Teacher educators' experiences of using the Mursion® simulation program in a South African university: a case study

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Abstract

This article explores the experiences of teacher educators at Sol Plaatje University in Kimberley, South Africa, regarding their use of the Mursion® simulation program during pre-service teacher training. The study aimed to investigate these teacher educators' experiences and perceptions of using this software by means of semi-structured interviews and subsequent thematic analyses. Three themes predominated during the interviews, namely initial impressions of the program, favourable aspects associated with it and those less favourable. The respondents' initial impressions revealed a mixture of satisfaction, excitement and uncertainty. The favourable included: the realism of the virtual classroom environment and experience; the opportunity for practice and skill development; the potential for increased pre-service teacher preparedness. The less-favourable highlighted were some anxiety and intimidation related to the technical nature of the software and the initial learning curve. The findings suggest that the software has the potential to enhance teacher education by providing a realistic and immersive classroom experience for pre-service teachers. The importance of technological support and training for educators to utilise such programs fully is also emphasised.

Keywords: Higher education, Mursion®, pre-service teachers, simulation training, teacher educators, teacher training

Introduction

The COVID-19 pandemic and resulting social-distancing restrictions compelled many educaional institutions to consider methods of teaching alternative to the traditional face to face. The educator training school at Sol Plaatje University (SPU), at which this research was conducted, was no different. In an attempt to sustain effective teaching and learning during the pandemic, the university opted to make use of the Mursion® simulation software during its micro-teaching sessions; it uses learner avatars, each possessing distinctive personalities, to demonstrate the intricacy of a diverse classroom environment. Like the demographic profile of the country, South African classrooms are known for their diversity. It is common for schools to have learners of different cultures, ethnicities and languages in one class. Teachers in state schools are expected to teach learners with minimal teaching resources. Classroom innovation and the inclusion of creative teaching aids are largely dependent on the autonomy of the teachers. While computers, data projectors and interactive whiteboards might be

present in some classrooms (for example mathematics) it is not the norm. Most teachers are merely provided with basic teaching aids, such as prescribed textbooks.

The research design and analysis are therefore grounded in situated learning. Incorporating the Mursion® software into education programmes for pre-service teachers provides opportunities to emphasise the importance of the authentic, real-world classroom. Users experience not only the physical classroom, but also the intricacies and complexities of a diverse class with different challenges. The program gives pre-service teachers first-hand experiences and provides a platform for them to apply their knowledge and teaching skills in simulated real-world scenarios. In the context of this research, the simulation software was specifically used to assist teacher educators during micro-teaching to master a specific teaching strategy or classroom skills, such as classroom management. The purpose of the micro-teaching sessions at the university (face-to-face and when using the program) is to provide pre-service teachers with the opportunity to present a portion of a lesson (e.g., concluding a lesson), practise the implementation of a teaching strategy (e.g., group work) or practise relevant classroom skills (e.g., board writing). Owing to the nature of the software, the emphasis was upon these trainees' deployment of it as a tool – for managing a classroom and maintaining discipline while attempting to teach some content. Having had no prior experience of such software methodology, they first had to be trained to use it. Though they showed a keen interest when it was demonstrated to them, they seemed slightly intimidated when having to apply it themselves. Prompted by their comments on these experiences, the researchers thus decided to make a study of what happened during the micro-teaching sessions.

Background and literature

The application, in teacher education, of simulation software (whether virtual, augmented or mixed reality, or a combination of these) is not new. Numerous studies have dealt with the development of such initiatives over the past eleven years (Dieker, Grillo and Ramlakhan, 2012; Hayes, Straub, Dieker, Hughes and Hynes, 2013; Lugrin, Latoschik, Habel, Roth, Seufert and Grafe; 2016). However, the pandemic in 2020, and its concomitant social lockdowns, made this kind of methodology essential in the training of teachers (Callaway-Cole and Kimble, 2021; Kasperski and Hemi, 2022; Kidd and Murray, 2020).

