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University Students' Experiences of the Teaching and Learning of an Acupuncture Programme: A South African Case Study

Zijing Hu[*]
Department of Early Childhood Education, University of Pretoria, South Africa

Roy Venketsamy
Department of Early Childhood Education, University of Pretoria, South Africa

Janice Pellow
Department of Complementary Medicine, University of Johannesburg, South Africa

Abstract. The quality of teaching and learning in educational programmes at higher education institutions (HEIs) cannot be overemphasised. This is of particular importance in skills programmes, such as acupuncture, because the teaching and learning of acupuncture at HEIs significantly influence students' competence in the world of work. Acupuncture is one of the most popular alternative treatments globally and contributes to improving public health. To provide quality acupuncture services to the public, HEIs must ensure that their students are competent in implementing the knowledge and skills gained in the programmes. The focus of this study is to explore students' experiences with the teaching and learning of the acupuncture programme at a South African HEI. A conceptual framework adapted from Shulman's (1986) Pedagogical Content Knowledge model and Mishra and Koehler's (2006) Technological Pedagogical and Content Knowledge model was utilised as a theoretical lens in this study. A descriptive qualitative single case study design was employed. The authors adopted a purposive sampling technique to recruit ten participants from the identified HEI. The findings of this study revealed that students' ambivalent experiences in the acupuncture programme. The findings will contribute to the improvement of quality teaching and learning of an acupuncture programme. This study concluded that diverse teaching and learning strategies should be implemented in the acupuncture programme, especially during the COVID-19 pandemic.

[*] Corresponding Author: *Zijing Hu; dr.zijinghu@gmail.com*

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1. Introduction

Teaching and learning are an integral part of higher education institutions; for this reason, Govender and Wait (2018) argue that quality cannot be compromised. All students must be afforded the opportunity of receiving high-quality education to meet the demands of 21st-century skills. This view concurs with the Minimum Requirement for Teacher Education Qualifications (MRTEC) developed by the Department of Higher Education and Training [DHET] (2015). This policy articulates that all programmes delivered at HEIs need to meet minimum standards and criteria to ensure that high-quality teaching and learning. Dicker et al. (2018) believe that the quality of these programmes has a direct impact on students' competencies and abilities in the world of work. This is particularly significant in health sciences programmes, such as acupuncture. Many acupuncture practitioners have indicated that they possess inadequate knowledge and skills to confidently put theory into practice. This result in them feeling incompetent in practicing acupuncture. Therefore, this study aimed to explore students' experiences of teaching and learning in an acupuncture programme at a South African HEI.

According to Govender and Wait (2018), the promotion of quality teaching and learning has received increased attention both nationally and internationally. Despite this increased attention, Hénard and Roseveare (2012) mention that there has been much criticism against young university graduates entering the world of work. These young graduates have been criticised for their lack of the appropriate knowledge, skills and practices necessary to accomplish the tasks in the real world. Similar views were expressed by Dicker et al. (2018) and Govender and Wait (2018) who agree that there is a non-alignment between teaching and learning, and the real-life work setting. According to the DHET (2015), South Africa (SA) recognises and acknowledges the importance of quality teaching and learning to prepare young adults for the world of work. The authors believe that quality teaching and learning are fundamental to ensuring the quality of acupuncture programmes at HEIs.

Acupuncture is widely accepted as a form of healthcare service that benefits public health. It is a component of Traditional Chinese Medicine in which thin needles are inserted into the body to prevent and treat various diseases (Hu & Venketsamy, 2022a). Li et al. (2019) reveal an increasing demand for acupuncture services globally due to their efficacy and cost-effectiveness for various medical conditions. Therefore, the authors are of the view that it is of significance that HEIs provide quality acupuncture programmes through effective teaching and learning to ensure their students are competent and confident to practise acupuncture. In this study, the authors asked the question, 'How do students experience teaching and learning in the acupuncture programme?'

The findings of this study contributed to the improvement of quality teaching and learning of an acupuncture programme in the South African context. Data obtained from this study is also beneficial to ensure that the delivery of future acupuncture programmes is aligned with international standards while maintaining the requirements as outlined in the South African higher education institution policies. This study is of profound significance since the identified HEI is the only institution that provides an acupuncture programme in South Africa.

