (Botes et al., 2022).

DISCUSSION OF FINDINGS

In the context of initial teacher education, the conventional method of preparing teachers often proves insufficient in adequately arming pre-service teachers with the practical skills and pedagogical insights necessary for effective teaching. Kavanagh and Danielson (2020) underscore the persistent challenge faced by pre-service teachers as they transition from theoretical coursework to the intricacies of teaching. Addressing this challenge is imperative, and one approach is the incorporation of simulated teaching sessions within a community of practice. This study captured the reflective narratives of pre-service teachers concerning the impact of a community-of-practice approach during digitally simulated teaching experiences. Empirical data generated through the focus group discussion and photo-voice methodology suggested that the pre-service teachers' engagement in a community of practice resulted in themes such as a) reflective practices during the digital simulation, b) collaborative practices, c) problem-solving practices and d) post-lesson reflections that centred around their simulated teaching practices.

The first valuable lesson learnt, was that the community of practice allowed for a reflective exercise during the stimulate teaching encounter. Pre-service teachers reported how they "reconsidered" and "adapted" aspects of their teaching, encompassing actions such as "enhancing lesson engagement through media and resources" (participant 3) and "revamping the introduction for a more captivating topic presentation" (participant

5). This aligns with the insights of Salmon et al., (2020), who advocates for the utility of "in-lesson" reflections as a means to facilitate pre-service teachers in undertaking self-assessment and critical analysis, enabling real-time adjustments to teaching pedagogy. Goker (2021) underscores the significance of this approach in the ongoing professional development of pre-service teachers, fostering their ability to identify strengths and areas for improvement with the ultimate goal of optimizing the quality of teaching.

The second valuable lesson learnt, was that the community of practice allowed for instances of collaboration during the stimulate teaching encounter. It particular, pre-service teachers expressed how collaboration and mutual support from their peers significantly contributed to a more engaged and meaningful digital teaching experience. Statements such as "seeking help from colleagues [peers]" (participant 1) and "relying on my group to assist when things [lesson instruction] go wrong" (participant 3) underscore the collaborative dynamics among pre-service teachers within the community of practice. This approach, as outlined by Berisha and Vula (2021), foster a sense of community, interdependence, and unity among pre-service teachers, creating an environment where they can freely share insights, strategies, and successful experiences. In this scenario, the pre-service teachers collaborated to address teaching-related challenges with the shared goal of enhancing the quality of the digital simulated teaching encounter.

The third valuable lesson learnt, was that the community of practice allowed for instances of problem solving during the stimulate teaching encounter. Pre-service teachers expressed how they relied on each other to find solutions to challenging teaching scenarios, such as dealing with "classroom discipline issues" (Participant 11) and addressing "issues related to a lack of learner engagement" (Participant 2). This approach demonstrated the pre-service teachers' adeptness in recognizing, analyzing, and promptly resolving issues in real-time while maintaining the continuity of the learning process (Csanadi et al., 2021). In this particular case, the pre-service teachers successfully leveraged the collective expertise of the group to navigate and offer advice on challenges encountered during the digital simulation. This not only strengthened the presenter's capacity to manage her classroom more effectively but also had a positive impact on the overall quality of her teaching.

The fourth and final lesson learnt, was that the community of practice allowed for post-lesson reflections following the stimulate teaching encounter. It was reported how the pre-service teachers' engagement in post-lesson reflections prompted them to internalize their teaching techniques, assessment methods, and classroom management strategies. Through this process, pre-service teachers were able to discern and exchange varied perspectives on strengths and weaknesses observed in their simulated teaching encounters, offering insights into potential areas for enhancement. This approach contributes significantly to the ongoing enhancement of teaching effectiveness, nurturing a commitment to lifelong learning and development within the education sector, as emphasized by Botes et al., (2022).

CONCLUSION

The paper captured a reflective account of the role of a community of practice during digitally simulated Natural Science teaching encounters. Couched within the perceived constructs of Ubuntu, a philosophy that emphasizes the interconnectedness of individuals within a community of practice (Dillard & Neal, 2020; Ngubane & Makua, 2021), this purposive qualitative case study revealed how the community of practice enabled pre-service teachers to engage in activities such as reflective practices on the effectiveness of their digital simulation teaching experience, collaborative practices aimed at adjusting and improving the quality of their digitally simulated teaching encounters, instance of problem-solving that enabled pre-service teachers to analyse and identify ways to overcome challenging teaching scenarios and post-lesson reflections that allowed pre-service teachers to reflect on the their digital simulating teaching experience in its totality. The study further demonstrated how the pre-service teachers' involvement in a community of practice fosters the notion of them operating as a shared identity whereby they could learn from other's diverse perspectives. Finally, the study further demonstrated how the well-being and performance of one pre-service teacher are closely linked to the general well-being of all pre-service teachers within the particular community of practice.

By working together and sharing resources, pre-service teachers can benefit from diverse perspectives, problem-solving, and a shared commitment to professional growth. This collaborative environment promotes a culture of continuous learning and contributes to the development of a shared identity within the pre-service teaching cohort (Mutanga, 2022). The concept of Ubuntu underscores the idea that the well-being and performance of one pre-service teacher are closely linked to the general well-being of all pre-service teachers within the community. Through peer-to-peer support, teachers can benefit from the collective expertise of their colleagues, gain fresh perspectives, and collectively work towards improving the overall quality of instruction. This collaborative approach not only contributes to individual professional growth but also strengthens the effectiveness of teaching practices across the educational community. By fostering a sense of collaboration, responsibility, and mutual support, Ubuntu encourages pre-service teachers to work together to solve educational problems and promote quality teaching. Ultimately, the goal of Ubuntu is to promote educational excellence by emphasizing the importance of solidarity, collaboration, and collective responsibility. Findings from this study contributed to the body of knowledge on the community of practices aimed at the professional development of Natural Science pre-service teachers.

Conducting this study was important for several reasons. For example, the reflective accounts will shed light on those successful practices and strategies employed by pre-service teachers within a community of practice (Kelley at al., 2020). Moreover, the reflective accounts further contribute valuable data to the scholarship and discourse on the role of communities of practices in teacher development. Given the relatively limited sample size, the findings of this study can not be generalised. Future research is required that refers to a larger sample size which might render more accurate findings on the role of a community of practice during a simulated teaching encounter.

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