Higher education, the sector generally responsible for the provision of teacher education programmes in South Africa, was no exception (Adelowotan, 2021; Motala and Menon, 2020; Mpungose, 2020). SPU took the initiative to procure and implement one of the better-known simulation programs, Mursion®, to broaden the teaching and learning opportunities available during the 2020-2021 social-distancing period. Since then, the program has also been used in a continued attempt to alleviate the infrastructure and human-resource-related pressures of providing responsive, feedback-intensive practical teaching experiences to pre-service teachers within the context of quickly burgeoning student numbers. The aim of this paper is therefore to report on the experiences of teacher educators from SPU in using the program.

History and description of Mursion®

Mursion® is a virtual reality platform that provides immersive simulations to help professionals improve their interpersonal skills. Originally TeachLivE™, the program was commercialised in

2015 (Hudson, Voytecki and Zang, 2018). Globally, the program is, inter alia, used to strengthen pre-service teacher preparation, recruitment and professionalism (Ferguson and Sutphin, 2022; Kaufman and Ireland, 2016). In recent years, several alternative simulation platforms have emerged, including 'SimSkills' and various others. While these platforms primarily concentrate on simulations rooted in real-world scenarios and role-playing to foster skill development within the broader public sector, the program stands out as an AI-powered virtual reality platform designed specifically to prepare pre-service teachers for the classroom environment. It uses learner avatars with unique personalities to portray the complexity of a diverse classroom environment. The learner avatars are adolescents with body language, facial expressions and different voices, all of which contribute to the virtual experience (Bautista and Boone, 2015). Specific simulated scenarios can be created to achieve a desired outcome (Hudson *et al*., 2018). As an example, the simulation software can be used to practise or refine skills, such as setting classroom rules or rehearsing a teaching strategy.

Examples of the use of Mursion® and perceptions of its value at other teacher education institutions

This discussion reports on two instances in which the program has been adopted as a tool to enhance teacher education in various fields. The first instance is that of a public university in southern California, where the program has been incorporated in two programmes, namely, a master's degree in the teaching of English as a second or other language (TESOL), as well as a so-called 'credential' programme (Kamhi-Stein, Lao and Issagholian, 2020). These two programmes aimed to prepare TESOL teachers for working in counties in the United States of America (USA) where they teach English to people who originate from other countries and who do not speak English at home (Kamhi-Stein *et al*., 2020). Upon investigating the perceived value of Mursion® in these programmes, Kamhi-Stein *et al*. (2020, p.1) found that "*while PSTs* [pre-service teachers] *with teaching experience argued that the simulations did not reflect the realities of real classrooms, PSTs with limited teaching experience found the simulations to be extremely valuable since they helped them develop much needed confidence*."

Another instance, which appears to yield an even more positive outcome than the first instance above, is that of the primary and secondary programme pre-service teachers at Oklahoma State University (Dalinger, Thomas, Stansberry and Xiu, 2020). These pre-service teachers participated in a Mursion® session and, on the basis of interviews held with a number of these students, the researchers drew the following conclusions:

> *Participants considered the mixed reality simulation a more authentic form of practice than what their observations during field experiences afforded. Participants perceived transfer of learning from observations of peers during sessions with the mixed reality simulation to performance during their own sessions. Some participants perceived increased confidence in applying skills practiced during the simulation to work with live students and parents. Using the mixed reality simulation posed challenges including suspension of disbelief, meeting candidates' needs, and the presence of a peer audience.*
> *(Dalinger et al., 2020: s.p.)*

The mentioned instances are not merely anecdotal, nor isolated, since there are many more such success stories, at least in terms of pre-service teachers' perceptions of the value of the program as part of their training (Hudson, Voytecki, Owens and Zhang, 2019; Peterson-Ahmad, Pemberton and Hovey, 2018).

The use of Mursion® for pre-service teacher education at SPU

In response to the COVID-19 pandemic, as alluded to previously, the School of Education at SPU started to implement the program in 2021 as part of micro-teaching (a form of performance-based assessment, focused on classroom practice). These micro-teaching sessions afford third- and fourth-year pre-service teachers the opportunity to practise their teaching virtually. Micro-teaching at SPU consists of students' demonstrating their teaching abilities in segments by focusing on a specific aspect of a lesson, for example, managing a class, introducing a lesson or applying a teaching strategy, such as small-group work. These sessions tend to be between ten and fifteen minutes in length.