2. Literature Review

2.1 Effective teaching and learning at higher education institutions

The vision and mission of universities across South Africa are to improve the quality of teaching and learning in all programmes to ensure students achieve the desired learning outcomes. Bhowmik et al. (2013) state that effective teaching refers to teaching that successfully assists students in achieving specific learning outcomes as outlined in the programme. Effective teaching is goal orientated and is focused on achieving the desired learning outcomes (Devlin & Sammarawickrema, 2010). The authors concur that it can be argued that effective teaching refers to teaching and learning that is goal-oriented for the achievement of successful learning outcomes. It can therefore be argued that effective teaching emerges from a vision for teaching and learning which comprises policies and goals of educational requirements (DHET, 2015). Rajagopalan (2019) states that effective teaching is an essential element for ensuring the quality of an educational programme. This view is complemented by Coe et al. (2014) who articulate that teaching aims to strengthen students' knowledge and understanding. Furthermore, Abelha et al. (2020) state that when students acquire appropriate knowledge, skills, values and attitudes (KSVA) in their study programmes, they will become competent and confident to apply knowledge in the world of work.

In the authors' opinion, the appropriate KSVA towards an acupuncture programme is crucial to optimise relevant learning outcomes. The reason is that the authors believe that the appropriate KSVA is assured by the quality of teaching and learning at the HEI. In this study, the quality of the acupuncture programme is evidenced by students' competencies in acupuncture clinical practice to improve public health. Venketsamy (2000) argues that since effective teaching focuses on achieving learning outcomes, there is a need to have criteria to evaluate the effectiveness of the outcomes. These criteria can be the objectives of education, especially the subject, module or programme of teaching and learning. Lumpkin (2020) and Rajagopalan (2019) agree that lecturer effectiveness is one of the most crucial elements for effective teaching at HEIs.

Ko et al. (2014) express various views on lecturer effectiveness owing to the different focusing dimensions on different contexts in which they teach. Killion and Hirsh (2011) indicate that lecture effectiveness refers to improving students' learning outcomes, with a special focus on lecturers' behaviours and the process of teaching. Henard and Roseveare (2012) and Ko et al. (2014) concur that for lecturer effectiveness, the following characteristics are of significance: clear understanding of instructional goals, adequate content knowledge (CK) of the

education programme and pedagogical knowledge of how to deliver the CK effectively to promote and ensure quality teaching.

Venketsamy and Sibanda (2021) state that effective lecturers should acquire adequate CK and pedagogical skills so that they may deliver their learning content in a manner that is understandable and comprehensible to their students. The authors believe that effective lecturers are of profound importance because their CK of the subject (acupuncture) and pedagogical skills significantly influence students' learning in the acupuncture programme. Therefore, the authors believe that in education, teaching and learning are inseparable elements that must be carefully planned and delivered for appropriate understanding.

Learning is a process that leads to change, which takes place as a result of experience, and enhances the potential for improved performance for prospective learning (Lalima & Dangwal, 2017). Effective learning has gained increased attention from scholars in the educational field both nationally and internationally. Venketsamy (2000) points out that effective learning focuses on transferring CK through students' active involvement and the successful application of the knowledge in the world of work. Govender and Wait (2018) opine that adequate CK is crucial to improving teaching and learning. Therefore, they agree that students should be skilled and competent to apply the knowledge in the real-life world through effective teaching and learning in educational programmes (Govender & Wait, 2018). Despite researchers indicating the importance of content knowledge to improve teaching and learning, within the South African context there are numerous existing challenges. These challenges have an adverse effect on the quality of teaching and learning in the acupuncture programme. The section below discusses the challenges in teaching and learning in an acupuncture programme at a South African HEI.

2.2 Challenges in teaching and learning in an acupuncture programme

Literature by Govender and Wait (2018) highlight challenges in teaching and learning; for instance, many lecturers are unable to translate what they have learned into practice, especially when presenting their lessons to their students. Kasim and Abdurajak (2018) also agree that some lecturers are incompetent to teach effectively, therefore negatively affecting the quality of education (teaching and learning). Goh (2013) cites the following reasons: lecturers experience issues such as lack of experience and confidence, face difficulty in applying effective pedagogical approaches in teaching and are incapable of evaluating students in practice. For lecturers to be competent in the delivery of their subject content knowledge, Govender and Wait (2018) state that lecturers' CK is crucial to ensuring their confidence in teaching and learning. The authors believe that if all lecturers have sound content knowledge and understanding of their subjects, they will deliver the lessons appropriately.

According to the literature, a comparison of acupuncture programmes recommended by the World Health Organization (WHO) and China is more advanced, structured and intense in comparison to South Africa (Fujian University of Traditional Chinese Medicine, 2018; University of Johannesburg,

2021; WHO, 2021). Furthermore, Hu et al. (2022) argue that there is a need to enhance lecturers' pedagogical content knowledge (PCK) to promote effective teaching and improve learning outcomes. The authors believe that it is crucial to ensure lecturers' competency in teaching and learning in the acupuncture programme at the identified university. Lecturers should acquire adequate CK of the programme and be able to apply a variety of pedagogical approaches for a specific need in the teaching activities. This is of particular importance concerning teaching during the COVID-19 pandemic.

