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EDITORIAL

The focal of this issue centres around a suite of changes within the context of the Republic of Mauritius directly impacting education, and the lived experiences of those specifically affected. The articles within this issue espouse critical insights and current challenges pertaining to educational reforms, curriculum, textbooks, pedagogy (public and online), and pre/in-service teacher professional development. While authors did not actively seek participants' recommendations in the amelioration of these changes and related challenges, these are nevertheless implicitly embedded within the research findings. Each article represents a different educational vantage point and serves as a stark reminder of the importance of the research nexus in informing policy formations and practices in the forging of an effective education system.

Yudhish Rama focuses on the curricular changes brought on by the latest national educational reforms in Physical Education (PE) at upper secondary level. The introduction of the theory component has resulted in the subject being examinable through the Cambridge International Examination (CAIE) standards. This is significant as the subject has previously centred around teaching the practical components (i.e. physical fitness, development of motor skills) and not examinable content-based knowledge related to anatomy and physiology, health fitness, psychology, to name a few. The findings disclose the challenges teachers experienced due to being inadequately prepared professionally. Despite teachers' lack of confidence in teaching the theoretical content, teachers deployed self-learning from a range of sources namely books, internet, through their own teaching experiences, and sharing with colleagues. Based on the findings, Rama argues for the need to include teachers during policy reform deliberations and sufficient professional preparation and support prior to implementation.

Evelyne Payen-Jackman also engages with the recent national educational reforms within the Republic of Mauritius, with a focus on the Social and Modern Studies (SMS) textbooks. Through textual analyses and a postcolonial disposition, she argues for the inclusion of an alternative narrative within the SMS school textbooks rooted within a decolonial discourse to allow students spaces of critical engagement which challenge the traditional status quo and pay heedance to subaltern voices masked by dominant ideologies. She argues for spaces of emancipatory critical thinking within SMS textbooks to allow students to generate alternative possibilities amidst colonial intimations.

Unlike national educational reforms which are systemically planned changes, Shakeel Atchia and Anwar Rumjaun shed light on the unanticipated reality of COVID-19, specifically within the space of what Henry Giroux refers to as public pedagogy. Despite deliberate border closures and public lockdowns measures intended for the public's safety, Atchia and Rumjaun argue the ways in which the "fake news" disseminated by media giants and social media sources across the globe failed to provide 'safety' to the public during such uncertainty. This was noted to be problematic given the centrality of the media in 'educating' the public through this crisis period. The authors provide a framework to demarcate between authentic and "fake news" with a view to critically discern.

COVID-19 observed increased internet-dependency levels for work, entertainment, social interactions, and schooling, this however, was contingent on internet and technological

accessibility. Within the context of education, this transition was specifically referred to as ‘emergency remote teaching’ (ERT) to ensure students were continuously learning. Fawzia Narod, Vickren Narrainsawmy, and Majhgey Murden-Louise conducted a study focusing on Chemistry educators’ experiences of ERT, particularly given the subjects practical focus. Findings from the questionnaire were presented and found that while educators were unprepared to teach online, they nevertheless initiated self-directed learning with insufficient ICT tools to teach Chemistry online. They found engaging their students online to be challenging due to a lack of participation, motivation, and absenteeism. Educators struggled to implement practical session online and opted to teach basic conceptual understandings. The authours suggest in the wake of ERT and subsequent shift to more online teaching, professional development opportunities be availed to educators that centre particularly around practical skills development for students through appropriate scientific inquiry.

Mangala Jawaheer also focused on the shift to online teaching during COVID-19, however, she narrowed in on the learning experiences of pre-service educators for a Communication and Soft Skills module in a B.Ed programme. She explored how pre-service teachers perceived their learning experience, and whether the synchronous sessions contributed to their English proficiency and soft skills development. The findings indicated the opportunities created for active participation and collaboration through diverse creative and critical activities, inbuilt Microsoft Teams features, and immediate Lecturer feedback contributed to the development of their English proficiency and soft skills. Jawaheer suggests that inbuilt features should be optimized, consideration be given to tonal inflection during live sessions, and clear instructions be provided for activities and collaborative work when working with online applications.

Lastly, the learning experiences of in-service educators was explored by authours Pritee Auckloo, Charisma Thondee, Vikash Baichoo, Sharone Ramasawmy, Divya Sowdagur, Joann Permall, Cayum Jahangeer, and Satyen Beedassy, in relation to their teaching practice component which has been a long-standing component in the part-time Post-Graduate Certificate in Education (PGCE-PT) programme at a teacher educational institution in Mauritius. Authours specifically focused on understanding how participants, who are already working teachers, negotiated their understanding, learnings, and challenges of their teaching practice at school with tutors. The findings indicated that teachers experienced anxiety particularly given that many deemed themselves experienced teachers with a set teaching approach. The feedback provided prompted them to reflect on their professional practice/s. The authours argue for establishing relationships prior embarking on the teaching practice with a view to explain its purpose and the respective roles of the educator and tutor. Furthermore, teaching practice can be used as a space to promote collegial professional practice.

While all of the research-oriented articles within this particular issue have been Mauritian based, as with all research, it is expected the findings can be transferable and useful to other contexts in honing education given the related thematics of educational reforms, curriculum, textbooks, pedagogy (public and online), and pre/in-service teacher professional development, and the omnipresence of change.

Tejwant Mohabeer
Editor

In-service physical education teachers' teaching experiences of the theory component at upper secondary level in Mauritius

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ABSTRACT

This research emerged from a recent reform policy introducing a theory component in the teaching of Physical Education (PE) at upper secondary level making PE examinable. This qualitative case study investigated the experiences of in-service PE teachers in teaching the theory component at upper secondary level in Mauritius. Although, several studies have researched the implementation of PE as being examinable, there is a dearth of studies on in-service teachers' teaching experiences of the theory component. The conceptual framework of this study embeds John Dewey's (1938) definition of the concept of experience and the literature review focuses on the various aspects that influence teaching experience acquisition. Using an interpretivist approach to explore the phenomenon, data was collected through semi-structured and focus group interviews. Thematic data analysis revealed how teachers structured their teaching lessons including their teaching methods and teaching aids. The findings also pointed to the challenges the participants faced, the factors that helped and hindered their teaching, and how they gathered knowledge and experiences. Moreover, the findings indicated how the Cambridge International Examination (CAIE) theory component triggered the participants' own learning of how to teach the theoretical component. Additionally, the multiple realities of the participants' experiences provided deeper insights on how teachers questioned (a) the role of stakeholders; (b) the lack of pedagogy in teacher training; (c) the influence of the science or non-science background of teachers; and (d) the syllabus' level of difficulty.

Key Words: Curriculum change; teaching theory; teachers' teaching and learning experiences; physical education

INTRODUCTION

Quality education and human resource development are strategic pillars to transform Mauritius into a viable nation. The government of Mauritius set out several objectives revolving around an efficient and effective education system to achieve this vision. The successive educational reforms posited in Mauritius have constantly fostered quality education through learning opportunities, and the educational outcomes have always been assessed through examinations (Education Reforms in Action 2008 – 2014). In 2011, the Ministry of Education, Tertiary Education, Science and Technology introduced Physical Education (PE) as an examinable subject at School Certificate (SC) O level. The new policy is aimed at (1) providing career

prospects in leisure, recreation, and tourism to students; (2) promoting an education which will improve the overall health and quality of life; (3) and broadening the curriculum at upper secondary level. To meet its objectives, the Ministry adopted the Cambridge International General Certificate of Secondary Education (IGCSE) PE syllabus. The IGCSE PE syllabus is inclusive of both practical and theoretical components and it provides the required knowledge, understanding, skills, and qualifications to enable students to carry further studies in PE. The practical and theoretical components are assessed according to the Cambridge International Education (CIE) examination standards. The assessment weightage at SC level is 50% practical and 50% theory, and for Advanced (A) and Advanced Subsidiary (AS) levels, it is 30% practical and 70% theory (IGCSE Physical Education, 2021). As per the percentage quantum, students should have substantial theoretical knowledge in PE to succeed in the examinations.

Prior to 2011, the different reforms in the Health and PE curriculum in Mauritius were centred around educating students on regular physical activities' benefits, physical fitness, and motor skills development through games and sports. To achieve these policy aims, teacher preparation courses at the Mauritius Institute of Education (MIE), which is the national teacher training institute, principally provided knowledge and skills to teach physical activities, individual and team sports; fitness development; and performance enhancement through the Bachelor of Education programme (B.Ed. Programme Handbook, 2008). The recent introduction of the theory component at upper secondary level has shifted teaching from a fully practical approach to a more theoretical one thereby transforming PE into an academic subject like English, Science, or Mathematics. Physical Education theory is associated with different teaching components such as anatomy and physiology; health, fitness, and training; skill acquisition and psychology; and social, cultural, and ethical influences. The aim is to develop students' understanding and knowledge to adopt the principles of safe and effective physical performances during any skills and health-related exercises and games.

The teaching theory component has brought several teacher challenges within the professional context. While it can be argued that rudimentary professional development through workshops were provided by Cambridge through the Mauritius Examination Syndicate (MES), this did not effectively address the challenges of the day-to-day teaching of the theory component. While teachers regularly deal with curriculum changes, a shift in focus from a fully practical to a more theoretical approach constituted a major transition in their work. These PE curriculum changes are typical examples of the Ministry of Education's top-down policy approach (Samuel & Mariaye, 2016) and how policymakers fail to consider whether teachers know how to teach the theory component of the Cambridge International Examination (CAIE) PE syllabus when planning for curriculum change. When teachers teach a new component for the first time, it is very important to consider its implications (Stidder, 2001) and to ensure that teachers have the required content and pedagogical knowledge (Shulman, 1987) and teaching skills (Kinley, 2013).

My research justification centred around examining how computational thinking skills were introduced as a new component in the computer curriculum in England and how such an approach could have been adapted for the introduction of the new PE curriculum in Mauritius,. For example, incorporating computational thinking skills as a new component in the computer curriculum in the UK was a gradual process. The transformation began with a two-year teacher

training programme, followed by teachers receiving a recognized qualification (Sentance & Csizmadia, 2015). An elaborated guideline was provided to help teachers better understand how to teach the important concepts, approaches, and techniques associated with computational thinking. Emphasis was laid on instructional and teaching methods to assist in knowledge acquisition (Zendler, 2015). The underlying reason why teachers were empowered and trained for the new computational thinking skills component was because it brought inherent difficulties in teaching the subject-matter to the surface (Sentance & Csizmadia, 2015). To date, no research has been undertaken to understand the experiences of PE teachers teaching the new PE theory syllabus. Given the above context, this study explored how in-service PE teachers experienced the teaching of the theory component at the upper secondary level.

LITERATURE REVIEW

Capel (2002) argues/ stipulates that if teachers do not acquire theory teaching skills during their training, it will be challenging for them to teach it. Adnan, Kalelioglu, and Gulbahar (2017) questioned how far teacher training programmes promote deep understanding on how to teach content knowledge at school. In many countries, teacher training seems unconnected with curriculum goals, and it also gives the impression that these professional programmes are not designed to meet teachers' needs (Creemers & Kyriakides, 2013). In Mauritius, the addition of the teaching theory component for PE was seen as a major curriculum change as most of the teachers involved in teaching the PE CAIE had followed a practical-based teacher training programme whereby teaching theory was not a priority. Mandukwini (2016) points out that theoretical fields in the PE CAIE curriculum may be unfamiliar to teachers based on the teacher education curriculum they had followed and that they require new learning. As PE became examinable, the professional development of educators to teach the PE CAIE curriculum and most importantly the theory components became crucial factors.

According to Green (2008), with a more theory-based version of PE, teachers must adopt specific teaching methods. However, most teachers are involved in skills and game teaching and are inexperienced in traditional classroom teaching settings (Sinelnikov, Kim, Ward, Curtner-Smith, & Li, 2015) and are restricted in terms of teaching strategies (Myers, 2010), hence questioning whether our teachers possess the required instructional quality for classroom teaching (Holzberger & Schiepe-Tiska, 2021). These statements triggered the reflection on how far policy makers considered having a mentoring or induction programme (Richards & Templin, 2011), or if measures were taken to have a support mechanism on how to teach the new curriculum at school (Sinelnikov et al., 2015). The proposed study addressed the challenges that occurred in the teaching of the new curriculum (Nevenglosky, Cale, & Aguilar, 2019). The findings of this study will provide different PE stakeholders with the required insights on how to better support teachers through an understanding of the context and realities of teaching due to curriculum changes (AIR, 2016).

The didactics of the theoretical PE component became challenging for teachers who were not prepared to teach and posed problems (Salter, 2005). Shulman (1987) points out that to teach curriculum change, teachers need to master content knowledge, pedagogical content knowledge, curriculum knowledge and student knowledge. These different knowledge bases

should be acquired during teacher training (Shulman, 1987), however, knowing how to teach occurs through practice which Meijer (2010) referred as teacher's practical knowledge. This knowledge is associated with instructional materials which are critical ingredients in curriculum implementation thereby providing information and opportunities for students to learn (Nevenglosky, et al., 2019). With technology-based teaching and learning tools fast replacing the traditional classroom teaching methods (Ghavifekr & Rosdy, 2015), it was important to explore the how everyday educational practices and teaching experiences constructed teachers' knowledge (Hedges, 2012).

Curriculum change

The PE curriculum change approach of the Ministry of Education of Mauritius is an example of a top-down policy implementation (see Viennet & Pont, 2017). According to Mandukwini (2016), the top-down policy change approach is criticised because teachers' knowledge and teachers' involvement have not been considered, and it influences the new curriculum implementation process and curriculum change. According to Lumadi (2014), teachers' non-involvement remains the main cause for some experiencing difficulties in implementing the new curriculum, hence the success of any curriculum change involves different stakeholders. In the Mauritian context, when establishing a new curriculum, the government typically involves subject-matter experts only from universities and concerned government officials before handed down to schools (Deng, 2013). The role of teachers in curriculum implementation cannot be overlooked as they are important stakeholders of the new educational reforms (Karimova, Kazimzade, & Silova, 2014) and the main actors of curriculum change (Mathura, 2019).

Mandukwini (2016) argues that teambuilding workshops can assist both novice and experienced teachers in acquiring the required knowledge, skills, and attitudes to accomplish curriculum change. To help teachers understand curriculum change in the Mauritian context, workshops focusing on the aforementioned are deployed. However, these workshops are more informative and do not compensate for inadequate curriculum implementation training and the lack of guidelines for curriculum implementation changes which creates a challenge to most secondary school educators, coupled with the unavailability of necessary resources required for effective curriculum implementation (Mandukwini, 2016). Moreover, teachers are unsure about how to teach content when supplementary curriculum materials are scarce (Yusof, Zainuddin, & Hamdan, 2017). By providing essential materials, teachers can focus on their learners, rather than tracking down materials they do not have (Singh, 2012). The PE CAIE provides teaching points on how to teach theory topics on their teacher website.