Even though the program uses virtual reality, it still requires human intervention and assistance to be implemented successfully. Simulation specialists control the actions and the responses of the learners (avatars), as depicted in figure 1 below. Teacher educators at SPU were expected to facilitate this process and provide feedback to the pre-service teacher after each session.

Figure 1. The Mursion® simulation program during micro-teaching at the university
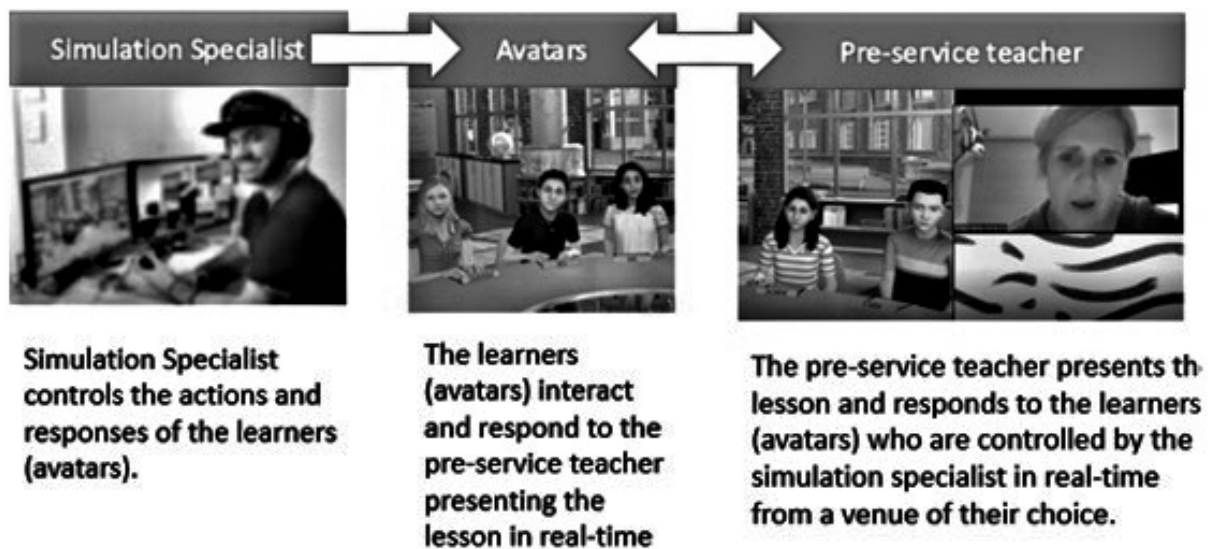
Source: Adapted from Sasaki *et al*. (2020)

The value of Mursion® for pre-service teacher education at SPU

In a similar vein to the cases from the USA cited earlier, the rest of this article reports on a qualitative study that was conducted on the value of the program for teacher education at SPU. The study included the perceptions of both the pre-service teachers and the teacher educators

who were involved. However, for the purposes of this paper, the focus was on the perceptions of the teacher educators only.

Methodology

To achieve the aim of the study, a qualitative study was conducted with eight of SPU's teacher educators who facilitated the simulation sessions during micro-teaching sessions. The teacher educators who facilitated the sessions are experts in their field of study and at the time were responsible for the teaching of subject modules focusing on subject-specific pedagogy and pedagogical content knowledge. The teacher educators were subsequently allocated as facilitators for sessions that aligned to their subject modules and expertise.

Most of the teacher educators were familiar with using platforms similar to Zoom and could then easily adapt to using Zoom during simulation sessions. Very few teacher educators had used virtual simulations before. Those who had were mostly science teacher educators who used the virtual laboratories for practical sessions. The teacher educators had been aware of virtual simulations that had been used by one other university in South Africa, but they had not experienced them first hand.

As part of the orientation, teacher educators were shown a video clip of the simulation and guided through what would be expected of them as facilitators during the session. The simulation specialists were mostly unknown to the recipients of the program. The information provided explained that simulation specialists were American actors trained to puppeteer specific scenarios. These actors did not necessarily have a background in education or pedagogy.