The outbreak of the COVID-19 pandemic has significantly impacted education in HEIs, necessitating the rapid introduction and use of technology for online teaching and learning. Rashid and Yadav (2020) and Salmi (2020) state that both developed and developing countries were significantly affected by the pandemic and were forced to use technology for teaching and learning in all educational institutions to avoid students from missing out on their education. The authors agree that 'digital inequality' is a reality; not all students have internet access and have acquired the necessary computer skills to participate in online teaching and learning. For this paper technological competencies refers to computer skills (knowledge and ability to use technology), infrastructure and resources even though many HEIs have tried to implement online learning programmes, most programmes are still delivered face-to-face (European University Association [EUA], 2020). Hu and Venketsamy (2022b) and Mpungose (2020) concur that education in HEIs has been transformed to accommodate emergency remote education (ERE) due to the impact of the pandemic. Emergency remote education is defined as the urgent but temporary adjustment to an alternative mode of delivery in education so that students are participating in the teaching and learning process (Hu et al., 2022).

The rapid adoption of ERE places challenges on both academic staff and students. According to studies conducted in the United Kingdom, USA and Ireland. Paideya (2020) reports that more than half of the academic staff had never taught using online technology before the pandemic. According to Mpungose (2020), most universities in SA conduct face-to-face teaching and learning with minimal online or the use of virtual teaching and learning. Paideya (2020) agrees that the shift to ERE may be overwhelming, resulting in anxiety and uncertainty among students. Different forms of online learning have been proposed to adapt to the changes due to the pandemic (Aristovnik et al., 2020). From the student's perspective, Aristovnik et al. (2020) found that many students had expressed negative experiences with ERE; for instance, a lack of devices and computer skills and an inability to focus during online learning.

Infrastructure plays a crucial role in ensuring effective distance study; however, SA is still experiencing a shortage and poor infrastructure in many regions (Thaba-Nkadimene 2020). Mariononi et al. (2020) found that many students face challenges with online teaching and learning, especially those who are comfortable and confident with face-to-face lectures. The authors agree that this challenge is particularly critical among most African universities; since these universities lack appropriate resources and are burdened with poor infrastructure

due to the high rate of poverty (Salmi, 2020). According to Salmi (2020), very few African universities are well-equipped to conduct academic activities through the use of technology. As a result of these challenges, are authors of the opinion that the outbreak of COVID-19 placed new challenges on the teaching and learning of the acupuncture programme at the identified HEI in SA. To minimise these challenges, it was necessary to identify strategies to strengthen the quality of the acupuncture programme at the South African HEI. Some of the strategies identified by the authors supported by relevant research were participatory teaching and hybrid learning. The section below discusses these strategies in detail and is supported by relevant literature.

2.3 Strategies to strengthen the quality of acupuncture programmes

According to Trauth-Nare and Buck (2011), participatory teaching allows students to collaborate and reflect in the process of teaching which aims at improving students' learning. This view concurs with Kucharcikova and Tokarcikova (2016) who articulate that participatory teaching is an effective approach to strengthening teaching by improving students' engagement. Participatory teaching is a pedagogical approach that encourages students to construct knowledge in the learning process (Kucharcikova & Tokarcikova, 2016). The reason being is that students are actively involved in the planning and discussion of the objectives, knowledge, skills, attitudes or modes of teaching for particular learning outcomes (Adu-Gyamfi et al., 2020). Apart from participatory teaching, hybrid learning is also an effective approach to strengthening learning.

Al-Zumor et al. (2013) and Lalima and Dangwal (2017) define hybrid learning as the integration of online learning and traditional face-to-face learning. The use of technology in education at HEIs has significantly eliminated the risk of COVID-19 infection by means of maintaining social distancing. These authors concur that hybrid learning promotes efficient and effective teaching and learning. In the authors' opinion, the COVID-19 pandemic promoted the adoption of hybrid learning among HEIs. Evidence in support of this view can be found in the global adoption of online teaching and learning to accommodate education during the pandemic (Hu & Venketsamy, 2022b; Mpungose, 2020).

Furthermore, Lalima and Dangwal (2017) state that participatory teaching and hybrid learning allow students to request learning styles to adapt to their specific needs in the learning process. This learning style refers to the way students perceive and process information in different learning situations. According to Gardner's multiple intelligences theory, various approaches can be adopted to strengthen teaching and learning to meet educational goals (Benazira et al., 2021; Davis et al., 2011; Wang, 2021). Gardner identified nine learning styles that lecturers should consider when planning their teaching and learning of the acupuncture programme. This will ensure that all students are accommodated and supported in the delivery of the programme. These approaches include the visual approach, auditory approach, linguistic approach, logical approach, intrapersonal approach, interpersonal approach, kinaesthetic approach, naturalistic approach and existential approach. To strengthen the teaching and learning of the acupuncture programme at HEIs, the authors believe that

participatory teaching and hybrid learning can be effective pedagogical approaches to strengthen students' learning outcomes at HEIs.