International examinations remain the core accountability mechanisms in secondary systems around the world, and widespread learner underperformance in international assessments has become a real concern (Mandukwini, 2016). New curriculum implementations are questioned due to the poor performances of learners (Letshwene, & Du Plessis, 2021). The curriculum change success depends on the teachers' knowledge, skills, positive approach, and teaching passion, therefore, some teachers may willingly accept the curriculum innovations and others may not (Mandukwini, 2016). These arguments questioned the mindset of educators to guide and prepare students to sit for CAIE exams given that in the Mauritian context as the teacher is a source of knowledge of students (Nyaga, 2019; Wallace, 2013). Moreover, teachers influence

students' academic attainment (Blazar, 2016) and are therefore compelled to master teaching knowledge and content knowledge of the specialised subject taught (Shing, Mohd Saat, & Loke, 2015).

Challenges

The introduction of the theory component in the PE curriculum at upper secondary transformed the teaching of PE to an academic subject (Lee, 2013). To teach a new curriculum, lesson plans and assessment options successfully help teachers to implement the new curriculum (Wiles & Bondi, 2015). Poor lesson planning results in unsuccessful implementation of curriculum change (Palobo, Sianturi, Marlissa, Purwenty, Dadi, & Saparuddin, 2018). Additionally, research on curriculum change implementation identified several factors which posed problems such as inexperience in teaching subject matter (Sinelnikov et al. 2015), limited resources (Yusof et al., 2017), inadequate teacher training (Mandukwini, 2016), ineffective classroom management (Agemso, 2020), large class size, the allocated time for each class (Rahman, Pandian, & Kaur, 2018), and teachers' willingness, participation, and cooperation (Yusof et al., 2017). The purpose of this research was to gather vivid insights on how far social contexts and realities shaped teachers' experiences in teaching the theory component as part of the new PE curriculum with a view to better understand the occurrences in teaching a new curriculum (AIR, 2016).

Islam (2015) identified a lack of regular teacher training which hampered their teaching. To complement on inadequate teacher training and to be resourceful, many teachers adopted the self-regulated strategy approach in conducted their own internet research, purchased e-books (Stoeger & Ziegler, 2011). As teachers are inexperienced in teaching a new curriculum, research has shown that they created their own peer reflective group (Danielowich, 2014). By seeking help from peers, it enhances reflections on the different situations encountered in everyday teaching (Schön, 1983). Individuals can share their own experiences and learn from others through interaction to help teachers (re)interpret and further develop their teaching perspectives (Allas, Leijen, Toom, 2016), and adopt new teaching approaches (Schön, 1983). This research study sought to gain insights into how teachers developed their own growth initiatives to complement the gap in their teacher training programme as it relates to teaching the theory component (Yusof et al., 2017).

Students interest and prior knowledge

Teachers dealing with curriculum changes expressed concern about students' unwillingness to participate in tasks (Rahman et al., 2018). Student disinterest is a global phenomenon which often contributes to low academic achievement (Thomas, 2013). Due to students' discouraging attitude and low confidence, teachers have to work harder to monitor their progress and prepare them for the examinations (Yusof et al., 2017). Teachers also use mix mode instructional language for teaching for poor proficiency students. (ibid., 2017). However, students who demonstrate interest in their work tend to display an increased attention, and preference to learn (Arikpo & Grace, 2015).

Apart from student interest, students' prior knowledge impacts the teaching process, therefore, teachers need to know about students' prior knowledge as it influences the understanding of

new knowledge (Diaz, 2017). Inadequate students' prior knowledge mismatches the educators' expectations of student knowledge and the students' actual knowledge base (Hailikari, Nevgi, & Lindblom-Ylänne, 2007). Learning without adequate prior knowledge is ineffective (Hailikari, Katajavuori, & Lindblom-Ylänne, 2008) as prior knowledge impacts learning and consequently influences student achievement (Dochy et al., 2002; Geoffrey (2021). In researching the phenomenon, understandings of how teachers created a learning environment where students constructively acquire more knowledge based on their prior knowledge level about the theory component of the PE CAIE was considered (Hailikari et al., 2007).

Confidence

To teach the theory component, teachers need to acquire intellectual discipline of subject matter also known as Theoretical Content Knowledge (TCK) (Lawson & Placek, 1981). An example of TCK is biology related topics in PE. Drawing on Disch, Santiago, and Morales (2012), given that PE teachers in Mauritius followed a practical based PE teacher programme, they have low levels of content knowledge to teach theory, are inexperienced (Sinelnikov et al., 2015), and lack confidence (Noble, 2016). Maclellan (2013) indicates that teachers' lack of confidence is closely linked to their lack of background knowledge when teaching a new curriculum in other subjects yet their confidence is related to their commitment or teaching ability (Witt, Goode, & Ibbett, 2013) and prior experiences (Norton, 2017).

Teacher's building confidence on how to teach is linked to the pedagogy they have developed (Norton, 2017) and through their teaching experience (Protheroe, 2008). Julaihi, Liew, Li, and Ahmad (2020) assert that confidence enables teachers' self-efficacy to emerge (Ramakrishnan & Salleh, 2018) and this contributes to effective teaching and learning (Nurindah, Akil, & Jafar, 2019). Therefore, teachers' beliefs play an important role in effective teaching and learning and in their teaching practices' development (Xu, 2012).

Knowledge

For educational reform, knowledge is at the core of students' learning (Morgan, 2011). Students' engagement in knowledge development relies on what teachers teach in the classrooms (Hirish & Segolsson, 2020). Teacher knowledge as a resource is critical for the teachers' efficacy (Walshaw, 2012). To teach effectively, teachers need subject-specific knowledge (Jeschke, Kuhn, Heinze, Zlatkin-Troitschanskaia, Saas, & Lindmeier, 2021). Teachers' fragile subject knowledge matter often hinders students' development and understandings (Walshaw, 2012). Furthermore, the teacher's knowledge can be enhanced with the support and encouragement of a community of practice (Murugaiah et al., 2012). Professional development must prepare teachers on what-to-teach and how-to-teach (Nishimura, 2014). Therefore, to meet the desired outcomes of curriculum change and for curriculum change to be successful, teachers must be capacitated adequately for the successful implementation of the curriculum (Mandukwini, 2016; Taguma & Barrera, 2019).

According to Kapur (2018), teacher education should equip teachers with the knowledge, skills, and attitude to teach, face and find solutions to teaching challenges. Moreover, apart from teacher training, professional development is on the long-run development of educators

and is a dynamic, practice-centric, and continuous cycle process for teachers (Ping, 2022). Thus, teachers should develop a lifelong learning culture as they will need to gather the required knowledge, and to learn, unlearn and then relearn approaches related to teaching–learning process (Dhaliwal, 2015). Curriculum change therefore requires teachers to expand their knowledge level and skills.

Experience

Teaching is seen as an emotional experience (Yoo & Carter, 2017). Cross and Hong (2012) informed that teacher’s emotional conceptualisation is through interaction within their environment. This statement sustains Dewey’s definition about experience as an interaction between human beings and their world. Teachers’ emotions, especially their emotional experiences have been underplayed (Uitto et al., 2015). Linking the teaching of the theory component of PE and literature on teaching curriculum change showcased that teachers have mixed emotions (Saunders, 2012). Teachers gather valuable knowledge and teach efficiently through their teaching experiences (Johansson & Thorsten, 2017). Effective teaching experience includes proper lesson planning (Cahill, 2020), classroom management (Chandra, 2015), assessment for learning (Ko et al., 2013), and teacher competency (Bakhru, 2017). To be competent, teachers should always update their knowledge, attend conferences, and seminars to acquire new knowledge (Bongco & David, 2020). According to Kini and Podolsky (2016), teachers need to accumulate seven or more years of experience to improve their teaching. Experience is gathered through extensive peer collaboration, having a supportive professional working environment, improved resources and instructional abilities and focus on student achievement (Kini & Podolsky, 2016).

METHODOLOGY

An interpretivist paradigm and case study methodology were deployed to broadened my scope and understanding of the experiences from individual cases. The interpretivist stance allowed me to explore the reality of the participants’ teaching experiences and how the PE theory component was taught. A qualitative approach was adopted as experiences are nested in people; semi-structured and focus group interviews allowed me to interact with teachers individually and showcased how teachers framed their experience within a real-life context. To have a holistic interpretation of the studied phenomenon, a systematic approach to select participants, collect, analyse, interpret, and report data was deployed (Kabir, 2016).

Biography of participants

A small sample of three teachers were purposively identified and selected from different schools of Mauritius (Young & Casey, 2018). The following characteristics were required: a degree to teach upper secondary level in Mauritius; the ability to share opinions in an articulated, expressive, and reflective manner; to have actively have participated in PE workshops; to have been involved in the writing of PE curriculum materials; to have taught the theory component for a minimum of two years as the theory syllabus is covered over two years; and to have been one of the first batch of teachers to experience curriculum change since 2011. New

teachers were not considered for this study as they are still novice and do not have the extensive experience required for the purpose of this study. The table below summarizes the participants characteristics.

Participant	Age	Gender	Teaching Experience
A	50	M	20 years
B	45	F	15 years
C	38	M	10 years

Table 1. Research Participants

Data collection methods

Semi-structured interviews

The recorded and transcribed semi-structured interview facilitated the disclosure of experience as a human behaviour (Dewey, 1938). This created a conducive atmosphere for good interaction with teachers. To substantiate the validity of the data collected, I piloted the interview (Dikko, 2016). Identification of flaws and limitations within the interview design enabled me to review the interview and make the necessary modifications to gather accurate data (Majid et al., 2017). For example, questions were carefully phrased to enable comprehensible responses from teachers. Teachers freely spoke about their experiences gathered through everyday practice. This conversational style of interview allowed me to carefully listen to teachers while they were talking about their experiences. The interviews were guided by identified themes (Qu & Dumay 2011). Key questions categorised under these themes assisted the conversation and additional questions were used to gather in-depth information.

Focus group interviews

Focus group interviews were conducted to reduce the inherent bias associated with a single source of data in qualitative research (Tümen-Akyıldız & Ahmed, 2021). This conversational method enabled me to explore and reflect on the research phenomenon with a small group of participants (Liamputtong, 2011). This qualitative research tool sustained the trustworthiness of the interpretation of the research findings. Moreover, it reduced subjectivity and biases in the analysis and interpretation of the qualitative data and ensured integrity in reporting the research findings.

Ethical standards

The rights and well-being of participants taking part in the research were respected. The participants were informed about the purpose of the study and that their engagement was purely voluntary. After agreeing to the research terms and conditions, teachers gave their consent to

participate in the interviews. A high standard of ethical consideration was maintained at all stages of the interview process (Arifin, 2018). A voice recorder was used to record the verbal proceedings of the interview with the prior approval of the participants. To ensure confidentiality and privacy of the data collected, pseudonyms were used for each teacher; the data collected was not disclosed and kept in a locked cabinet; and the identities of interviewed teachers were kept anonymous (Mthiyane & Habedi, 2018). After data was collected, the principles of fairness were observed when interpreting the data and reporting the findings all of which helped to collectively maintain the genuineness of data collected, therein avoiding tampering or misinterpretation.

My position in this study

Teaching theory triggered an interest in knowing how teachers were experiencing this new practice to fulfil my professional commitments as researcher, curriculum content developer, and teacher educator. As the research involved various individuals, it led me to question my role when interacting with the participants of my study. This is because, there is a concern in qualitative research that the researcher's biasness and subjectivity might influence data collection and the interpretation process. To avoid biasness and subjectivity, I followed standardised and ethical procedures throughout the data collection and interpretation process. Piloting the interview process allowed me to identify sensitive and unsuitable questions for teachers which were rephrased (Majid et al., 2017). In reviewing the interview questions and process, it developed an element of trust while engaging teachers in the co-constructing of meaning about teaching experiences. No power of authority was exerted on the interviewed teachers which resulted in gathering valuable and meaningful data (Qu & Dumay, 2011). Moreover, in interviewing the teachers, my intention was not to merely study teachers as subjects, but as individuals connected to me to construct meaning about the realities influencing the teaching of the PE theory component. I acknowledged that teachers own their experiences and maintained a professional judgment while analysing and interpreting the data collected. To ensure qualitative data interpretation, my immediate thoughts and reflections about the data collected, including the thematic analysis, were recorded in a journal to reduce the impact of personal bias, ensure credibility, and conformability of the research findings (Hadi, M. A., & José Closs, 2016). This allowed the findings to flow from the data collected rather than emerge from the bias and subjectivity of the researcher (Redman-MacLaren. et al., 2014). The interpretivist stance allowed me to know what constituted the reality of teachers' experiences as a phenomenon and how the theory component is being taught contextually. Positioning myself within the study enabled me to understand how personal beliefs and power of authority might have influenced the research findings.

Data analysis

Data was analysed with reference to Creswell's (2009) principles of qualitative data analysis which consists of raw data, transcribing interviews, reading through data, generating cues and themes, and interpreting the themes' meaning. Raw data was transcribed from audio-recorded interviews into text. In the analysis process, data was repeatedly read to identify relevant codes which were condensed into meaningful themes. The coding organised segments of text to bring meaningful interpretation of the realities describing teachers' teaching experiences and the sub-

codes brought better analytical perspective of the data collected (Saldana cited Lincoln & Guba, 1985). These sub-codes brought more rigour while discussing findings. This systematic process of reporting findings was done under themes deducted from literature namely, teaching theory (Lee, 2013); challenges (Mandukwini, 2016); factors (Chen & Wei, 2015); and knowledge and experiences (Sentance & Csizmadia, 2015). The inductive approach was used to identify the theme of confidence generated from data before finalising all the themes (Braun & Clarks, 2012).

Themes were used to facilitate data analysis, interpretation, and report data. Trustworthiness of the research findings relied on excerpts of transcribed semi-structured and focus group interviews which constituted statements of teachers. This confirmed that findings were authentic and not biased (Redman-MacLaren et al., 2014). This indicated that the credibility of my research findings rested in the subjective world of human experiences and the uniqueness of individual cases.

RESULTS AND DISCUSSIONS

The findings of this study revealed data pertaining to teachers experience in teaching a new PE curriculum. The participants' testimonies provided a clearer picture on the importance of teachers' input in designing a curriculum and the rationale of preparing and supporting them before implementing the curriculum. The following sections present the thematic findings.

Teaching theory

(a) Planning

Planning guided how to proceed in the CAIE syllabus teaching. *T1* mentioned that the plan of action included the scheme of work to teach different theoretical chapters, whilst *T2* mentioned that the plan of action helped to consider the students' level and background. This statement resonated in *T3*'s argument that when preparing teaching lessons, students' prior knowledge was considered thus supporting Diaz's (2017) argument on prior knowledge as part of the teaching process, and that the teachers will have to create a learning environment based on students' prior knowledge (Hailikari et al., 2007). Moreover, *T1* and *T2* informed that the simple to complex approach was applied to structure their teaching lessons which helped their students to better understand the syllabus and the different topics taught.

Teachers from the focus group interviews also highlighted that planning was an important factor in teaching:

Planning was done term wise. Teaching lessons were related to the scheme of work and the CAIE syllabus. At the beginning, we had to plan simple lessons first because the students did not have any knowledge about theory. We had to bring the students to a certain level of understanding before proceeding to more complex topics.