Although the scenarios were puppeteered by actors, the planning thereof was done by education specialists who focused on the development of teaching skills. From the range of scenarios available, only those aligning either to the content of the subject or to a pedagogy that pre-service teachers were familiar with were selected by the university.

In the third year of study, pre-service teachers engaged in micro-teaching sessions that included practising introductions to lessons and, later in the year, teaching methods such as direct instruction, small-group work and whole-class discussion. In their fourth year, because of the pandemic, pre-service teachers made video recordings of similar teaching methods and other subject-specific teaching methods such as demonstrating experiments.

The sessions were used to supplement these video recordings, as pre-service teachers often did not have peers or learners to teach, owing to COVID-19 restrictions on movement. The pre-service teachers were grouped according to their major teaching subject. These subjects included Natural Sciences, Mathematics, English, Life Skills, Social Sciences and Economic and management Sciences. As indicated in table 1, each subject was allocated a specific scenario.

Table 1. Allocation of scenarios

Facilitators Expertise	Major subject	Scenario
Teaching of Life Skills, Inclusive Education	Life Skills	Comprehending Nonfiction Vocabulary
Teaching of English	English	Comprehending Personification
Teaching of Social Sciences, History and Geography	Social Sciences	Managing Classroom: Setting Expectations
Teaching of Mathematics	Mathematics	Understanding Exponents
Teaching of Natural Sciences, Physical Sciences and Life Sciences	Natural Sciences	Managing Classroom: Introducing Content
Teaching of Economic and Management Sciences, Economics and Accounting	Economic and Management Sciences	Harrison Understanding Instructions

The research adhered to the ethical guidelines of SPU and was cleared by its research ethics committee; consent was given by the participants. Semi-structured, qualitative interviews were used to obtain the perceptions of teacher educators on the use of Mursion®. The interviews were voice recorded, transcribed and then critically analysed, to identify relevant themes and to structure the presentation and discussion part of this paper. The interview prompts were designed to elicit teacher educators' perceptions on: first, their general experiences with the program; second, its strengths and weaknesses during use; third, how its incorporation influenced pre-service teachers' preparedness for the real South African classroom. The analysis of interview prompts one and two are discussed in the next section while interview prompt three will be addressed in a follow-up paper.

Findings and discussion

This study sought to explore the experiences of teacher educators in using Mursion® simulation software during micro-teaching sessions. Given this aim, a semi-structured interview process was considered as a data collection method to clarify the experiences of teacher educators using the software. From the semi-structured interview process, it was found that teacher educators' engagement with the software left indelible impressions on them. Their experiences were thematically categorised into three main themes with supporting categories. In particular, the three themes generated from the semi-structured interview process centred upon:

1. teacher educators' initial impressions of the software;
2. favourable aspects associated with the software;

3.   its less-favourable aspects.

The following section provides a detailed discussion of each of the themes.

Theme 1: Initial impressions of the Mursion® simulation software

The first theme generated from the semi-structured interview process focused on first-time teacher educator impressions of the software. These initial impressions related to: a) feelings of satisfaction and excitement; b) seeing the software coordinator as helpful; and c) encountering a level of uncertainty in using the software. These impressions are described next.

A number of participants reported their satisfaction with Mursion® by making reference to its technical and digital nature, as illustrated below:

The computer-generated avatars are awesome and the environment is very realistic. And I immediately thought that this simulated experience will give our student a classroom experience during our COVID times of isolation.

Participant 1

My first impression was the visual. The visual quality of this Mursion® program. So, the visual stimulation that came out and the quality of it.

Participant 2

Artificial intelligence simulation programs sounded very high tech and ultra-modern. But I soon learned that it basically operated similarly to a MS Teams room. Just the graphics were different and brilliantly designed.

Participant 3

I was excited about it… A realistic experience of what it is like to be in the classroom, what a classroom looks like, how learners behave, and the kind of scenario videos that our students might find in their classrooms, and I hoped that it would align closely to the reality that they would experience at school.

Participant 5

My first impression was actually one of amazement. Amazement that technology has come so far, and I was thinking then that we would now be able to simulate a real classroom

Participant 6

I think I can say I was amazed, sort of being surprised because I was not really familiar with artificial intelligence, that such things could happen, so when I saw those avatars, I was really amazed and interested at the same time.