3. Conceptual Framework

A conceptual framework is a theoretical foundation that anchors the phenomenon of the study (Cohen et al., 2018; Maree, 2020). In this study, the authors employed a conceptual framework to explore students' experiences of the teaching and learning of the acupuncture programme at the identified HEI. This conceptual framework, the Technological, Pedagogical, Content Knowledge (TPCK) model, was adapted from Shulman's (1986) PCK model and Mishra and Koehler's (2006) Technological Pedagogical and Content Knowledge (TPACK) model. The TPCK model emphasises CK, PCK and TCK, which provided an opportunity to analyse students' experiences of the delivery of the acupuncture programme.

Shulman (1986) contends that it is a necessity to accommodate the subject CK with various pedagogical knowledge (PK) in education (Hu & Venketsamy, 2022b). The reason is that the employment of appropriate PK in teaching and learning will improve students' learning experiences and promote learning outcomes (Kultsum, 2017). Consequently, Shulman (1986) proposed the concept of PCK which is defined as the knowledge utilised for particular CK to enhance learning outcomes (Kultsum, 2017). To understand how to integrate technology in teaching and learning, Mishra and Koehler (2006) developed the TPACK model from the PCK model. Bhukuvhani (2018) and Oner (2020) agree that the TPACK model is recognised as the most widely used framework when integrating educational strategies and technology into specific modules. According to Mishra and Koehler (2006), there are seven elements in the TPACK model: namely pedagogical knowledge, content knowledge, technological knowledge, technological content knowledge, PCK, technological pedagogical knowledge, TPCK and TPACK. The authors believe the TPCK model provides an opportunity to identify the importance of appropriate CK, PCK and TCK in the acupuncture programme to ensure the quality of the programme at the HEI. Figure 1 below illustrates the TPCK model.

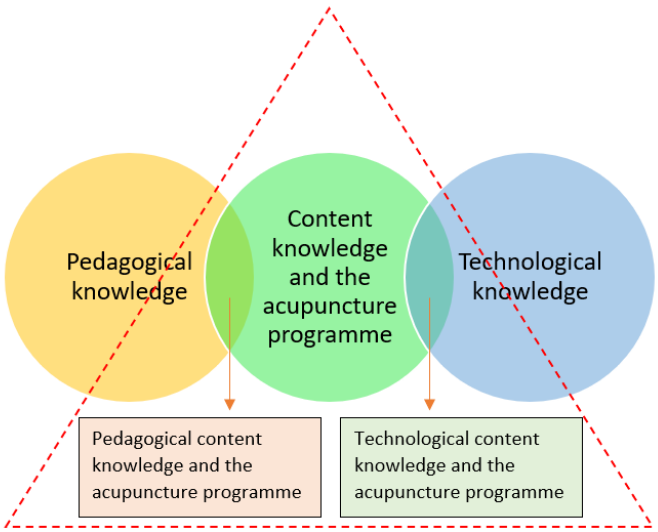

Figure 1. The TPCK model (Own model adapted according to Shulman [1986] and Mishra & Koehler [2006])

4. Methodology

Research methodology is the bridge that connects the philosophical stance and the research methods (Cohen et al. 2018). In this study, the authors used qualitative research within the interpretivist paradigm. The reason was that they wanted to explore the participants' lived experiences of the teaching and learning of the acupuncture programme. A single case study design was adopted in this study. The research setting was an HEI in the Gauteng province that enrolled students in the acupuncture programme. A purposive sampling technique was utilised to recruit participants for this study. The authors displayed an invitation poster on the notice board of the identified campus to voluntarily invite students to participate in this study. The inclusion criteria were a) students who are registered in the acupuncture programme towards the Bachelor of Health Sciences in Complementary Medicine (BHSc CM) degree; b) participants had to be in the 2nd, 3rd or 4th year of study; c) they should have access to internet facilities to complete the online open-ended interview on Google Forms; and d) they had to voluntarily agree and consent to participate in the study. Ten (10) participants agreed to participate in this study by signing research consent forms. The table below illustrates the participants and the respective codes used in the data analysis. Codes were used to ensure the confidentiality and anonymity of the participants.