(b) Teaching methods

T3 believed that to devise the best teaching strategy, students' knowledge was primordial, and that the onus was on the teacher to choose which strategies were more appropriate to teach. In the same line, *T1* highlighted that teaching a topic required a panoply of teaching methods as indicated below.

I used different strategies like explanation, questioning and discussions in my class. Classroom discussions, giving classwork and assessment at the end of the lesson helped to determine whether the students have grasped the content or not.

T2 informed that group discussions, key words, examples, and drawings were very helpful for students to remember important facts. *T3* found that, engaging students in interactive sessions was more appropriate rather than providing lectures only. Furthermore, *T2* explained that for the teaching of certain theory topics, open and closed practical skills sessions were conducted which helped students to better understand and consolidate their knowledge. From the focus group interviews teachers informed that they did not know what teaching methods were appropriate to use in the classroom. To make the students understand the topics, they tried the different approaches as mentioned by *T1*, *T2* and *T3*.

The findings challenged Myers' (2010) argument that a teacher without prior knowledge, or classroom teaching experience, had a restricted choice of teaching methods in teaching theory. The experiences of teachers indicated that they used a variety of teaching methods to help the students understand the topics and acquire the required knowledge (Zendler, 2015).

(c) Teaching aids

T2, *T3* and teachers from the focus group interviews specified that they used multimedia, human anatomy charts, pictures, PowerPoint presentations, videos, and the internet in their teaching. *T1* highlighted that videos were very helpful for biology-related lessons and indicated that "*Videos available on YouTube, were very helpful especially to clear students doubts thus bringing a better understanding of the lesson content.*" This confirmed Green's (2008) statement that as PE has become a more theory-based, subject innovative practice will help the teachers teach in a classroom set-up. Technology seems to be the favourite instructional material used by the PE teachers in their classroom thus supporting that technology-based tools facilitate teaching, assist teachers, and replace traditional classroom teaching methods (Ghavifekr & Rody, 2015). YouTube videos as a technology-based resource made the teaching and learning process more interesting, fulfilling, and meaningful for both teachers and students.

(d) Teacher education

T1, *T2* and teachers from the focus group interview questioned the content of the B.Ed. programme regarding the preparation of teachers as they were not taught how to teach the theory component during their teacher training. *T2* further asserted that the B.Ed. course provided content knowledge on how to teach practical classes only. "*To understand how to teach theory it was very challenging. To know how to teach theory PE was more through trial and error. It*

required a lot of personal research, and the internet was very useful.” Teachers from the focus group interview requested that concerned stakeholders conduct workshops on how to teach the different theory topics.

The findings indicated that the teaching theory component was not part of the teacher training programme and confirmed Capel’s (2002) argument that if teachers have not experienced theory teaching in their training, it will be challenging for them to teach. Furthermore, Shulman (1987) affirmed that to fully engage teachers in curriculum change, they need to have the required pedagogical content knowledge, but the findings proved that the B.Ed. programme which teachers followed provided content knowledge to teach practical PE content only. This contradicts Kapur (2016) argument on teacher courses which equip teachers to teach subject-matter at school. Therefore, before engaging teachers in curriculum change, policymakers and teacher training institutions should provide PE teachers with the required teaching knowledge (Shulman, 1987), and skills. Furthermore, to bridge the gap between teacher training and teaching curriculum change, workshops (Mandukwini, 2016), and seminars should be conducted to help teachers acquire new knowledge (Bongco & David, 2020).

Challenges

(a) New curriculum

T1, T2 and teachers from the focus group interview said that they were teaching the CAIE theory syllabus for the first time. Moreover, *T1* complained that the stakeholders had not involved teachers in decision-making and were least concerned about them even though they would be the ones mainly engaged in the theory teaching component. *T3* stated that *“I was not much aware on how to implement the curriculum and had to ask my friends.”* In Mauritius, stakeholders involved in top-down decision-making for PE policy and curriculum change did not involve teachers, which contradicts Mandukiwini’s (2016) argument that teachers should be part of policymaking and curriculum change. This lack of involvement in policy and curriculum change resulted in teachers being confused on how to implement curriculum (Mandukwini, 2016). The findings revealed that the curriculum was established only by subject-matter experts from universities and concerned government officials (Deng, 2013). Arguments brought forward from the interviews affirmed that teachers’ role in curriculum implementation cannot be overlooked as they are the main actors of curriculum change (Mathura, 2019). For policy change to have the desired effect, teachers should be important stakeholders in any educational reform (Karimova et al., 2014).

(b) Examination

Teachers from the focus group interviews questioned how they would prepare children for the CAIE exams. *T1* was also very concerned about students sitting for exams for the first time:

Many questions aroused like whether students will be able to attempt the theory paper questions? What have I had to teach? Whether the way classes conducted enabled learning to take place? Was the knowledge provided relevant for them to sit for exams.

The findings confirmed that CAIE as an international examination became the core focus for PE teachers at secondary level (Mandukwini, 2016). Teachers informed that this type of examination system has a powerful effect on PE at upper secondary level. The main concerns of teachers were what they needed to teach and how; what students had to learn; and what knowledge was adequate for their students to sit for the exams.

(c) Workshop

T2 affirmed that the workshops conducted by CAIE resource persons were not focused on how to teach theory topics but rather on how to conduct the practical exam component. For the teaching theory component, resource persons advised teachers to read the syllabus and prescribed books. *T2* requested that additional workshops should be carried out to help teachers teach the different theory topics of the AS/A Level CAIE syllabus while *T1* proposed to have a crash course to enable teachers with no prerequisite knowledge in science to learn how to teach the different biology related topics found in the syllabus. From the focus group interviews, teachers pointed out that workshops should be organised for teachers with no science background as the topics at AS/A Level are very complex to teach.

According to Mandukwini (2016), workshops can assist teachers in acquiring the required knowledge, skills, and attitudes to implement curriculum change. However, the findings revealed that the workshops organised were not tailor-made to instill the knowledge on how to teach the theory component. Concerned stakeholders should consider providing appropriate workshops on how to teach the theory component. In the same vein, workshops need to be conducted to help teachers with no science background on how to teach the theory component at AS/A Level. Workshops were reported to be significant in filling the gap between teacher training, the theory component syllabus, and everyday teaching.

(d) Learning how to teach

To ensure that learning took place in a conducive environment, *T3* devised means and ways of employing the appropriate strategies to teach the students the related topics for the theory component. Similarly, *T2* noticed that nobody could help in theory teaching, not even people teaching PE in higher education as “*perhaps they did not know how to.*” The findings brought forward considerable reflections on whether our teachers possessed the required instructional quality for teaching (Holzberger & Schiepe-Tiska, 2021); if policy makers considered having a mentoring programme to assist teachers in their teaching (Richards & Templin, 2011); and if a support mechanism was provided on how to teach the new curriculum (Sinelnikov et al., 2015).

T1 elaborated that “*as teaching PE was new, we did not have the required teaching resources and fear aroused on how to make the students learn, or whether they will feel motivated to learn.*” Fear was felt because of unavailability of teaching resources (Singh, 2012) and as Mandukwini (2016) points out effective curriculum implementation requires resources. If adequate materials were provided, it would have enabled teachers to focus their attention on their teaching rather than tracking down materials they do not have (Singh, 2012).

To tackle posed problems, interviewed teachers took it as a challenge to learn. It was the learning by doing process which enabled them to revisit their content knowledge acquired during teacher training days. They learned how to structure lessons and impart knowledge on their own to students through different teaching approaches. The findings also justified that in taking the challenge to learn how to teach the theory component, the success of the curriculum change rested on the positive attitude and the will of teachers to adapt to the new situation (Mandukwini, 2016). As teachers gathered knowledge on their own on how to teach through learning by doing, it confirmed that teachers' practices and values were not considered by policymakers.

Factors that helped how to teach

(a) Friends, books, and internet

T1 shared that as he was not from a science background but indicated how he had “...gathered basic knowledge about biology through the B.Ed. course, and I had to seek help from Biology teachers to explain certain biology-related topics of the PE CAIE SC, and AS/A syllabus.” This resonated with *T3* and the other participants from the focus group interviews who sought help on how to structure lessons for the AS/A Level PE CAIE Syllabus. This is referred to as a teachers' support group where ideas and best practices are shared to teach effectively (Yusof et al., 2017). Additionally, seeking help underscores the argument that there was inadequate training regarding curriculum implementation, lack of guidelines for the curriculum changes, which was challenging for teachers (Mandukwini, 2016).

T2, *T3* and teachers from the focus group interview confirmed that reading of relevant PE books such as PE-16 and the internet were of “tremendous help.” It confirmed Yusof et al.'s (2017) argument that to gather knowledge, teachers used the internet and read books. It is also linked with Singh (2012) statement that no materials were provided, and teachers had to look for their own information.

(b) School facilities and instructional language

T3 used school facilities such as the biology and physics laboratories. *T1* said that the rector was very supportive. Provision was made in terms of a laptop, a projector, and making the computer lab accessible to teach the theory classes. The statement sustained that technological-based materials have become essential in classroom teaching (Ghavifekr & Rody, 2015). *T2* specified that to better understand key terms for biology-related topics and to prepare students for exams, classes were carried out in English, French and Mauritian Kreol which is also known as the mix-mode instructional language approach in teaching (Yusof et al., 2017).

(c) Teachers' prior knowledge

T1 and *T2* informed that the Anatomy, Physiology and Kinesiology modules from the B.Ed. programme also helped to acquire basic knowledge on biology-oriented topics of the SC syllabus but this was not sufficient for AS/A Level. For *T1*, not being from a science background posed a problem on what and how to teach biology-related topics. Meanwhile,

T3, a former biology student in college, had the required prior knowledge and did not find it difficult to understand the biological-oriented topics in PE. The findings indicated that the teacher education programme did provide basic knowledge about biology-related topics in PE at SC level only and this questioned the quality of the programme as provision was not made on how to teach AS/A Level PE. This supported the arguments by Kapur (2016), and Shulman (1987) on the importance of teacher training in equipping teachers with the required knowledge to teach. Besides, the teachers' prior knowledge positively and negatively influenced the ability of teachers on how and what to teach (Diaz, 2017). The teacher's knowledge on Biology topics was restricted to content and not pedagogical content knowledge (Shulman, 1987). Additionally, teachers did not possess the required instructional materials to deliver the lessons and had to seek help from peers (Yusof et al., 2017).

Factors that hindered teaching

(a) Students' prior knowledge

T1, *T2* and *T3* claimed that students did not have the appropriate knowledge to understand the biology topics. The same statement was felt by teachers during the focus group interviews:

The O' Level syllabus had important biology related topics and most of our students were not from a science background. This challenged our way of structuring our lessons to bring more understanding to students and to prepare them for exams.

According to the findings, insufficient prior knowledge affects students' understanding, and ultimately hinders learning. This posed problems on how to plan lessons. Moreover, this brought a mismatch between the teachers' expectations of student knowledge and the students' actual knowledge base (Hailikari et al., 2007). The quality of prior knowledge prompted teachers to think of how to create a learning environment, structure lessons, make students better understand and appropriately preparing them for exams. This is echoed by Hailikari et al. (2007) on the teachers' willingness to create a learning atmosphere where knowledge is constructed based on prior knowledge.

(b) Students' interest

T1 questioned students' interest in learning the subject, which hindered the completion of the syllabus. *T3* informed that male students were keener to do practical classes rather than theory. The findings revealed that students were uninterested to learn. This affirmed that a person's interest level impacts on learning. Students' disinterest in learning is a global phenomenon which results in low academic achievement (Thomas, 2013). Students' perception about spoon-feeding revealed that the teacher is the main source of knowledge. This confirmed Shulman's (1987), and Kinley's (2013) arguments that teachers should possess the appropriate knowledge and skills to teach. Contrastingly, the argument indicated that the teacher expects the student to be an independent learner to some extent. As PE at AS/A Level does not lead to the obtainment of a scholarship, policymakers should consider this to motivate students to choose PE.

(c) Examination results

T1 and *T2* said that most students who chose PE at AS Level were not bright and did not fare well in the O'Level exams. *"Many who have opted for PE at AS level got 7 or 8 grades for SC Examination; therefore, they did not have the required knowledge at this level."* Low academic results showcased the struggle in implementing the new PE curriculum, and PE as an academic subject (Lee, 2013). Students' poor performance at O' Level exams confirmed Mandukwini's (2016) statement on underperformance in international assessment. The lack of students' knowledge on PE at AS/A level, questioned teachers on their teaching and students' learning. This is further related to Diaz's (2017) reflections on the prior knowledge of students and how they acquire, understand, and structure new knowledge. Therefore, inadequate prior knowledge impacted the teaching and learning process. Trying to learn something without adequate prior knowledge is deemed ineffective (Hailikari et al., 2008).

(d) Bulky syllabus and time allocation

T2 affirmed that as the AS/A Level syllabus was bulky, she was constrained to proceed according to the students' learning pace. In addition to the bulky syllabus, *T2* highlighted that many students were reluctant to choose PE at AS/A Level as it would not help them gain a scholarship. *T1* and *T2* informed that the most challenging thing was the number of periods allocated to teach the subject and how the sequencing made teaching theory difficult because more time was spent in teaching skills and games. Similarly, *T3* saw that it was time-consuming to prepare theory lesson plans.

The MES Circular 7/20, informed that CAIE would offer a new PE syllabus at AS level in 2023. Moreover, as per the circular, the initial However, *T3* added that the B.Ed. content related to the teaching of certain theory topics of the CAIE syllabus was perceived as difficult as students were not performing well for exams and a small number of students entered the A Level component. Therefore, CAIE brought forward a new syllabus which is tailor made to meet the needs of schools and students.

In Mauritius, five periods are allocated weekly to teach CAIE PE. However, the findings affirmed that time allocated was insufficient to plan the practical and theory components. Time constraint impeded on students' knowledge quality (Rahman et al., 2018; Yusof et al., 2020). Therefore, stakeholders need to assess whether the time allocated for teaching CAIE PE helps or hinders teachers to impart appropriate knowledge to students for both the theory and practical components.

Teacher confidence

(a) New curriculum

T1 revealed that *"at first, my confidence level could be questioned because I was not well versed on biology related topics of the theory component. I was apprehended about how to teach at O' Level."* Moreover, *T1* and *T2* said that *"the AS/A Level curriculum was new and challenging and were anxious about how to teach it."* Nevertheless, *T3* felt quite confident to teach AS/A

Level based on the knowledge and experience acquired whilst teaching O'Level. Teachers from the focus group interview felt uncertain and fearful as they needed to prepare students for examinations.

The findings showcased that lack of confidence impinged upon content delivery mainly at AS/A Level. This confirmed that lack of confidence (Noble, 2016), was linked to the low level of content knowledge and inexperience on how to teach (Sinelnikov et al., 2015), and resulted in anxiety (Norton, 2017). Moreover, the teacher's inadequate understanding of science concepts resulted in a lack of confidence (Lloyd et al., 2020). This is further supported by Sentance and Csizmadia's (2015) argument that the main challenge during curriculum change is the teachers' confidence in teaching the subject matter. Confidence allows self-efficacy in teaching. However, lack of confidence on how and what to teach hinders self-efficacy in teaching and learning (Nurindah et al., 2019). Rollison et al. (2012; cited in Watts, 2006), argued that anxiety about how to teach a topic revealed that the teacher was ill-equipped (Watts, 2006). This is linked with the prior knowledge quality gathered during teacher training.