Participant 8

An analysis of these responses suggests that the immersive nature and realism of the platform contributed to their satisfaction in using the software. This is supported by such phrases as "*computer-generated avatars are awesome*", "*the environment is realistic*" and "*visual quality of the program is amazing*". In addition, the degree of their satisfaction was enhanced by the fact that the program promotes a "*classroom experience*" since the pre-service teachers were expected to practise their teaching digitally through the use of the software. These findings correspond with those of Dalinger *et al.*, (2020, p.9), who reported on the experiences of pre-service teachers: "*The simulation provided a more realistic experience complete with unexpected interruptions or challenges that allow candidates to respond authentically.*" Since most South African schools currently encounter classroom management challenges, those depicted in scenarios in the program thus reflect contemporary reality.

Apart from experiencing satisfaction with the technical nature of the platform, some teacher educators reported how helpful the programme coordinator was in providing assistance with the software:

The fact that the host that I met that particular day, clearly explained what is expected from me and what is expected from the student. And she clearly explained also the procedure of the technical requirements, because one of the aspects was that I am going to be in control of the session with the students.

Participant 2

A closer look at the response of Participant 2 suggests that the assistance of the coordinator was tied to the sharing of important information about key expectations of the roles of the student and the teacher educator. Moreover, the response also makes it apparent that the information provided by the coordinator seemed to support the teacher educator's application of the software. This finding emphasises the importance of technological support and putting facilitators (in this case, teacher educators) at ease by briefing them beforehand.

Some participants also expressed feelings of anxiety and uncertainty about the technical nature of the digital software:

> *I am always nervous when it comes to things that have to do with technology. So, I was like, "This is not going to be me. I am not going to be part of it. I will try my best if I am forced to do it," But I was not really excited about it, because I get very nervous in any change that involves technology in teaching…I just felt intimidated. You know, when someone spoke of avatars I thought of the film Avatar, and I thought, "I will not be able to do this."*

Participant 4

> *It was a completely new experience and slightly scary.*

Participant 3

> *…when we had that first session, I think it was like, we are meeting in between meetings, so I was really overwhelmed because of the new technology, I was worried about the technical sides also, what is the, you*

know, when the first time, it is always a problem for all of us. Yes, I was not even confident of whether I would be able to facilitate it correctly…

Participant 7

The responses provided above suggest that teacher educators were rather uncertain about using the software for the first time. This is supported by references such as a "*completely new experience*" and "*overwhelmed because of the new technology*". Individuals experiencing fear of technology is well documented. The experiences of participants correspond to those of Hartle and Kaczorowski (2019). The authors report on feeling overwhelmed and hesitant about their ability to prepare students for a hands-on experience with the program. The authors emphasise that, because it is a new type of technology in classrooms, facilitators need to have a positive outlook about it and understand the value of implementing it in order to minimise their apprehension about doing so.

Theme 2: Favourable aspects associated with Mursion® simulation use

The second theme generated from the semi-structured interview process related to teacher educators' experiences of favourable aspects associated with the use of the software. More specifically, favourable aspects concerned: a) the flexibility of using the software; b) the level of preparedness demonstrated by pre-service teachers; c) the quality of teaching methodology demonstrated by pre-service teachers; d) the ability of pre-service teachers to cater for learner needs and behaviours. These four categories informing this particular theme are described next.

The first favourable aspect mentioned pointed to the flexibility of the software:

Okay, for me as a facilitator, I could do it where even when I am at home.

Participant 8

Another participant apparently shared this view:

Okay, the thing I like most was the ability to work remotely. That was really very convenient.

Participant 6

Secondly, teacher educators shared positive feedback about the level of preparedness demonstrated by the pre-service teachers in engaging with the simulation.

Well most of the students were well prepared. They knew exactly what to do. I just had to watch the clock and say enter and pause. And some students were very creative. I could see the passion for teaching, in a few students. The way they interacted with the avatars and that was quite nice, but I also enjoyed watching the avatars. They were so realistic. Reading the background of the avatars I knew the reason behind their behaviour.