Table 1. Biographical data of participants

Pseudonyms	Gender	Year of Study
P1-Y2	Female	2nd-year
P2-Y2	Male	
P3-Y2	Male	
P4-Y3	Female	3rd-year
P5-Y3	Female	
P6-Y3	Male	
P7-Y4	Female	4th-year
P8-Y4	Male	
P9-Y4	Female	
P10-Y4	Female	

The authors used multiple data collection techniques such as online text-based interviews, observation schedules, participants' reflective journals, field notes, and documentation to collect data. The authors believed that the employment of multiple data collection techniques validates the trustworthiness of the study (Cohen et al., 2018; Maree, 2020). The interview questions were designed by using the TPCK model and guidelines provided by Mishar and Koehler (2006). To prevent the spread of the COVID-19 pandemic and ensure anonymity, an online text-based interview with open-ended questions was administered through Google Forms. Participants were given two months, between March 2022 and April 2022, to answer the interview questions at their most convenient time and to keep and maintain a reflective journal. The frequency of journal recordings was not made mandatory so that participants did not feel threatened by what they had

reflected on. In this study, one of the authors acted as a non-participatory observer, observing participants' practice in a clinic. Data from the first two observation sections were excluded from the analysis to minimise the Hawthorn effect.

Maree (2020) states that data analysis is an approach to explaining and interpreting the meaning of raw data from the study to answer research questions. The six-step framework of thematic analysis, proposed by Creswell (2014) was followed. The six steps include becoming familiar with the data through multiple readings, coding the data, generating themes, reviewing themes, defining themes and generating the narrative (Venketsamy et al., 2021). The data from different sources were inductively interpreted. In this study, the authors employed quality assurance techniques to ensure rigour. The authors ensured trustworthiness by employing four evaluation criteria: credibility, conformability, dependability, and transferability. Techniques included appropriate research design, well-established research methods, persistent observation, frequent debriefing, detailed descriptions of the study, maintenance of an audit trail and triangulation to ensure trustworthiness. Ethical clearance was obtained from a Research Committee at the University of Pretoria (Ref: EDU137/21). To uphold the ethical principles prescribed by the committee, all participants were briefed on informed consent, voluntary participation, privacy and confidentiality, and withdrawal from the study without giving a reason. Participants were ensured that they would not be at risk of participating in the study and that their contribution to the study will benefit future programme development at higher education institutions.

5. Findings and Discussion

The findings in this study highlighted students' ambivalent experiences towards teaching and learning the acupuncture programme at the identified higher education institution. Three major themes emanated from the data during the analysis: a) students' experiences towards the teaching methodology; b) students' views and experiences towards the use of technology; and c) students' challenges in the acupuncture programme.

Theme 1: Students' experiences towards the teaching methodology of the acupuncture programme

Teaching methodology (pedagogy) is crucial for quality teaching and learning. Shulman (1986) referred to teaching methodology as a pedagogy of teaching. Devlin and Sammarawickrema (2010), DHET (2015) and Rajagopalan (2019) emphasise the importance of adopting appropriate methodologies for delivering a lesson. In this study, participants from the 3rd and 4th years concurred that participatory teaching and hybrid learning enhanced their learning in the acupuncture programme. However, the findings of this study showed that participants found online studies benefited them in learning theoretical content knowledge compared to practical knowledge and skills. They believed that the theoretical components could be delivered online while the practical components of the programme should be conducted face-to-face. To this, P5-Y3 wrote:

> *"Weekly contact sessions would be beneficial to be able to ask the lecturer questions regarding the content covered. Provided the student has a strong work ethic and motivation to learn the content online, it is achievable."*

P6-Y3 stated: "*I prefer the same old ways that we use; having pre-recorded lecture videos and also attending our classes and practicals works better for me*."

P10-Y4 added:

> *"I prefer the method used during the summer school to teach the acupuncture programme. Providing lectures on Youtube lectures to listen to and study before class and then going to class to answer questions about the online lectures, the practice of acupoints and theory. Mostly campus practices have benefited my practical skills. Technologies mostly helped to understand the theory behind the acupoints."*

Al-Zumor et al. (2013) state that hybrid learning is an effective method to promote learning. Hybrid learning is a pedagogical approach to the integration of distant and face-to-face learning, as explained by Lalima and Dangwal (2017). These authors concur on the significant role of hybrid learning in strengthening students' learning in the 21st century. Hybrid learning strengthens students' learning by adopting both online and face-to-face approaches (Hu & Venketsamy, 2022b). Lalima and Dangwal (2017) and Mpungose (2020) state that this mode of teaching positively promotes students' learning. However, the authors believe that there is a need for lecturers to select the most appropriate pedagogical and technological approaches when delivering specific content knowledge in the acupuncture programme. The view is supported by Hu and Venketsamy (2022b) and Koehler and Mishra (2009), who state that lecturers should possess sound PCK and TCK to effectively achieve the learning outcomes of a programme.

The authors opine that it is important to adapt the pedagogical approaches to the specific CK; for example, deciding which CK could be introduced online, and which should be introduced on campus. Bhukuvhani (2018) further affirms that the selection of technologies in teaching should be suitable for specific CK. P9-Y4 indicated: "*I think we should continue with doing online teaching for the theory as I find it effective*." According to the TPCK model, PCK and TCK are significant when designing a programme and determining how to deliver the specific content knowledge of the educational programme (Mishra & Koehler, 2006; Shulman, 1986; Venketsamy & Hu, 2022).