Stakeholders disregarded teachers' existing knowledge when planning curriculum change. However, T3's confidence resided in the knowledge gathered while teaching at O' Level. This related to the argument that a teacher's confidence is linked with the pedagogical knowledge quality they developed through teaching experiences and practices (Norton, 2017).

(b) Building confidence through teaching

T1 disclosed that building confidence required some practical sessions to teach certain related theory topics. T1 further asserted *“gathering adequate knowledge and experience while teaching at SC and AS level made me more confident. However, due to lack of training there is much to learn on theory teaching at A Level.”* T2 confirmed *“building confidence was important to help students acquired knowledge and understanding.”* T3 further added that time was key in building confidence. The focus group interviews revealed the same conclusion where teachers mentioned that continuous teaching resulted in increased confidence.

The above results showed that even though teachers faced an uphill task, they built confidence through everyday teaching. Time was key in allowing them to develop their teaching abilities, consolidating knowledge on what to teach, and gathered experience on how to teach. Even though so much has been learnt on teaching, there is still this eagerness and commitment to learn more. Confidence in teaching was consolidated through commitment, ability, and developing teaching ideas (Witt et al., 2013). Building confidence through regular teaching contributed to teaching efficiency (Ramakrishnan & Salleh, 2018), developing content knowledge (Rollison et al., 2012), and applying the required pedagogy made teachers self-efficient (Nurindah et al., 2019). Overcoming anxiety developed confidence and quality in pedagogy (Norton, 2017) and regular teaching practices enabled improvement in teachers' personal knowledge and subject-matter content teaching at school.

Knowledge

(a) B.Ed. course, teaching practice and experience

T1 stated that the B.Ed. course provided the knowledge required to teach biology related topics for the O' Level Syllabus only. It was challenging for *T1* to teach AS/A Level due to lack of knowledge. *T2* said that *"the B.Ed. programme should be reviewed; emphasis should be laid on teaching theory and it will be appropriate to have a refresher's course for in-service teachers."* *T3* informed *"acquiring knowledge on how to teach is everlasting, through years of practice, teaching experience and teaching of new students."*

According to Adnan et al. (2017) and Kapur (2016), teacher education programmes should provide knowledge on teaching. However, the findings showcased that knowledge acquired through the B.Ed. course was adequate to teach biology-oriented topics for the SC syllabus but not for A/AS. The B.Ed programme was not designed to sustain the teachers' need to teach A/AS level PE (Creemers et al., 2012). Furthermore, as many teachers followed a practical-based teacher training programme (Disch et al., 2012), they lacked content knowledge to teach theory component at A/AS level (Sinelnikov et al., 2015). To teach the theory component PE at A/AS level, they lacked subject-specific knowledge (Jeschke et al., 2021), and this influenced their confidence in how to teach (Maclellan, 2013). To build their confidence in how to teach and bridge the gap between teacher training and curriculum change, stakeholders should establish a professional development programme to better equip teachers (Ping, 2022). Professional development will equip teachers on what-to-teach and how-to-teach (Nishimura, 2014). Therefore, teacher knowledge is important for effective teaching (Walshaw, 2012) and student's learning (Morgan, 2017). The findings also brought forward that learning to teach is an everlasting process as there is always something new to discover. Being a life-long learner is the drive to gather new knowledge or expand their knowledge level and skills (Kyahurwa, 2013) which will give teachers the opportunity to learn, unlearn and relearn teaching and learning processes (Dhaliwal, 2015).

(b) Other sources

T1, *T2* and *T3* informed that knowledge was mainly constructed from books, internet, and personal work. *T2* observed that knowledge sharing with friends and other teachers was very important. Moreover, *T1* said that knowledge gathered from the Biology and Physics teachers enabled a better understanding on how to teach topics. Similarly, the focus group interview confirmed that sharing of best practices among peers, self-learning, books, and the internet played a pertinent role in teachers gathering knowledge to better teach students. The findings showcased factors enabling teachers to be resourceful. To acquire further knowledge, a group of supporting teachers was beneficial in the sharing of ideas and best practices on teaching. This sustained the argument that the teaching learning community enhanced the teacher's content knowledge and pedagogical content knowledge (Murugaiah et al., 2012).

Experience

(a) Continuous teaching, knowledge, and self-learning

T2 shared that the three years of the teaching theory component were challenging but self-learning helped to acquire adequate knowledge in classroom teaching and was key in guiding students to learn. T1 said that even though he has been teaching at CAIE level since 2012 he still felt the need to constantly keep updated on various pedagogical approaches. Moreover, she shared that *“although self-learning was challenging, it was not a bad experience”*. T3 also highlighted that the teaching theory experience was both enriching and challenging, providing the opportunity for personal knowledge growth. Teachers from the focus group interviews affirmed that experiences were gathered through personal work in preparing classes, regular teaching and adopting good practices. Though, it was very demanding at times, the eagerness to learn more was always there. This helped to disseminate the required knowledge to students and prepare them for CAIE exams.

The findings showcased that teachers gather knowledge and teach efficiently through teaching experiences (Johansson & Thorsten, 2017). The findings sustained Kini and Podolsky’s (2016) argument that teacher accumulates experience during their teaching career. It confirmed Dewey’s (1938) definition of experience through the continuous interaction between human beings and their world. The results also derived that although self-learning on how to teach was challenging, it was also seen as a rewarding experience. Moreover, a mixture of emotions varying from, challenging, enriching, demanding and eagerness revealed teachers’ experiences. This asserted that experience is expressed through mixed emotions (Saunders, 2012). These mixed emotions freed the teacher from anxiety in how to teach to being teaching confidently (Rollison et al., 2012).

(b) Teaching and CAIE results

T1 said *“I was teaching the topic circulatory system, knowing my students’ level, I explained in English, French, and Kreol to better enable students to understand. But a student mentioned that she did not understand anything about the topic, and it made me seriously reflect on what I need to do to better teach.”* T2 also declared that many students’ failure depicted a weakness regarding the teaching strategy applied. T3 also mentioned that *“the percentage of students passing the O’ level was somehow a good indicator about the teaching quality.”* The findings revealed that one teacher considered the students’ level and used a mix-mode instructional language approach in teaching low-ability students (Yusof et al., 2017). However, students questioned teachers’ competency in answering questions (Bakhru, 2017). This brought a reflection as to whether a mix-mode instructional language approach can be integrated in teaching. Moreover, as the student did not understand, it can be related to inaccuracy in prior knowledge which hindered learning (Diaz, 2017). The experience of having cases of failure in exams triggered the reflection on how to improve the teaching of lessons (Cahill, 2020). The teachers showcased a positive attitude in their endeavour to improve teaching (Mandukwini, 2016), and gather more teaching knowledge (Bongco & David, 2020). Contradictorily, good results for CAIE confirmed the quality of teaching and depicted that not all students underperformed in the

international exams (Mandukwini, 2016). The good results confirmed that the teacher acquired the required teaching knowledge in terms of content and pedagogy (Shulman, 1987; Kapur, 20186). Attaining good results is also related to teaching resources improvement and the focus on student achievement (Kini & Podolsky, 2016).

(c) Syllabus and status

T1 informed that at first teaching the theory syllabus was challenging but still it was a good experience as indicated below.

It was challenging to do my own lessons and look for different teaching strategies. Also, as theory component was mostly taught within the four walls of the classroom, class management was difficult because students were more used to doing PE on the playground. The good experience lied in finding the different approaches to motivate students to learn theory PE.

T2 and T3 agreed that since PE has become an academic and examinable subject, teachers have gradually improved their status and were shown more respect. The focus group highlighted that proper teacher training would have brought a better teaching experience in terms of mastering content delivery of biology-related topics.

CONCLUSION - CRITICAL INSIGHTS FOR TEACHER EDUCATION

The findings showcased that despite the challenges PE teachers faced with the introduction of a theory teaching component from the educational reform, they found their teaching experience was enriched and their inexperience of how to teach theory component did not restrict them from looking for different teaching strategies (Myers, 2010) and developing their own lessons plans (Cahill, 2020) as they had a positive attitude towards learning how to teach (Yusof et al., 2017) within the process. Acquiring the required knowledge sustained the teacher's beliefs towards effective teaching and learning in their everyday practice (Xu, 2012). Knowledge and experience helped in building confidence and brought new ideas on how to teach (Witt et al., 2013). Additionally, CAIE PE changed the perceptions of PE teachers and the subject given its examinable status which in turn reduced the disparity of PE teachers' status with other subject area teachers' and PE's important role as an integral part of the secondary curriculum. Conversely, classroom management was a tough experience for teachers as students were more prone towards PE practical classes. As PE is becoming more theory-based, teachers through their teacher training programme should be equipped with the knowledge and skills to manage and teach in the classroom (Chandra, 2015) and equip aspiring teachers on how to master content delivery and be confident to teach biology-related topics to provide a better classroom teaching experience (Capel, 2000).

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Being rooted and living globally: A critical approach to the (re)presentation of history in Social and Modern Studies Mauritian textbooks

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ABSTRACT

While learning about ancestry and values have been fundamental in promoting a sense of belonging, school history textbooks have traditionally been associated with a passive consumption of a ‘boring’ text. This paper challenges the traditional status quo of the *boring* text to examine how the Social and Modern Studies (SMS) narrative encourage students to think and value the nuances of historical knowledge. The analysis engages with the inclusion of an alternative narrative within the SMS school textbooks as part of the Nine Year Continuous Basic Education reform (2017) within a postcolonial and decolonial dialogue in juxtaposition with critical literacy. This article argues for a liberating perspective to decolonise historical knowledge and imagine alternative possibilities in an era of global interconnectedness. This theoretical commitment challenges how students think and engage with history to critically engage with the meaning systems embedded within the text and recognise the subaltern voices to reinstate the possibilities for recognition. The research question interrogates how the historical text is intrinsically related to issues of power and dominant ideologies. The (re)presentation of history is explored conceptually and reflected empirically with Fairclough’s (2013) three-dimensional model of Critical Discourse Analysis. By deconstructing the power relations and the status of historical knowledge through theoretical grounding of the works of Paulo Freire (1996), the analysis exposes history within a decolonised epistemology. The argument examines history from the perspective of the subaltern and illustrates how the historical text promotes emancipatory ways of thinking and acting. The findings of the textual analysis suggest that the narrative encourages students to think critically about factual situations and make their own judgements while nurturing specific dispositions that affirm a colonial subtext. The argument offers an insight into reading history with strategies to further cultivate a space for historical understanding for students to become creators and owners of their own history.

Key Words: History; language; historical understanding; postcolonialism; decolonisation

INTRODUCTION

‘Education’ and ‘Colonialism’ remain a research area in postcolonial studies where much remains to be done (Bray, 1992). The shifts in curriculum reforms in Mauritius can be traced back from the colonial government decisions that led to the Education Regulations of 1957 and the Education Act of 1982 and their various amendments. While the national educational system developed during the French and British colonial periods suggest a straightforward trajectory of phases and stages in the schooling system, it minimized how “the lived experiences of schooling

within this system are more messy and contested” (Samuel & Mariaye, 2019). By inheriting a colonised educational system that was resistant to change, as a society it could be argued that Mauritian people internalised the sense that the ‘west’ is ‘better’ and lacked the imagination to think otherwise. This was reflected in the language of instruction, the structure of the schooling system alongside the international education benchmarks that reinforced the western logics.

By looking at the process of reading history, the argument presents how an alternative narrative interprets history as a space to interact with the world. By questioning filiations/affiliations (Portes, Guarnizo, & Landholt, 1999), this paper aims to recognise how language shapes the understanding of history and the way in which students can develop the competencies to critically question the inequalities embedded in society. This paper offers a theoretical analytical framework to examine the stories of the enunciated and the silenced within a dominant hegemonic order thereby creating new possibilities (Mignolo, 2000).

Mauritian educational system and its colonial entanglements

It can be argued that one of the ways in which colonised education perpetuated a lack of imagining other possibilities is the way in which history was taught. During the colonial times, the schooling system emphasised what Freire (1996) refers to as the “banking concept” (Ekanem, 2014; Chintaloo, 2021) that aimed to “colonize people’s hearts and minds to encourage passivity and docility” (Mulder, 2016, p. 20) to create “an atmosphere of submission and of inhibition which lightens the task of policing considerably” (Fanon, 1952; 2001, p. 38). The process of assimilation of European reasoning (Gail & Altbach, 1984) led to an obedient loyalty from the local elite and negated the fact that they were still subjects of a hegemonic system.

Post-independence education policy was underpinned with “desires for egalitarianism and integration through the force of a unifying nationalism” (Bertz, 2007) with the desire to achieve western international standards to measure academic achievement. The educational reforms that followed were a response to both the internal political pressures to establish a Mauritianised curriculum celebrating localness (Aumeerally, 2006; Samuel & Mariaye, 2019) and the consequence of Mauritius agreeing to international protocols¹ that aimed to promote a more inclusive and equitable education and schooling to maintain the image of a ‘good state’ (Samuel & Mariaye, 2019) to make Mauritius at par with ‘big’ nations. The impetus for subsequent educational reforms² were in line with the UN Sustainable Development Goal 4. The challenge for the newly elected government in 2014 moved from “education for all” to “learning for all” (Educational Reforms in Action, 2008-2014). The Government’s Programme (2005 – 2010) reviewed the curriculum and remoulded the conditions in which knowledge was produced with new textbook resources as a medium for deconstructing the inequalities produced and enforced by the colonisers.

¹Such as Education for All (EFA), the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs)

²The educational reforms of 2001-2005 were presented in the documents: Ending the Rat Race in Primary Education and Breaking the Admission Bottleneck at Secondary Level – The Way Forward (2001); Curriculum Renewal in the Primary Sector (2001). Further reform proposals were made in the document entitled Towards Quality Education for All (2003) and Bilan chiffré de la réforme de l’éducation (2005). Reference made to *Education and Human Resources Strategy Plan 2008-2020* which stressed the significance of being innovative and creative in education to transform Mauritian society; the *Learning For Life* (2009) and the *National Curriculum Framework* (2009) emphasised the importance of key skills and knowledge systems to meet global challenges (Nadal et al 2017); *Towards a Quality Curriculum – Strategy for Reform* (2006).

From 2010, discussions followed with the NYCBE implementation that restructured the curricular objectives to strengthen the values of a modern society. The NYCBE is the most recent educational reform (MoEHRTESR, 2017) and proposes a new structure of the schooling system in Mauritius with the introduction of seamless and compulsory schooling over nine years which aims at ensuring a more inclusive and equitable quality education. The NYCBE was a national attempt to decolonize its educational structure by delinking from the traditional British model of primary and lower secondary schooling (Ramtohol 2018) to revise and rewrite the national textbooks to adjust to a new political reality.