Participant 1

> *What I also enjoyed was the quick responses of the avatars, especially when one considers that the different characters' responses are controlled by one person. Then also, pre-service teachers were actually provided with a taste of, you know, those potential unexpected answers that learners can give you at times and facilitating a session allowed me as a facilitator, to observe and to take note of students' responses to the learners and I was able to then give them or better record the feedback that I wanted to give them, at a later stage.*

Participant 6

Given this response, it is clear that the pre-service teachers thoroughly pre-planned their lesson presentations. In other words, the assumption may therefore be made that they considered such aspects as lesson planning and the development of learning materials for their lesson presentations. Furthermore, this response suggested that an element of creativity emanated from the lesson presentations. Hudson *et al.*, (2018) found that the program positively contributes to pre-service teachers' lesson planning.

Apart from commenting positively on the pre-service teachers' level of preparedness, demonstrated through their use of the program, others felt that the quality of teaching methodology displayed by pre-service teachers seemed to be of a high standard:

> *From their presentations it became clear that the true quality teacher came out in them. I mean from their introduction that was catchy down to the teaching that was inclusive and collaborative it was all great stuff. I love how they posed questions to the avatars and engaged them in discussions.*

Participant 3

Participant 7 seemingly shared the same experience in terms of pre-service teachers displaying high-quality teaching methodology:

> *To see how their development is unfolding was really special. Not just in a classroom set up that we are used to but also how they engaged with the avatars in a digital space, a lot of thought went into their teaching, and they could really engage the avatars in meaningful teaching.*

Participant 7

A closer look at the two responses makes it clear that the pre-service teachers were able to teach in a manner that resulted in a meaningful simulated learning experience. This observation is supported by phrases such as "*catchy introduction*", "*inclusive and collaborative teaching*" and "*engaging avatars in a digital space*". These phrases accord with the notion of experiential learning, a form of learning that encourages creativity, reflective thinking and collaborative engagement amongst learners in a classroom space. Hartle and Kaczorowski (2019) agree that the program is an innovative form of technology because pre-service teachers can practise their teaching, receive feedback and improve their performance. Mursion, according to Hartle and Kaczorowski (2019, p.77), provides a "*hands-on experience*". Pre-service teachers demonstrating such a form of teaching methodology aligns well with the

expected outcome of the teacher development programme at SPU, which strives to equip pre-service teachers with the skills to teach subject content knowledge in an effective manner to learners from diverse backgrounds.

Finally, another favourable aspect that seemed to derive from the verbal responses of the teacher educators focused on the authentic teaching experience that the software offered to pre-service teachers. For example, it was made evident that the simulation offered diverse educational contexts which pre-service teachers would have to take into account of in their teaching:

> *There were also different classroom scenarios which help students to prepare for real classroom experiences. Now if the students would take the background of the avatars into consideration, they would have been able to adapt their lessons according to the needs and their personality… I can remember one avatar was very creative intelligent, but very insensitive towards others. And one was and extrovert, adopted and possibly ADHD. Another one was an introvert, and she prefers working alone.*

Participant 1

This response implies that pre-service teachers had to achieve classroom management skills in their various teaching activities on the program. Classroom management is considered a key teacher quality, pivotal to the academic, social, emotional and behavioural outcomes of learners in a classroom setting. On the basis of the experiences of the teacher educators as session facilitators, it may be concluded – in accordance with what was observed by Ade-Ojo *et al*. (2022), and Gundel *et al*. (2019) – that the program contributes to improving pre-service teachers' skills and knowledge as well as their ability to manage classrooms. While the teacher-educator lens provides valuable user perspectives, to incorporate pre-service teachers' viewpoints could offer a more holistic evaluation of simulation training. It is for this reason that the researchers are currently engaged with research that seeks to enlist pre-services teachers' perspective regarding simulation training.