Some participants in the 2nd year did not emphasise the need for hybrid learning. P1-Y2 and P3-Y2 mentioned that online learning through technologies, such as pre-recorded lectures and the internet, was sufficient for them. On the contrary, P2-Y2 supported hybrid learning. He indicated:

> *"The online classes [pre-recorded videos] were sufficient for the past year [theoretical study]. So far this year, a more contact approach is definitely needed [because practical components were included in the 2nd year]. I enjoy the current method [the hybrid learning] thus far. Although I liked the online learning system, I do feel this course specifically is grasped better with practicals."*

This finding agrees with Oner (2020), who emphasises the importance of technology in teaching and learning. According to the Complementary Medicine Practice Learning Guide 1 (Pellow et al., 2021), participants in the 2nd year had mostly studied theoretical CK in the 1st year of the programme. This content is suitable to be delivered through online learning. Therefore, some participants in the 2nd year were of the view that online learning was sufficient. However, all participants in the 3rd and 4th years were of the view that hybrid learning was needed to enhance their learning, particularly for practicals.

Theme 2: Students' views and experiences towards the benefit of technology

Technology plays a crucial role in 21st-century education since it significantly improves learning experiences. Due to the influence of COVID-19, HEIs globally adopted ERE, including South African universities (Rashid & Yadav, 2020; Salmi, 2020). The findings of this study highlighted that most participants believed that studying through technology-facilitated their learning. They agreed that studying online provided many conveniences in their learning which positively supported the learning process. To this, P3-Y2 wrote: "*Technology has been very good lately. It gives me easy access to recorded lectures. I can revise my work anytime*."

P5-Y3 wrote:

> *"I found the use of uploading the lectures on YouTube very beneficial to the student as it allows you to move as fast as you want to through the content, as well as being able to pause the lecture and takedown better-detailed notes and make sense of the content while the lecture is being taught. I think the lectures should always be uploaded as YouTube videos as much as possible. The YouTube videos have assisted greatly in being able to make sense and learn the content quickly*."

P7-Y4 added: "*The [online] learning was valuable as I could, at my own pace, go through the content on my own, which allowed me to have a strong theoretical base of knowledge to perform the practicals*."

P8-Y4 wrote:

> *"What I liked about online was that if you did not hear something, you could just rewind and listen to the lectures again. If there is something that you didn't understand, you can go back and watch the lecture and understand it better. Yeah, the funniest part is that you can listen to a lecture about three times."*

In her reflective journal, P7-Y4 indicated that learning through technologies made it easier for her to make additional notes by pausing the lecture videos. P7-Y4, P8-Y4 and P9-Y4 further highlighted one of the benefits of adopting technologies was that they could revise content in the previous study through pre-recorded videos.

Koehler et al. (2013) and Venketsamy and Sibanda (2021) state that technology plays a critical role in education in the 21st century to strengthen teaching and learning. The findings of this study disagree with Aristovnik et al. (2020) and Marinoni et al. (2020), who report that students are reluctant to adopt technologies

in their learning. The authors concur with Thaba-Nkadimene (2020), who reveals that technology allows more convenient accessibility and flexibility in education. The researcher believes that this is of great significance in the acupuncture programme, particularly during the pandemic. As explained in the TPCK model, the effective implementation of technologies will promote teaching and learning (Oner, 2020). The authors are of the view that technologies allow students with different intelligence natures to gain the most out of their studies. For instance, online pre-recorded lecture videos are better for students with visual, auditory and linguistic intelligence (Davis et al., 2011). Furthermore, it also benefits students with intrapersonal intelligence since students will be able to pause during the lecture, which allows individuals to reflect and gain a deeper understanding of the knowledge. Participants agreed on the importance of participatory teaching and learning in the acupuncture programme.

Participants in this study agreed that technologies played an important role in ERE. They believed that the use of technology also enabled efficient communication. To this, P3-Y2 wrote: "*The technology made it possible to study online and still be able to talk to my peers and discuss the content*." In the online text-based interview, P4-Y3 wrote: "*Technology has really helped us to learn when we were severely hit by the virus. If it was not because of it, perhaps even today, we would have been at home without studying*."

P7-Y4 added:

> "*In the 2nd year, it allowed me to complete tutorials that were marked. This allowed me to see what my mistakes were and correct them as well as to see where I did not fully understand a concept*."