As a postcolonial island, the challenge remains to analyse, understand and recontextualize what historical knowledge is and should be so that the present generation can imagine what students ought to become. Much of this thinking draws a parallel with a Freirean perspective which advocates that by encouraging learners to become critically constructive in their understanding of knowledge and who they are, they can make choices that influence their world and emerge from their educational experiences more than just school subjects. The quest for a recognised sense of self also aims to reveal how the subjugation of minority groups are part of larger global struggles.

It is argued how one thinks and engages with history is marked by one's colonial past (Mazama, 2003; Wane, 2008) that continues to have an impact on present-day practices. To understand the extent to which the colonial legacy contributes to the way students see themselves as descendants of the colonised, the theoretical commitment and philosophical assumption in this paper examines how history teaching ought to disrupt the process of coloniality (Maldonado-Torres, 2016) by confronting stories of tragedy and oppression, of imperialism and colonisation, to reconstruct alternative stories of strength and resilience so that history can help students provide a sense of identity.

Rethinking the teaching of history within a Third Space

The traditional linear model of history teaching promotes a one-way flow of ideas on how colonisation enabled a future that was centered on progress, modernity and development and legitimised a painful past. Inherent in the NYCBE, the paper argues that the teaching and learning of history offers the “possibility of a new representation, of meaning-making and of agency” (Bhatt, 2008, p. 183) to rearticulate history teaching to allow the student to challenge this space and rethink about their process of becoming. Moving away from the traditional notions a dichotomous relationship between the coloniser and the colonised which have informed the construction of history, this paper acknowledges the fluidity and dynamic construction of language. If the colonial times testify an oppositional relationship between the coloniser and the colonised, the analysis uses the concept of ambivalence to destabilize the authoritative aspect of colonial disposition (Bhabha, 1994). Ambivalence challenges the authority of colonial supremacy and disturbs the one-to-one relationship between the coloniser and the colonised. Bhabha (1994) refers to the Third Space as a zone that transcends the historical antagonism and reconfigures the relationship between the dominant culture and the Other – an “in-betweenness” (Dillabough, 2002). The third space transcends the politics of polarity and dominance/subjugation to reconstitute the relationship between the self and Other. Bhabha (1994) described this “contradictory and ambivalent space of enunciation as a space

that we will find those words with which we can speak of *Ourselves* and *Others*” (cited in Fidian-Qasmiyeh, 2020, p. 13). Central to the idea of “hybridity”, this paper illustrates how the textual analysis is justified by a discourse of freedom, moving away from linear thinking, and neat storylines to recognising and discovering contradictions and ambiguities – a process that engages with Freire’s emancipating process of reflection to question who we are and how we become as we are.

METHODOLOGY

Positionality

This paper draws on the work of Linda Tuhiwai Smith (1999) on *Decolonising Methodologies*, who elaborated how “decoloniality” as an epistemology begins with embracing existential realities of suffering, of oppression and domination. Smith (1999) insisted that research is not an innocent academic pursuit but driven with an agenda, that is not always explicit, but a reflection of societal and political ideology of institutions and individuals. This epistemological standpoint sets a theoretical commitment and philosophical assumption that “human beings do not find or discover knowledge so much as to construct or make it” (Schwandt, 1994, p. 128). It defines the construction of language as subjective, shaped by the multiple connections that students must negotiate with their environment. It provides an epistemologically fluid and flexible means of knowing the world that would “deterritorialize and destabilize the fixity of knowledge” (Paraskeva, 2011) and based on the individual’s life experiences, knowledge and values, students are actively developing their knowledge to understand an evolving reality. The social construction of the text recognizes that history as a written discourse is as liable to deconstructionism as the past can only exist in the way the present articulates it (Vasquez, 2014).

The analysis therefore recognises the impact of “a certain kind of subjectivity, a certain kind of self and a certain type of narrative data” (Georgakopoulou, 2006, p. 124) that requires a deconstruction of the historical knowledge to be able to rethink how students ought to read and think about history. This epistemological framework advocates for an alternative and meaningful paradigm that aims to examine the textuality in school textbooks and reclaim *subjugated knowledge* (Brooks & Hesse-Biber, 2007). In this process, the methodology highlights the importance of personal experience, subjectivity, positionality, worldview and emotions to speak the unspeakable to engage with the stories behind the texts. I share Joyce Nielsen’s (1990) views on how as researchers we carry our worldviews, histories and biographies in our research and how these can guide researchers to particular research. This situated location (Haraway 1991) offers this paper a unique way to see the world and connect with the emotions of the narratives to authentically engage with the colonial legacies as an insider.

Theoretically, by reframing history teaching within a dialogue between postcolonial studies (Spivak, 1988; Bhabha, 1994; Said, 1995) and decolonial perspectives (Quijano, 2007; Mignolo, 2000), the methodology provides a framework that challenges the traditional epistemic position of textbook research (Grever & Van der Vlies, 2017) and allows for an alternative epistemology

to unfold that can lead us toward change possibilities (Darder, 2018). By recognising that there are alternative ways of examining the school textbooks, the social injustices and inheritances of history are examined through the stories being taught from postcolonial and decolonial traditions to speak of the critical issues of subordination and marginalisation that subaltern communities had to face over the years.

The narrative is no longer seen as an end in itself but the emphasis is on the way language is constructed. Foucault (1972) informs the kinds of questions that emerge from this theoretical analysis by providing the contour to questioning about discourse and the production of knowledge within colonial power (Nichols, 2010) while Freire frames the overall thinking on textuality of history teaching as students emerge from their educational experiences more than just school subjects. Foucault adds to Freire's perspective by encouraging to question the nature of power and encourage the student to think the unthought and ask pertinent questions. Together Freire's language of critical thinking and Foucault's language of divergent thinking contribute to a language of reflection as the student rethink the possibilities of education. The questions are structured around: How is one particular statement appears rather than another. What are the techniques and tactics of domination? How the text is consumed? Who is included or excluded? What are the limits of the text? How ultimately the student (positioned as the subject in terms of status , power and knowledge) determines his interpretation of self, world and others. Both Foucault (1972) and Freire (1996) despite their diverse social backgrounds bring in the common theme of education as the practice of freedom from oppression, and education as empowerment of the marginalised.

To meaningfully engage with history, language is used here as a thoughtful reflection of what history teaches and how to teach it. Relevant language can be used to understand the centrality of power in the way history is written (Fairclough, 2013). Fairclough's three-staged model of analysis provides a political platform to examine the textuality of the narrative, the discursive practice, and the social dimensions to meet the critical aims in education for social justice and transformation. While recognizing the important contributions made by critical pedagogy, the argument here combines the linguistic textual analysis within the micro/macro context of the narrative behind the stories being told to offer more authentic questions in the teaching of the Mauritian history.

Data collection

To answer the research question: How is history (re)presented in the SMS textbooks? The research corpus consists of Grade 7 to Grade 9 history school textbooks. Selected stories were deconstructed to examine the ways in which texts were produced and potentially consumed. The lines of inquiry offered a discursive narrative to map how colonial encounters described in the historical narratives define the past, present and future. The argument looked at how the narrative introduced the students to time, places, and heroes as well as social and political initiatives that reinforce (or not) a positive and critical expression of equality and social justice in practice. By re-textualizing written language to create an active space of dialogue to claim humanity, the analysis engaged with a conversation on the reality of power and re-imagined a future based on reflexivity, liberation and empowerment (Agboka, 2014).

To situate and connect the text as a system of small stories that form part of the larger narrative,

the analysis of the stories called for an epistemology that examined the “how” question by moving away from looking at narratives as an end in itself but enquiring instead *how* language is constructed. This standpoint recognized a space for reflection and reflexivity to understand the meaning, intention and a form of thinking for social transformation. Linked to this idea, the text behind a story is never an isolated realisation (Despaigne, 2019) but instead it constitutes a rich and diverse genre that creates historical moments, that has the power to *tell* the students *how* and *what* to think to contextualise their interpretations in connection with historical events. The act of reading history becomes bounded and conditioned by the political, epistemological, the ideological construction of the narrative.

Applying critical discourse analysis

By applying Fairclough’s (2013) critical discourse analysis when analysing the textbooks, words are used in a counter-hegemonic way to invite the reader to listen and hear history from the perspective of the colonised. As a method of analysis, this approach provides a commitment to social constructivism and presents us with rich material to make sense of lived experiences and for the identity construction. In this regard, the analysis did not limit itself to only *what is being said but examined how something is said* within a certain structure (Archer, 2000; Fairclough, 2013). It is important to understand the context in which the language is produced to understand the kind of knowledge presented by the authors of the textbooks.

By bringing to the forefront the textual features, the micro level analysis examines the patterns in the text, the semantic value of key words that are strategically used in school textbooks to examine the curricular intentions of the text as shown in Table I below:

Action: Identifying micro level textual relations and their semantic value	Thematic analysis of the text
How is the text constructed?	What experiential or relational values do words have? Are the sentences active or passive? What pronouns are used (we/you)? How does the text describe dominant and minority groups? What are the historical events/dates? What historical groups are represented and whose achievements receive the most sustained attention? What national heroes does the author intend the reader to sympathise with or respect the most?

Table 1: Thematic analysis of the text

The focus in the second stage of the analysis focusses on the interpretation of the text as a discursive practice. The text becomes a tool to reveal the ideologies and the challenges in lived experiences. This dimension of the analysis connects with the personal relationship one has with history by problematising the structure, the wider discourses and the power relations that establish the new agenda as part of the nine-year educational reform – as shown in Table II.

Action: Understanding, exposing, and challenging the use of power in the text.	Interpreting the text within a discursive practice
How does the text articulate history?	How are the texts strategically positioned to allow the students engagement with the text? How does the dialogue link with power and voice? To what extent do the text/genre inform the student? What position am I reading this text? What is the text trying to do to me? Whose interests are marginalised or privileged by this text? Whose account of a particular topic or issue is missing? Whose voices are silenced or dominant? Whose reality is presented or ignored? (Vasquez 2014)

Table 2: Interpreting the text within a discursive practice

The final stage explains the significance of the text within broader sociocultural and political practices. The written language becomes a critical guide as the text is positioned against the realities of lived experiences. Central to this position I examine how language and identity is connected. This stage (Table III) locates specific stories within the larger narrative of being to explore the fluidity of identity.

Action: Analysis of the stories as part of a larger narrative	The construction of pre-colonial, colonial and postcolonial identity
How does the text articulate history?	Stories of non-existence (Invisibility, Exploitation, Racism, Unbelonging)
Narrative of Being	Stories of Recognition (Forged togetherness, unified identity, resistance, memorialisation)
Narrative of Becoming	Stories of a shifting identity (historical significance and historical understanding)

Table 3: Interpreting the text within social practice

DISCUSSION

Effective history teaching practice

As an emancipatory educational process, the new narrative in the SMS textbooks attempts for students to not only exist in the world, but also to engage with it. The textual analysis at micro level breaks down the way in which the text encourages the students to analyse the causality of events and avoid viewing the world as static and unchangeable. This puts great focus on the student-teacher dialogue where concrete situations in the everyday life functions as a point of departure to stimulate critical reflection (Freire, 1996).

While the “permanence of the print” (Luke, 1995) contributes to a text that is read as a concrete and reliable source of knowledge (Brand, 2010) representing complex versions of histories” (Grever & Van der Vlies, 2017), the historical narrative is bounded by specific political choices (Brand, 2010). The construction of language clearly exposes how school textbooks within its own specific genre and lexico-grammar, are strategically used to transmit a particular version of history. The depth and challenge of the content exemplified by the “incremental dive in history as an entry point for deeper historical understanding in the higher grades for students acquire relevant and age-appropriate historical thinking skills” (MIE, 2016) introduces effective history teaching (Kooy, 2007).

Engaging in historical reasoning

While the wider political context restricts what counts as authorised knowledge and prescribes how language ought to influence the way student will interact with the historical content, the content is further mediated by other strategies to relinquish some control to the reader with the use of hyperlinks to actively engage with other sources of history. At the heart of this new narrative, the discursive practice allows for a fundamental orientation to understand change through the questions of causality and significance (Steffes, 2009). This curricular change attempts to overcome the passive compliance (Luke, 1995) of learning about history as the students are encouraged to engage with the construction of language as subjective, shaped by the multiple connections that they must negotiate with their environment to construct their own interpretations of history.

Historical understanding as a language of action

In the final stage of the textbook analysis, I look at the centrality of language construction within broader sociocultural and political practices. This theoretical basis offers important implications for the language to “act” as it extends the knowledge and belief of the new curriculum into a language of action to the outside world. Segall (1999) pointed out how the educational value of studying history is not to study history of the past itself but how this past positions us to act (or not to act) in the world in the futures we create in the present based on the past. The historical text recognises how history can be an evolving act where students ought to be encouraged to interact with the text in some form of *resistance* that would further prompt further them to challenge the stories presented and further investigate how the past informs the present and the social future. Further questioning such as “what if” would encourage what Goudvis, Harvey,

and Buhrow (2019) described as “imaginative thinking” where the students would interpret and think creatively. Only then students would be able to develop Freire’s conscientisation’ where they can take action of the oppression rooted in their understandings of the contradictions embedded in the social, political, and economic realities (Freire, 1996). The challenge remains to translate these academic thoughts into instructional practice.

CONCLUSION

By combining critical pedagogy and a decolonial lens, the textual analysis examined how the language used challenges history teaching by reflecting on the longstanding patterns of control, exploitation and domination. By expanding the students’ imagination and the capacity to challenge, the SMS textbooks illustrate an alternative narrative that allows students to engage with a historical understanding by providing the space to discuss, compare and contrast different experiences, beliefs, motives and engage in the hopes, and fears of people from various groups and backgrounds. The SMS textbooks suggest an emancipatory narrative to think flexibly about multiple historical sources and stories to encourage students become keen observers of the world. By connecting the historical text to their lived experiences and establishing personal connections with historical concepts, the language used allows students to interact and become creators of their own versions of history. As Vasquez (2014) puts it, it is only by ‘deconstructing’ and ‘reconstructing’ the texts where issues of power, oppression, resistance, and social injustices are made more visible, can this research find the impetus for taking social action. This leads me to agree with Brand (2010) as she wrote the narrating activity is never final: a narrative is an ongoing performance which can never be complete.

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Navigating the infodemic: Unraveling information reliability challenges in Mauritius during the COVID-19 lockdown

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ABSTRACT

Following the first three cases of COVID-19 reported on the 18th March 2020 in Mauritius, the authorities took major initiatives to halt the spread of the disease within the country including bans on public gatherings, closing of borders, discontinuation of public transportation and international flights, setting up of emergency health facilities, intense contact tracing, and complete lockdown. Though the initiatives successfully halted the spread of the disease, country had to face several associated challenges ranging from sanitary, safety, economic, and communication challenges. This think piece uncovers the information reliability challenges faced during lockdown period by analysing the role played by the “newsrooms” in disseminating information. It was found that fake news led to major safety issues in the country and heavily impacted on the measures taken by the authorities to halt the spread of the disease. The article also showcases the use of a framework to evaluate information which are posted on social media platform, so that each user can differentiate between real and fake news.