Theme 3: Less favourable aspects associated with the use of Mursion® simulation software

The third and final theme generated from the semi-structured interview process dealt with teacher educators' experiences of less favourable aspects of using the software. Interestingly, experiences that informed this theme centred upon a) contextual and b) communicative barriers. In the first instance, contextual factors tied to limited internet connectivity and unprecedented load-shedding had an undesired effect on the experiences of teacher educators:

> *Naturally, a precondition for an online program is good internet connection. If there was loadshedding or another connectivity problem, students could not log on to the program and the schedule was quite tight.*

Participant 3

Two other participants shared a similar experience:

When I facilitated Mursion, a lot of my students had challenges with connectivity. So, it was a problem. That was the first thing, the connectivity, the Internet situation.

Participant 5

Also, loadshedding impacted negatively on these sessions. And some students had connectivity issues. Of course, challenges with data and they could not join. And we had to reschedule a few sessions where students could not join the first session, and of course that was an extra session for me, but that is it.

Participant 1

While the findings reveal the undisputed benefits befits of the program, access to the internet experienced by the majority of South African learners, together with unrelenting loadshedding, may raise serious issues of equity and access for all learners of the program. The implication of the latter may well mean that the full benefits of the software cannot be realised for the majority of South African students. In addition to internet connectivity and unprecedented load-shedding issues, some teacher educators commented on how the South African and American accent difference posed a challenge to the Mursion® experience:

The second thing, I noticed that my students, as well as the simulation participants in Mursion® sometimes struggled to understand what the other party was saying, because of Mursion® being in American English, and most of my students coming from the Northern Cape, using standard … Not even standard, but using the so-called Coloured accent of English, I found that the accents were problematic. The American accent and the accent that most of my students had, it created problems with understanding each other quite a lot.

Participant 5

The response provided by the participant re-affirms the possibility that accent differences may constitute a barrier to effective communication. In this regard, it was made clear that the nuances of unfamiliar dialects and accents between the facilitator and the pre-service teachers hampered the developmental experience. This finding highlights the fact that differences in language use, accents and pronunciation may well hamper the effective use and implementation of the program (with reference to the full-service option) for pre-service teacher education at a SPU. Another cultural issue that may arise as a result of using software portraying a different context, is that learners from USA schools seem to be more outspoken in class, unlike their South African peers who regard the teacher as the knowledge authority in class. In order for these challenges to be overcome, the program (and the training of simulation specialists) should be contextualised, the better to suit the South African context.

Conclusion

The aim of the study was to explore the experiences of teacher educators at a SPU regarding their use of the Mursion® program. Simulation software in the form of virtual reality, such as this program, has previously been employed in some teacher education institutions globally to augment teacher training. However, the recent COVID-19 pandemic and its associated social restrictions has foregrounded the use of simulation programs. In reaction to the pandemic, the teacher training school at SPU began deploying the program in 2021 as part of micro-teaching sessions. These sessions thus offered third- and fourth-year pre-service students the opportunity to practise their teaching virtually.

The study made use of semi-structured qualitative interviews to elicit the perceptions of eight teacher educators who facilitated the simulation during micro-teaching sessions. The findings of the study revealed that teacher educators, although initially hesitant, were generally satisfied with using the software. They indicated that what they favoured about the use of the program was that students seemed to plan for their lesson presentations thoroughly and in advance. Furthermore, they also reported the quality of the teaching methodology of students to be of a high standard. Most of these teacher educators are of the view that the use of the software enables pre-service teachers to acquire the skills expected for teaching appropriately in the authentic classroom situation. Lastly, the study revealed that a) teacher educators found that such factors as intermittent loadshedding, as experienced in South Africa, do impair the effectiveness of the program and b) that teacher educators considered the American accent used by the avatars of the program as unsuitable for the South African context. A further study, seeking the perceptions of pre-service teachers who participated in Mursion®-enhanced micro-teaching sessions, is already under way.

Although the application of the program was precipitated by COVID-19, the researchers believe that its applicability will continue to be valid in teacher education programmes as institutions move forward. Its continued use, and possible expansion, may assist institutions who continue to face infrastructure and human-resource challenges, given the increasing student numbers mentioned earlier. Future research could investigate the integration of this software within a community of practice among pre-service teachers. This innovative approach would empower pre-service teachers to exchange constructive feedback, collaboratively refining their strategies for approaching specific teaching scenarios presented by the simulation program.

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