P10-Y4 mentioned:

> "*Technologies have made communication more efficient in knowing what to study and when to be on campus for practicals. As mentioned above, we could study at our own pace and had guidance whenever we had questions in class and over WhatsApp.*"

P10-Y4 added:

> "*The use of technologies has been very effective, especially during the COVID-19 period. The opportunity to study online made it easy to understand the lecture notes off-campus. Technology really gave us an opportunity to stay on track even though we could not go to the university.*"

The COVID-19 pandemic significantly affected human health and resulted in stress, anxiety and frustration due to isolation (Aristovnik et al., 2020). Paideya (2020) states that the success of ERE relies on the effective implementation of technologies. The researcher concurs with Hu and Venketsamy (2022b) and Mpungose (2020) who are of the view that technologies make it possible for the implementation of ERE during the COVID-19 pandemic, which allows the positive transformation of online teaching and learning. The authors opine that effective communication is one of the advantages of adopting technologies. With technologies, students can communicate remotely, which may further assist in reducing the feeling of isolation when studying alone (Hu & Venketsamy, 2022b).

Theme 3: Students' challenges in learning the acupuncture programme
The findings of this study revealed some challenges that students experienced in the acupuncture programme: the lack of competent lecturers/clinical instructors and the need for appropriate technologies and challenges in using technologies.

The limited number of competent lecturers/clinical instructors
The findings of this study revealed that a limited number of lecturers/clinical instructors in the acupuncture programme negatively influenced students' learning experiences. Participants believed that they would benefit more if there were sufficient competent lecturers and clinical instructors teaching in the programme. P3-Y2 stated: "*[It will be better for lecturers] to help one another in practical class and discuss it with one another*." When answering the question, 'Explain ways in which you can be supported to develop a positive attitude towards the acupuncture programme'; P6-Y3 indicated:

> "*Only by being given attention during the practicals. When we do practicals, we should be in smaller groups so that the lecture can also be able to give each one of us attention and help us where we don't understand*."

From the author's field notes, he described that many students were sitting without any instruction on what to do while the lecturer was discussing with one student for an extensive period. From an informal discussion with one of the lecturers in the acupuncture programme, it was explained that there was only one lecturer in a practical class with 40 students.

Lecturers play a crucial role in teaching and learning in all educational programmes (Kasim & Abdurajak, 2018). This view is supported by Goh (2013) who points out the importance of competent academic staff in an educational programme. Killion and Hirsh (2011) and Lumpkin (2020) articulate that the limited number of competent academic staff in the identified acupuncture programme limits the best outcome of the programme.). However, the authors believe that a limited number of lecturers and clinical instructors in the acupuncture programme in SA is inevitably influenced by the limited number of qualified acupuncturists in this country. According to Hu et al. (2022), there is a significant lack of acupuncturists in SA. The authors believe that the limited number of competent acupuncturists in SA further highlights the significance of this study, i.e. to improve the capacity of training acupuncturists through quality *teaching, learning, assessment and practices* in the programme.

The need for appropriate technological knowledge for specific purposes
As mentioned previously, technologies significantly promote teaching and learning at HEIs. It is therefore of profound significance to ensure appropriate technologies are utilised for teaching and learning. Participants in this study also highlighted the need to investigate the use of technologies for a specific purpose. They believed that not all content knowledge could be delivered effectively through technology. Particularly, participants concurred that there was a need to select appropriate technologies to deliver content knowledge related to practical skills since the online collaborations were not appropriate for practical content. Both P9-Y4 and P10-Y4 indicated that technologies neither benefited them in the assessments nor the practicals. Even though P5-Y3 strongly agreed on the benefit

of adopting technologies in the programme, in her reflective journal, she indicated: "*I don't feel technologies have benefitted or not benefitted my practical skills*." P9-Y4 stated: "*Well, it hasn't helped much because at first, it was very easy for us to refer to our notes when writing so you won't reflect on what you don't understand*."

P10-Y4 indicated:

> *"I would recommend studying online as it is more time-efficient and thorough, while I prefer tests offline/on campus as it is less stressful, better guidance if something is wrong and also prevents cheating*."

Bhukuvhani (2018) and Hu and Venketsamy (2022b) agree with Koehler et al. (2013), who emphasise the importance of an in-depth understanding of TCK and TPCK. The researcher concurs with Venketsamy and Sibanda (2021) who indicate that lecturers should have sound TCK and TPCK in teaching and learning to use technologies effectively. In the researcher's opinion, lecturers should consider the specific need for CK when designing lessons in the acupuncture programme.