Key Words: COVID-19; fake news; connectivity challenges; information reliability challenges; Mauritius

INTRODUCTION

The COVID-19 related lockdown has been associated with major challenges such as increasing health costs, disruptions of economic sectors, increased unemployment rate, drop in demand and supply for products and services, reduced cash flow, disturbed education system, reduced food availability, increased in domestic violence, increased mental health issues, and enfeebling safety of the population (Atchia, 2022). Though multifactorial, Kirchner, Ipsen, & Hansen (2021) explained that one of the major causes of such challenges during the lockdown period was ineffective communication.

It is in this perspective that the communication-related experiences of the Mauritian population during the first lockdown period was captured and analysed, focussing on the impacts that limited connectivity and ‘fake news’ had on the population. In fact, this think-piece does not only showcases the impacts of limited connectivity and the ‘fake news’ on the Mauritian population,

but also presents a framework that may be used to evaluate information which are posted on social media platform, so that users can differentiate between genuine and fake information.

THE CONTEXT

On 31st December 2019, China notified the World Health Organisation (WHO) of a cluster of pneumonia-like cases of unknown aetiology in Wuhan, the capital of the Hubei Province (Peng Zhou et al., 2020). When the aetiological agent SARS-CoV-2, with human-to-human transmission, was confirmed on 14th January 2020, COVID-19 was already spreading to different parts of the world and was thus declared a pandemic on 11th March 2020 (Ghazaleh et al., 2020).

Mauritius was not left out. Since the first three COVID-19 cases were reported on 18th March 2020, an increasing number of positive cases was recorded reaching a peak of 335 infected cases and 10 deaths (World Health Organisation, 2020). As a response to break the viral transmission cycle and halt the spread of the disease within the island, the Mauritian authorities implemented a range of containment measures the very next day following the detection of the first positive cases. The measures included bans on public gatherings, closing of borders, discontinuing public transportation, intense COVID testing, contact tracing and closing of schools, universities, shopping malls and attraction sites (University of Oxford, 2020). Moreover, on March 25, the authorities further tightened the measures into a complete lockdown by closing all supermarkets, bakeries, and shops. Only staffs of the essential services having a ‘work access permit (WAP)’ could circulate during the sanitary curfew and movement within the country was assiduously controlled by the police force. The containment measures were accompanied by food distribution by government and non-governmental organisations to needy households.

Consequently, the island successfully contained the disease with ‘no new cases’ through local transmission on 26th April 2020. Thus, after a precautionary period of one month, the sanitary curfew was lifted on 30th May and the country was thus declared COVID-free. All new cases were imported cases from passengers who were repatriated to Mauritius (Musango et al., 2021). Hence, to maintain the COVID-free condition, all passengers upon their arrival were admitted to hotels converted into quarantine centres and positive cases were immediately channelled to specialised hospital for treatment and monitoring.

Though the country was successful in fighting COVID-19 at that time, the dissemination of information on COVID-19 was a real challenge. The pandemic has struck the country with lots of uncertainties leaving people in a state of panic. And to palliate the uncertainties and the lack of information on the unforeseen event, official and unofficial communication platforms were used to inform the public on different aspects of the disease including its pathogenesis, mode of transmission, diagnosis, precautionary measures, and treatment. However, the information challenge faced by the country was two folds, namely the connectivity challenge and information reliability challenge (Blatchford, 2020).

CONNECTIVITY CHALLENGE

Internet connectivity played a key role in the life of Mauritians during the COVID-19 pandemic and lockdown period. On one hand good internet connectivity kept the public informed and updated on COVID-19 related matters such as the disease progression, new cases, number of deaths, number of recoveries and the precautionary sanitary measures to be adopted (WHO, 2020). Internet, as a powerful tool of disseminating information, has been widely solicited. Webinars, zoom meetings, teams meeting, social media are only few examples of internet-based platforms that have been used to communicate and share information from different parts of the world. In fact, the role of internet in supporting businesses, education, entertainment, purchases, social interactions and most importantly in halting the spread of the disease, has also been highlighted for many other countries by Feldmann et al. (2021)

However, on the other hand, lack or poor internet connectivity heavily impacted the vulnerable group of people with limited economic resources. For instance, while children from high socio-economic status (SES) experienced uninterrupted schooling through online teaching, others deprived of internet connectivity were left behind (OECD, 2020). Though the Mauritian authorities increased the home broadband for customers during the confinement period to facilitate access, many lack the basic connectivity resources. Gopee (2016) stated that more than twenty years after the commercial release of the internet, access is still poor and the gap between those who have access and those who do not is still present and is widening the gap of digital divide.

Despite being relatively advanced from an infrastructure perspective with submarine optical fibre cables and ranked first among African countries, the island still suffers from the lack of internet penetration among the population (Gopee, 2016). He also highlighted that the potential explanations for such low internet connectivity are firstly the high cost of connection, secondly the reliability of connectivity, and thirdly the lack of 'internet culture'. This statement is explained by the fact that the internet is not yet fully integrated into the daily lives of all Mauritians, as compared to other technologies, such as mobile phones. Thus, access to internet in Mauritius, despite having the required infrastructure, is still a matter of equity and of concern. Moreover, Feldmann et al. (2021) explained that low connectivity during the lockdown period may also be expounded by the increasing internet use loads which impact on the internet traffic and thus connectivity.

Information Reliability Challenge

From the very first days of the pandemic, the public with proper internet connectivity was submerged with a vast amount of COVID-19 related information ranging from laymen perceptions to highly complex scientific data. This information emanated from both official and unofficial sources.

Analysis of the information revealed that they are of different nature and may be classified as 'misinformation', 'disinformation', 'propaganda', 'authentic' and 'unverified' information (Wang, He, Xu & Zhang, 2020). The definition of information is clear by its very nature to the consumers of the information. But what needs to be clarified and well understood is the

different forms it takes. Taken from Oxford dictionary, the definitions of some key terms related to information reliability are as follows:

- *Authentic information* is a verified and genuine information of undisputed origin.
- *Misinformation* is false or inaccurate information, especially that which is deliberately intended to deceive.
- *Disinformation* is false information that is intended to mislead, especially propaganda issued by a government organization to a rival power or the media.
- *Propaganda* is defined as information, especially of a biased or misleading nature, used to promote a political cause or point of view.
- *Unverified information* is information which has not been verified; and can be true or false information that is not deliberately intended to deceive or mislead.
- *Fake information* is information which is not genuine.

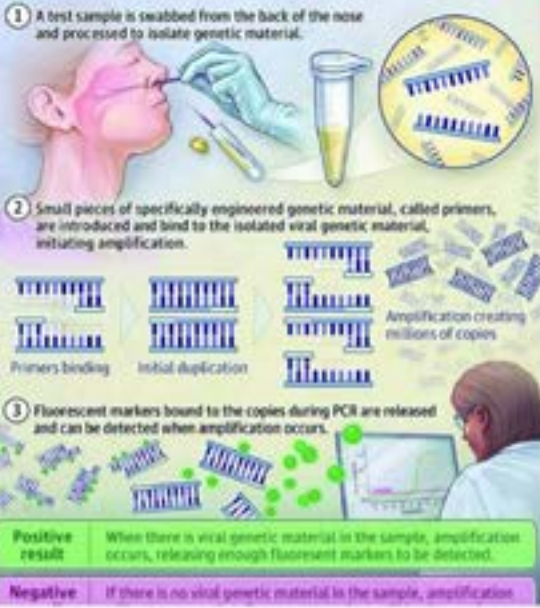
Information is related to truth and the acceptance of a single truth, which is often related to the sources (Kumar & Geethakumari, 2014). For instance, authentic information has official sources such as peer reviewed journals and authorised instances such as the ‘World Health Organisation’ whereas misinformation, disinformation, propaganda, and fake information are derived from unverified sources such as pre-print or predatory journals, unofficial talks, debates, YouTube videos and posts on social media among others.

Social media such as Facebook, Instagram and Twitter have played an enormous role in the dissemination of COVID-19 related information. On one hand social media has proved to be the proper communication platform to provide the common public with information that allowed proper understanding of the pandemic and with life-saving information on attitudes and measures to be adopted (Mian and Khan, 2020). Plate 1 below shows some examples which support this statement. And on the other hand, unverified data, fake and inaccurate information have created panics in the country to the extent that intervention of the authorities was deemed necessary to reassure the common people. Plate 2 shows some examples which support this statement.

Testing for COVID-19 involves a polymerase chain reaction (PCR) assay, which attaches fluorescent markers to genetic material from the virus (complete... See more

How does PCR testing for COVID-19 work?

Polymerase chain reaction (PCR) testing can detect even very small amounts of viral genetic material in a sample by duplicating it many times over through a complex laboratory process called amplification.



Today it's ur turn to be heroes. It's your turn to fight this infodemic in Mauritius.

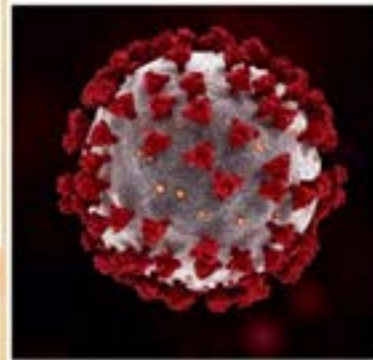
If anyone posts that dengue is being misdiagnosed tell them to #shutup. Step up guys. If it was actually COVID-19 the numbers will not be 8 to 11 it will be 8 to 50 in a place like port Louis where people r in close contact and schools are open with teachers from all over the island. This 'dengue' would be everywhere not just port Louis.

If anyone posts about ginger/garlic or drinking hot water or lemon in hot water. Tell them to #shutup. We know it's not true, it's a my... See

As many of you may already be aware, one of the persons tested positive for COVID 19 is a DMC girl. This could potentially mean the whole school population being contaminated either through direct or indirect contact with the girl which in turn could lead to further contamination in the surroundings of those girls.

It is PRIMORDIAL that we respect the confinement. This will allow easy identification of the contaminated persons. Non respect of the confinement will lead to exponential growth of the number of contaminated cases and at the end of the day all of us will be worse off.

Hashem Al-Ghali



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- 2 Jummahs**
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(no carpet in Masjid)
- Social distancing:**
Ground floor 40 persons
1st floor (sisters) 32 persons
2nd floor 40 persons
3rd floor 35 persons

	Adhere to the regulations prescribed by authorities		Ensure that Masjid premises is well-ventilated and regularly sanitized
	Wear a face mask at all times		Avoid handshake and physical contact
	Ensure social distancing of 1 metre during Salah		Dispense soon after Salah. Consider Sunnah and Nawaafil at home/work
	Sanitize your hands		Please do not enter Masjid if you are sick
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Plate 1



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Today I have seen sheer selfishness at its worst!! have been to Super U Grand Bay, and oh baby... it was horrendous!! We got to the point where they had no choice but to allow entry to the shop to small groups at a time, with new groups admitted as others exit. Well-stocked shelves are emptied within seconds. Basic essentials, like flour, are sold out. It's just crazy the way people are stockpiling amid concern over COVID-19. Please



ILoveQATAR.NET
Singapore Scientists discover new coronavirus (COVID-19) symptoms - dengue fever

One week it took, although Mauritians were unable to cope, had to rush in this fear of missing something, we all do for we care for a family, we care for the forthcoming days where food might be scarce. As things settle, this one week almost



Plate 2

In fact, the challenge is about the authenticity, accuracy and reliability of the information which emerged from the newsrooms and other communication platforms. And the key questions are what are fake news? What are the impacts of fake news? And how can we differentiate between real and fake news? All these questions can be primordial for our survival in today's world where sanitary, climatic, and psychological challenges may happen anytime.

WHAT IS FAKE NEWS?

Martina Chapman, a media literacy expert, stated that 'fake news' is either information, stories or hoaxes created to deliberately misinform or deceive people or are the involuntarily spread of unverified information (Chapman and Oermann, 2020). Such news is often presented in such way that the information appears true, but it is not. Usually, these stories are created to either influence people's views, and to push a political agenda or cause so that specific party benefits (Entman, 2007). Fake news can deceive people by looking like trusted websites or by using similar names and web addresses as reputable news organisations.

Traditionally we got our news from trusted sources, journalists and media-outlets that are required to follow strict codes of practice. But with the advent of social media, a whole new way to publish has emerged. where people share and consume information and news with very little regulation or editorial standards (Kovach and Rosenstiel, 2014). Nowadays, many people consume all information emerging on the social platforms without questioning the authenticity and reliability of the information. Many people do not even read the official newspapers and have a blinded belief on the information that emerged on social media. This is why internet is often referred as the web of deception (Gopee, 2016).

The use of communication channels and social media to propagate false information has become quite common. Social media has made every user a self-publisher with no editing, vetting, peer-reviewing, checking for factual accuracy and clearly with no accountability as shown in plate 2. The facts are presented with no authority and for millions of users seeing them on their screen is a certificate of truthfulness of information being presented to them. Some of the dangers include deliberate deception, deliberate misinformation, and "half-truths" that can be used to divert a user from the real information. The use of technologies by people to support lies, deception, misdirection, fraud, spin control, propaganda have become very common and these networks are today meant for purposes for which they were not intended for (Kumar and Geethakumari, 2014).

IMPACTS OF FAKE NEWS DURING COVID-19 RELATED LOCKDOWN PERIOD, IN MAURITIUS

During the COVID-19 related lockdown period, the social media were overloaded with fake news of which some even created panics in the Mauritian society. For instance, fake information of a food shortage during confinement period gave rise to panic shopping. Groceries and supermarkets were overcrowded with people as shown in plate 3 below.



Plate 3

The fear of a food crisis led to people not respecting social distancing which resulted in a net increase in viral infection in the population. Furthermore, posts concerning medication against COVID-19 also ignited the social media platforms. This caused people to start stocking medicines at home without realizing that there was neither any cure for COVID-19 disease nor efficient vaccine at that time. Some drugs were hastily and thoughtlessly bought leading to genuine shortages. For instance, the hydroxychloroquine which was thought to be effective against the Corona virus was out-of-stock within few days and even led to auto-medication which could be life-threatening. Sale of drugs at much higher prices outside drugstores created a parallel and illegal business. In fact, a piece of fake news, a photo or a status could easily elicit panic situation in the public. This further support the need to develop skills that allow the public to differentiate between real and fake news.

RESPONSE TO FAKE NEWS FROM A LEGAL PERSPECTIVE IN MAURITIUS

The ICT Act 2001 (Section 46) stipulates that where a person knowingly provides information, which is false or fabricated, shall, on conviction, be liable to a fine not exceeding 1,000,000 rupees and to penal servitude for a term not exceeding 10 years. Posting or sharing fake news is an offense particularly at a time when the whole country was facing this dreadful situation. We even witnessed people being convicted and sentenced for dissemination of fake news during the COVID-19 lockdown period. Some people even faced legal procedures due to sharing of fake news without assessing their implications and without the intention of causing casualties. Therefore, the ability to differentiate fake and real news remains a priority.

HOW TO DIFFERENTIATE REAL AND FAKE NEWS?

One sound way to differentiate the real and fake news is to use a proper framework. One such example is the framework developed by Kumar and Geethakumari (2014) which allows the differentiation of information, misinformation, and disinformation with respect to five important features namely truth, accuracy, completeness, currency, and deceptiveness.

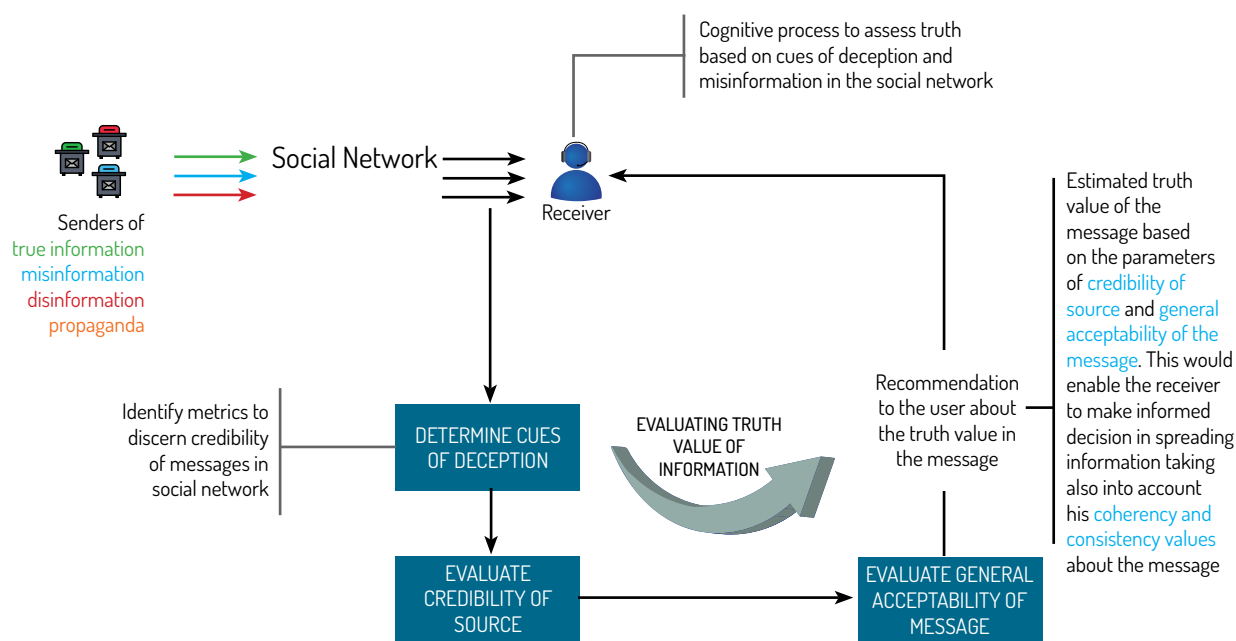


Figure 1: Generic framework for evaluation of truth value of information on social network (Kumar and Geethakumari, 2014)

The framework provides media users with a cognitive decision-making process to detect fake news using the cues of deception. In fact, the spread of fake information is a result of a cognitive process by the receivers based on their assessment of the truth value of information. Acceptance of information without any verification is more the norm as compared to those people who evaluate the truth value using consistency, coherency, credibility, and acceptability. The evaluation process of truth value of any information begins with the (1) identification of suitable credibility metrics of the social network being studied (2) establishment of source credibility, and (3) estimation of the general acceptability of the message (Kumar and Geethakumari, 2014). A user should be able to make informed decisions regarding the truthfulness of any message or news by applying any processes of truth value in a coherent and consistent manner.

In addition to the use of the above framework used to identify fake news, the approaches underpinning the framework is equally important. For example, an interdisciplinary approach such as the techno-cognition represents the underlying principle that informs the use of this framework to detect fake news. In fact, Lewandowsky, Ecker, & Cook (2017) stated that any effort to address the situation “must involve technological solutions incorporating psychological principles.

THINKING AHEAD

Mainstream and official media must be empowered to broadcast factual and evidence-based COVID-19 related information which would then invalidate fake news narratives posted on social media platforms (Legido-Quigley et al., 2020). There is an armada of instances on the net that have been engaged in a process of differentiating between real and fake news, verified and unverified information or accurate and inaccurate sources. These instances should be made

viral instead of sharing unverified sensational information. Cutting-edge tools are thus key in transmitting trustworthy news while balancing out fake news and rumours (Okyere et al., 2020). Though, this think-piece has given an example of a framework which can be used by the public or users of social media to differentiate real and fake news, there are many other such framework that may be used depending on one's preference or needs. In fact, there are some pertinent questions which need to be considered. On which basis is such differentiation being done? Who has the ability and capability to conduct such differentiation? What is the purpose or motives of differentiating real news from fake news? Does tagging of information as fake news benefitting or causing prejudices to a specific instance? What are the limitations of such framework in detecting fake news? Does all people have the ability and competences to use such framework? What is the role of social media in filtering news that are posted? What support is needed by the common people to be able to differentiate between real and fake news? Addressing these questions will help prevent manipulation of information which is often the new rule on social media. These fundamental questions will also favour objectivity over subjectivity and do justice to the intelligence of users of social media.

Another line of thought is about the quality of arguments which emerged while using a framework for differentiating fake and real news. The role of the media goes beyond communicating information of public interests and has the morale role of bringing knowledge to the common people and disseminating truth and only the simple truth. b. During the pandemic, huge amount of information was circulated in the public formal press (written and spoken) as well as the social media. This information was easily accessible by the public who are "connected" leading to a series of online debates and disputes. The arguments, comments and feedback that emerged from such debates and disputes represent key learning points. One such example is related to the bias of favouring of western information as real to the detriment of indigenous or traditional knowledge. We even witnessed that despite the use of traditional medicine in some countries bringing positive health improvements of patients of COVID-19, it was tagged as fake news or unreliable knowledge to the expense of vaccine development produced by multinational companies. This kind of knowledge and process of knowledge generation can be contrasted with the forms of knowledge and knowledge production that dominate in the West and that has so far contributed to "healthy" debate around socio-scientific issues, as highlighted by Levinson (2007). Since the period of the Enlightenment and the emergence of the scientific method, knowledge has been viewed as something to be discovered, constructed, categorized, and disseminated. This dominant worldview casts the discovery of truth as demanding a detached posture of objectively observing the external natural and material environment, commodifies knowledge and culture. From a sustainability perspective, worldview is portrayed diversely as the integration of different knowledge systems (indigenous and modern, local, and global, disciplined-based, and cross-disciplinary) and distributed power through participatory democracy. Fake information/news are constructed for a purpose and the question we are asking is where do fake news fit in the knowledge system.

Today we are living in an era when the rational–emotional scale is tipping to the emotional side; we begin relying more heavily on anecdotes which create sensations and emotions. Journalists use the power of stories to connect with readers and hit at their emotions. Physicians as scientists, who by their nature of their training follow a hypothesis-driven, rational, evidence-based approach to clinical decision making, can be swayed by stories under the pressures of

a crisis. Stories and worldviews embody the assumptions we make about our societies and ourselves, about our public and private interests. We therefore argue that this fake news (stories) and their accompanying worldviews can serve both as mirrors that reflexively can tell us much about our own values, priorities and commitments in relation to knowledge acquisition and usage for helping people develop the capacity to build a better and more equitable quality of life for everyone.

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Exploring chemistry educators' experiences of emergency remote teaching

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ABSTRACT

The COVID-19 pandemic in 2020 caused educational institutions to move to remote instruction to mitigate the coronavirus spread. Educators were called to shift from traditional face-to-face teaching to 'emergency remote teaching' (ERT) to ensure the continuation of students' learning. This qualitative research aims to explore Chemistry educators' experiences of ERT during the COVID-19 lockdown in Mauritius. The findings of the study present phase one of the study. The sample consisted of four male and four female Chemistry educators. Data was collected through a questionnaire and analysed thematically. The findings suggest that while educators initiated self-directed professional learning to teach chemistry remotely, they struggled to engage learners remotely, leading them to teach only a basic conceptual understanding of chemistry which may be partly explained by educators' struggle to implement the practical sessions online. It is suggested that educators would benefit from professional development opportunities whereby chemistry educators would learn how to design, implement, and assess through project-based learning in virtual instruction.

Key Words: Remote teaching; emergency remote teaching; chemistry; COVID-19

INTRODUCTION

The twenty-first century reality paints a picture of socioeconomic and political challenges, environmental disasters, and a global pandemic that positions inadequacy, uncertainty, disruptive and ephemeral conditions as normal and constant. This brittle, anxious, nonlinear and incomprehensible (BANI) world (Cascio, 2020) is deepening the trench of societal and educational inequalities (Verma, Campbell, Melville, & Park, 2020). Since the start of the global pandemic, the state, unions, parents and children have had to cope with the consequences of the recurrent disruptions in face-to-face schooling (UN, 2020). Similar to other countries, Mauritius has been impacted by the virulent virus, requiring the country to go into lockdown in March 2020. During the lockdown, educators had to resort to emergency online remote teaching (ERT) and learning to ensure educational continuity.

Emergency online remote teaching is a temporary shift to using television, radio or any online delivery mode to ensure educational continuity during a crisis situation (Hodges et al., 2020; Shim & Lee, 2020). Additional alternate delivery modes include the use of existing business communication platforms such as Zoom and Microsoft Teams and the use of educational platforms such as Google Classroom and Edmodo, or social media. Its temporary nature

means that ERT does not seek to build a robust educational ecosystem; rather it is easy to set up and provides rapid access to educational resources and opportunities. This means that educators and other stakeholders at school have to engage in ERT without forewarning and much preparation, irrespective of their competency in doing so. The current literature highlights the various challenges faced by educators to carry out ERT. Educators have been found to be “overwhelmed,” “unprepared” and “struggling” with using and adapting their pedagogies to volatile situations such as “student’s unreliable Internet access, changing personal needs, and unclear or shifting educational or governmental directives” (Trust & Wahlen, 2020, p. 191). The consequential disparities in accessing technology, connectivity and ability to use the technology for students’ and educators’ own access and for professional collaboration and development have also been pointed out by Reimers and Schleicher (2020). The compounded challenges of unpreparedness and accessing technology problematise the criticality of ensuring educational continuity through ERT. Jeffrey and Bauer (2020) thus suggest that “it would be more profitable to study conditions, experiences, and behaviours rather than achievement” (p. 2472) to gain critical insights in how educators and students engage with ERT, despite their lack of exposure to remote instruction prior to the pandemic.

This qualitative research aimed to explore chemistry educators’ experiences of ERT during the first lockdown in March 2020 with the aim to draw critical insights for teacher education by identifying the professional learning opportunities that educators require to better cope with the demands of ERT in the future. Acknowledging the unexpectedness of transitioning from traditional classroom teaching to ERT, the study explored the challenges encountered by educators and how these were overcome through a qualitative case study design. Data was gathered using a questionnaire with eight chemistry educators both from private and public schools.

Aim of the study and research questions

This study was conceptualised to explore chemistry educators’ experiences of ERT with the overarching research question; what are chemistry educators’ experiences of remote teaching?

The research was guided by the following sub-research questions:

- How did chemistry educators engage in remote learning?
- What challenges did they encounter when teaching chemistry?
- How did they overcome some of the challenges?
- What are the implications for teacher education?

Talanquer (2020) suggests that the educational shift to ERT provides an opportunity for deep reflection and action about how to facilitate chemistry student learning. ERT has foregrounded the need to re-imagine teacher education in a bold and exciting manner (Flores and Swennen, 2020; Hill et al., 2020; Mutton, 2020).

CONTEXT OF THE STUDY

Secondary education in Mauritius

Mauritius is a small island developing state (SIDS) located in the Indian Ocean with a multi-ethnic population of about 1.3 million people. The country relies mostly on its human resources for development and education is a key element of human capital. The Mauritian education sector is managed by the Ministry of Education and Human Resources, Tertiary Education and Scientific Research (MoEHRTESR). A hallmark of the Mauritian education system is that it is free and compulsory for all up to the age of 16. Since independence in 1968, the Mauritian education system has undergone various reforms. The latest 2016 ‘Nine-year continuous basic education (NYCBE)’ reform was introduced to aim for an inclusive and equitable quality education to ensure that all children successfully complete the primary and secondary education cycles (MoEHRTESR, 2016).

The secondary education sub-sector in Mauritius is a 7-year cycle and has two levels, namely the lower secondary level (Grade 7 to Grade 9) and the upper secondary level (Grade 10 to Grade 13). Education at the secondary level is more subject-oriented, requiring specialised educators. A strategic pillar of the NYCBE reform is educators’ continuous professional development that sustains their mastery of knowledge and enhances their pedagogical skills for the effective delivery of the curriculum (MoEHRTESR, 2016).

Teaching chemistry

Chemistry is the scientific study of the nature of chemicals and chemical processes and has ties to every critical area of human endeavour (Gadner, 1984). Chemistry is essential for the wellbeing of our world and has the potential to improve the quality of our health, environment, and daily lives. Studying chemistry offers varied professional avenues for the 21st century citizen, including becoming a chemist, material scientist, and STEM professional and career opportunities in a wide range of areas (Bakhsgi & Rarh, 2011). Johnstone (1991) points out that the nature of chemistry concepts makes chemistry difficult to learn. The complexity of chemistry as a discipline has implications for the teaching and learning of chemistry (Gabel, 1996). For example, educators and learners heavily depend on laboratory experiments and task-based processes that require scientific reasoning in their daily sessions.

In Mauritius, chemistry is taught as a compulsory subject in the lower secondary curriculum (Grade 7 to Grade 9) and is an optional subject in the upper secondary curriculum (Grade 10 to Grade 13). Hunma (2009) and Maulloo and Naugah (2017) report that assessment-oriented educators tend to neglect the skills that should have been developed through scientific inquiry. Educators’ capability to empower students to reason scientifically is crucial to students’ learning in chemistry. Boesdorfer (2019) asserts the need to assist chemistry educators to become more effective as effective educators make all the difference in raising students’ achievement, motivating students with high expectations, and enhancing students’ cognitive capabilities.

Teaching chemistry during school lockdown

The COVID-19 pandemic has generated the largest disruption of education systems in history affecting nearly 1.6 billion learners in more than 190 countries (UN, 2020) and has led to continuing uncertainty, problematising conventional ways of teaching (Wu et al., 2021). Holme (2020a) asserts that chemistry educators can proudly stand among those who have accomplished so much with so little time, but the situation has always been, and remains, less than ideal. Chemistry educators had to modify their pedagogical practices during ERT and faced challenges without face-to-face teaching (Babinčáková & Bernard, 2020; Dietrich et al., 2020; Giri & Dutta, 2020; Holme, 2020; Tigaa & Sonawane, 2020). Mauritius went into a nationwide first lockdown from the 24th March 2020 to 30th May 2020 with schools remaining closed until 1st July 2020. To ensure teaching and learning continuity, the parent Ministry decided to shift from in-person schooling to ERT and learning. Unprepared to face such a disruption in education, the public secondary education system made concerted efforts to maintain learning continuity during the lockdown period, through ERT. With the abrupt transition from in-person to ERT, the existing achievement gap is likely to widen (Kraft & Simon, 2020). Maulloo and Naugah's (2017) study informed that many students already find chemistry to be challenging, which often limits the number of lower secondary students opting for chemistry at the higher secondary level in Mauritius. With the school lockdown and the shift to ERT and learning, the number of students dropping chemistry at higher secondary studies could further increase.