Challenges of using technologies

Although no participant in this study reported their concern about the quality of the acupuncture programme, there were still challenges in implementing ERE in the programme. The findings of this study revealed that there were a few barriers to adopting technology in the programme. Participants reported that they experienced barriers such as a lack of personal interaction, a lack of data, poor infrastructure and insufficient computer skills. Furthermore, one participant reported that the use of technologies in teaching and learning contributed to her increased stress in the study of the programme. For instance, P6-Y3 stated:

> *"In my first year, we only relied on online classes because we could not have contact classes due to the covid pandemic. I found it very difficult to understand and grasp the work because the other reason was that I was not even that familiar with studying online."*

P10-Y4 added:

> *"In my experience, the technologies have also caused greater irritation and stress because of so many things able to go wrong. I have had data, internet, and connection problems and the worse was during the test. It was difficult to get used to as there was no interaction, no correction of understanding and all the connection problems mentioned. I did easily fall asleep or get distracted when I started bringing lectures or when I am too long in front of the computer, but it was also easy to catch up, stop, review and learn for tests*."

Paideya (2020) reveals that the adoption of ERE through technology may increase students' anxiety because of the uncertainty of the quality of the programme. The researcher believes that some students are used to face-to-face teaching and learning, particularly students who prefer visual, auditory and linguistic approaches (Davis et al., 2011). These characteristics are determined by their intelligence's nature, according to Gardener's multiple intelligences theory (Benazira et al., 2021). Apart from the influence of an individual's intelligence nature, the poor infrastructure and poverty in some regions in SA also contributed to the students' anxiety of using technology. P8-Y4 stated: "*The disadvantage of it*

[using technology] is that you need gadgets. For instance, laptops and all of those things are expensive." P9-Y4 added: "*The network was a challenge at home because I had to walk kilometres to go to a place that has a good connection*." As mentioned by P10-Y4, she always experienced problems with the internet connection, particularly during load shedding.

Aristovnik et al. (2020) and Thaba-Nkadimene (2020) report that infrastructure plays a critical role in ERE using technology since all activities rely on the internet. The researcher avows that there is a need to improve infrastructure and students' computer skills in order to implement teaching and learning through technology. The researcher believes that poverty in SA also negatively affected students' learning using technologies. This view concurs with Salmi (2020), who states that most African HEIs are not ready to shift online since there is a lack of appropriate resources, such as devices and appropriate infrastructure. The lack of computer skills also negatively influences students' ability to study online (Hu et al. 2022).

6. Recommendation and Conclusion

This study was limited to exploring students' experiences on the delivery of the acupuncture programme at one HEI in Gauteng Province in SA as there is currently only one HEI in the country offering acupuncture training; therefore, the results are limited in their comparisons. Although the researcher followed rigorous strategies to strengthen the trustworthiness of this study, the subjective interpretation in interpretivism paradigm was also seen as a limitation. This study adopted a qualitative approach; however, the authors contend that this is not the only way of exploring teaching and learning of the acupuncture programme. Through this study, the researchers envisage that study will raise greater awareness of the importance of effective teaching and learning in all educational programmes. Further comparative studies are recommended to explore students' experiences at international HEIs in similar programmes. The researchers also recommend the employment of different research methodologies, for example quantitative and mixed-method approach to investigate the teaching and learning of an acupuncture programme.

The quality of teaching and learning at HEIs is of profound significance in ensuring the successful delivery of all educational programmes. There is a need to optimise teaching and learning at HEIs (Dicker et al., 2018; Govender & Wait, 2018). This study aimed to explore students' experiences with teaching and learning in the acupuncture programme at the identified HEI. To strengthen the teaching and learning in the acupuncture programme, the authors agree on the recommendation below:

- It is recommended to optimise participatory teaching and hybrid learning in the acupuncture programme at the HEI.
- It is recommended that detailed lesson plans should be developed before each class, specifying the purpose, aims, and procedure of actual classes (Hénard & Roseveare, 2012; Lumpkin, 2020).
- Due to the lack of appropriate training and inadequate CK among some lecturers/clinical instructors, the authors recommended the development of a handbook for acupuncture clinical supervision including detailed

guidelines to support them. Furthermore, this will ensure that appropriate CK is delivered in each section and that the learning outcomes are achieved (Hu & Venketsamy, 2022b). The Socratic questioning method is recommended in clinical supervision (Boghossian, 2012).

- It is recommended that appropriate technologies should be applied to the teaching and learning of the acupuncture programme, taking into consideration specific CK. For instance, virtual simulation is adopted in some HEIs; it is recommended to be used as a supplementary approach to teaching which should only contribute to a limited portion of clinical simulation (Hu & Venketsamy, 2022b). Programmes such as acupuncture require physical practice and cannot be replaced by technologies completely. In this respect, it can be used to prepare a blended learning curriculum.
- All academic staff and students should receive appropriate training and development on the use of technology for teaching and learning. Ongoing professional development programmes should be planned for throughout the academic year.
- Finally, it is recommended that government and policymakers ensure that all HEIs have appropriate infrastructure to deliver ERE and online learning in the post-COVID-19 era. HEIs should ensure students acquire adequate computer skills and access to digital devices.

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