LITERATURE REVIEW

The review critically summarises the key discussions around current chemistry teaching and the resulting challenges and opportunities of teaching chemistry remotely during school lockdown.

Trends and issues of teaching chemistry

Teaching is a dynamic, continuing, and evolutionary process as educators continuously reflect on past practical experiences to adapt and continuously re-adapt their practices. Chemistry educators are required to routinely revisit their practice, rather than assuming that the 'old way is the best'. Educators are encouraged to determine what is currently accepted to be the best practices by cultivating an evidence-based approach to connect the new existing knowledge from literature with their practice. The directions of major current trends in the teaching of chemistry involve coping with and utilizing the advancements in sophisticated information and communication technologies (ICTs) (Oni, 2010; Milkova, Pekarkova, & Salem, 2016; Rusek et al., 2017).

For many students, chemistry is seen as a complex and abstract subject that requires special intellectual talents (Johnstone, 1991). Akani (2013), Hussain and Suleman (2017) and Wu et al. (2021) suggest that educators and researchers believe that the use of ICTs could provide an opportunity to address this problem. Barak and Dori's (2005) study observed that integrating ICT enhances students' understanding of chemical concepts, theories, and molecular structures by enabling chemistry students to visualise the micro world that cannot be conveniently examined in the classroom or chemistry laboratory. Lately, ICT-based learning such as e-learning in 21st-

century skills for chemistry subjects focuses on enhancing students' competencies such as collaboration, digital literacy, critical thinking, and problem-solving skills (Dewi et al., 2019). As teaching chemistry methodologies are increasingly formulated around the constructivist approach (Taber, 2012), current developments in information technology are offering a variety of tools that provide constructive learning opportunities (Gunduz & Hursen, 2015). Barak (2007) opines that learning technologies enhanced inquiry-based learning, visualizations, and knowledge sharing amongst chemistry students. The trends in teaching chemistry include the use of interactive multimedia (e.g., videos, animations), integration of technology into teaching and teacher training, and learning and assessment involving the use of technology (Teo, Goh, & Yeo, 2014).

A prevalent issue chemistry educators encounter is the integration of ICT into their practice. Savec (2017) reports that despite chemistry educators having good basic ICT skills, they lack the skills needed for ICT integration, indicating the lack of technological content knowledge or technological pedagogical knowledge. For example, using virtual instrumentation increases students' understanding and leads to a higher motivation for studying chemistry, but many chemistry educators find it challenging to design their own virtual experiments and implement them in the classroom (Gorghiu et al., 2009; Chan et al., 2021). Dewi et al. (2019) further support the claim of chemistry educators' difficulty in innovating to develop learning media chemistry-based ICT. Consequently, chemistry educators rarely implement computer-based chemistry lessons, and the reasons are not only school-related, namely, tight lesson timetables and high teacher-to-student ratio, but also individual-related, namely, feelings of insufficient personal skills.

Emergency online remote teaching of chemistry: Challenges and opportunities

The literature suggests that the sudden shift to ERT has been quite challenging for chemistry educators. The internal barriers that chemistry educators faced are knowledge and skills to teach remotely (Babinčáková, 2020) and time constraints to plan effectively (Crucho et al., 2020). Another major barrier to ERT of chemistry is accessibility to resources such as tools and online technical support (Babinčáková, 2020; Sunasee, 2020), laboratory equipment and chemicals (Baker & Cavinato, 2020; Dukes III, 2020; Mercier et al., 2021), charts and models (Crucho et al., 2020). Chemistry educators face much difficulty fully replicating the classroom learning and laboratory experience during ERT because chemistry students need a more tactile experience (Loo, 2020). Sunasee (2020) reported that chemistry students' preferred learning was face-to-face teaching over online learning and Perets (2020) noticed that chemistry students' engagement was likely negatively impacted by the emergency transition. Chemistry educators make instructional decisions that may be inconsistent with their espoused beliefs, resulting in a feeling of deep pedagogical dissatisfaction (Sansom, 2020). Also, chemistry educators are required to support their students to adapt to the new mode of online learning.

However, current literature suggests the need for practice-based investigations to critically understand the innovative pedagogies used chemistry educators during ERT. A major finding of Stenman and Pettersson's (2020) study informs that ERT expands the learning environment and provides students with a wider range of learning solutions for different needs. Teaching during school lockdown was undoubtedly a challenging time but was one that also provides

an opportunity for chemistry educators to experiment, learn and try new methods of teaching. Chemistry educators had to be innovative and creative in their approach by finding alternative ways and methods to conduct practical work. Regarding laboratory experiences, educators could have used homemade kit options for laboratory exercises (Miles & Wells, 2020; Baker & Cavinato, 2020), chemical kitchen (Radzikowski, 2021) and kitchen chemistry home practical activities (Schultz, 2020). Dukes III (2020) used data collected by previous students and assigned current students simulations to allow the latter to collect their own data. Marchak, Shvarts-Serebro and Blonder (2021) proposed the “Teaching Chemistry by a Creative Approach” model to internalize the arts-integrating approach through creative, active learning strategies. Also, chemistry educators with good technological pedagogical knowledge used augmented reality technologies (Nechypurenko, 2020), digital solutions such as Massive Open Online Laboratories (Mercier et al., 2021), Analytical Sciences Digital Library (Baker and Cavinato, 2020), process simulators (Worrall, 2020), and context-based learning and oral assessments (Giordano and Christopher, 2020). This demonstrates how chemistry educators have innovated in their practice, despite their unpreparedness. Given that there has not been any related research in the Mauritian context for chemistry educators, this qualitative study explored educators’ experiences of ERT.

METHODOLOGY

This study comprises phase one of our study focusing on chemistry educators’ ERT experiences during COVID-19 through a case study approach. The case study design was selected as it allows an in-depth and multi-faceted understanding of a phenomenon or an issue within its real-life context. Thus, it was deemed appropriate that the case study design would help the researchers to understand the participants’ experiences of teaching chemistry remotely. Furthermore, the case study method is reported to be particularly suitable to gather data on explanatory ‘how’, ‘what’ and ‘why’ questions, such as ‘how the intervention is being implemented’ (Crowe et al., 2011 & Yin, 2009). This findings in this paper are qualitative study and deployed a questionnaire to understand the participants’ experiences of teaching chemistry remotely to gather explanatory data on ‘how’, ‘what’ and ‘why’ questions (Crowe et al., 2011; Yin, 2009). According to Mohajan (2018), qualitative research focuses on the experiences and perspectives of people, and it allows researchers to understand issues or phenomena from the participants’ perspectives and opinions. MacDonald and Headlam (2009) emphasise that qualitative research is essential to understand how participants make sense of their experiences. The questionnaire data presents the first phase of our study. A second phase to probe deeper into educators’ experiences has not yet been implemented as the study focuses on exploring the ERT experiences of participants.

The sample consisted of eight chemistry educators (5 female and 3 male) from both state and private secondary schools. Purposive sampling was used as it allowed us to select participants that would help to answer the research questions and to ensure trustworthiness of the data (Campbell et al., 2020). Thus, the participants were chemistry educators who have taught chemistry remotely during the pandemic lockdown. Details of the participating educators are highlighted in Table 1.

Participant	Age	Qualifications	Teaching Experience	Secondary school (private or state)
Female	30	BEd / MEd	6	Private
Female	38	PGCE / MEd	14	Private
Female	44	BSc / PGCE	20	State
Female	42	BSc / PGCE	18	State
Female	48	BSc / PGCE	24	State
Male	33	BSc / PGCE	4	Private
Male	45	BSc / PGCE	20	State
Male	31	BSc / PGCE	10	State

Table 1: Participants' profile

Data was collected through a questionnaire, which included mostly open-ended questions and a few close-ended questions. The questionnaire was pilot-tested with two chemistry Educators who have taught remotely. Further to the pilot testing, there was a re-ordering of some of the questions to improve the sequencing. However, there was no change in any of the questions. Soft copies of the questionnaire were sent to the participants because of the COVID-19 lockdown. All participants completed the questionnaire and sent back the completed soft copies.

RESULTS AND DISCUSSIONS

Research question 1 | How did chemistry educators engage in 'ERT'?

The findings for the Research Question 1 are discussed under four themes namely, planning and preparing the remote chemistry lessons; implementing the remote chemistry lessons; assess students when teaching chemistry remotely; and catering for the practical aspects of chemistry.

Planning and preparing the remote chemistry lessons

Preparation and sharing of lesson notes

The findings revealed the major factor considered by the participants when planning for ERT, was related to their "lesson notes". Most of the participants considered it important to prepare their lesson notes and ensure that these were sent to their students prior to the ERT lessons. This was evidenced by the following excerpts from participants:

The students were given the notes already through WhatsApp application prior to the class schedule. Notes given with all details possible including the questions with answers along.

Written notes, tailor-made for each session were sent to students via WhatsApp at least 4 to 5 days before the Zoom session, to allow students enough time to go through and copy the notes. After sending out their lesson notes to students, who were expected to go through or study these notes, the ERT sessions were then enacted using teacher explanation and teacher questioning to ensure that students had understood the concepts. Students were also encouraged to ask questions in case clarifications were needed.

Preparation and adaptation of PowerPoint presentations

Other participants focused their planning and implementation of the remote chemistry lessons on the preparation of PowerPoint presentations on the topics being addressed using “clipart and interactive videos for demonstration of abstract concepts.” One educator indicated how they “readapted [*O*-level and *A*-level classes] for online teaching; including links to videos and added more pictures to compensate for the lack of visual demonstrations.” PowerPoint presentations provided a convenient way for ERT as the slides can be shared and can capture students’ attention during the lessons. Furthermore, if well-prepared with proper fonts, content, and illustration, the presentations can promote students’ learning of the concepts being addressed by providing visual impacts and focusing students’ attention on the screen. The findings revealed that the participants adapted the presentations for ERT by including links to relevant videos and additional illustrations to promote understanding of abstract concepts and to allow students to observe practical demonstrations.

Identification of online and other resources

While planning for teaching chemistry remotely, the participants were conscious of the need for additional online resources to enhance learning of the concepts. They highlighted that they looked for relevant weblinks, videos, animations and simulations when planning for ERT in which explanation that needs practical awareness or some daily life examples, weblinks were given. Another participant mentioned that “for topics requiring demonstrations/visuals, I looked up videos/simulations and diagrams.” In addition to the online resources, the participants asserted that they used other resources, such as, extensive mobile phone features – clicks of chemistry books, whiteboard and marker for explanations, worksheets (scanned and sent as PDF files) classified past exam paper (Cambridge International Examinations past exam questions which have been classified according to the topics rather than year-by-year). Some participants decided to use their personal laboratory equipment and chemicals to carry out demonstrations remotely for learners.

Implementing the remote chemistry lessons

Regarding the implementation of the remote chemistry lessons, most participants relied on students’ prior reading of lesson notes so that during the remote lessons, educators and students interacted through questioning about the concepts addressed. In the same way, homework was also given, and the remote sessions were based on correction of homework. Some participants engaged in explanation of the concepts through PowerPoint presentations or making use of the whiteboard. As one participant pointed out I “allocate time to share whiteboard so as to explain concepts e.g drawing of shells in atomic structure and explaining bonding.” The fact that the

remote lessons were mostly based on explanation and questioning one participant shared how this was undertaken online. They indicated *“setting of question during video call; students taking picture and sharing; or answering through the chat facility on the Zoom call. Discussions that followed were based on students’ proposed answers.”*

Though the findings tend to point out that sharing of notes, explanation and questioning were pervasive during ERT, it needs to be highlighted that the participants also took the initiative to engage in different types of teaching/learning activities as will be discussed in this section. The students were engaged in learner-centred activities, such as, online groupwork, daily challenge for students (sent on WhatsApp group), inquiry-based learning, starter activities (True or False/Multiple Choice Questions), crossword puzzles, concept mapping, use of worksheets for problem solving, peer-tutoring, brainstorming and project works. Furthermore, students were also provided with the opportunity to view videos and demonstrations, following which they were encouraged to comment and ask questions. It is also important to note that some participants even devoted additional time for personal tutorial (one-to-one teaching) for Grades 11 to 13. This provided scope for the participants to cater for the individual needs of the students.

Assessing students when teaching chemistry remotely

Participants were also asked about how they assessed students’ learning and provided feedback. Though a variety of responses were obtained from the participants, the most common assessment method used was questioning during the remote lesson which also occurs in non-ERT contexts.

The following responses were obtained from participants:

- Questions were asked during the classes; to ensure that students understood.
- Through questioning and diagnostic/formative evaluation.
- They were required to work out questions instantly during the lesson.
- Formative questions were asked during the lessons.

Apart from questioning during the ERT sessions, participants also mentioned additional ways students were assessed which centred around *“setting assignments after each Zoom session”*; *“sending worksheets electronically through WhatsApp and Zoom”*; and *“classified past examination questions were shared on the WhatsApp group.”*

The students were required to send their answers individually through WhatsApp, Zoom or Google classrooms for the participants to correct and send the corrected work with feedback. Some participants asked their students to send pictures of their worked solutions, on which feedback was provided. One participant also stated that she provided feedback during the lessons, if the feedback did not require too much time. However, in case some students required more feedback that might encroach on the ERT time, she would then give the feedback at a later stage to the students so that she could continue with her planned teaching.

Catering for the practical aspects of chemistry

It was considered important to understand how the participants catered for the practical requirements of chemistry when teaching remotely. The findings revealed that the participants were aware of the importance of practical work to support teaching of chemistry. Six of the eight participants mentioned that they identified relevant videos and photos pertaining to chemistry practical work and demonstrations which they used to supplement their ERT. These videos and photos were then viewed by students during the sessions and questions were asked to promote learning. Some participants also shared the videos with students through WhatsApp. For instance, participants used YouTube videos to explain the concepts of ‘limiting’ and ‘excess reactant’ and ‘reactivity of metals with water and acids’ as specified by participants. On the other hand, one participant stated that he used his own laboratory resources to carry out demonstrations for the students during ERT and in case he lacked any necessary resources, he resorted to the use of online videos regarding the relevant practical sessions. Another participant claimed that topics requiring practical sessions were rescheduled for post-lockdown.

Research question 2 | What challenges did educators encounter when teaching chemistry remotely?

This study also aimed at identifying the challenges encountered by chemistry educators when teaching chemistry remotely. The data shows that several challenges emerged when the educators shifted from traditional face-to-face teaching to ERT. The data analysis found the following sub-themes namely, challenges to educators; challenges pertaining to students; and other challenges which are summarized in Table 2.

Main theme	Challenges pertaining to educators	Challenges pertaining to students	Other challenges
Sub-themes	Educators’ lack of preparedness for ERT	Students’ lack of appropriate ICT tools	Difficulty in teaching some chemistry concepts
	Educators’ lack of appropriate ICT tools	Students’ lack of motivation and interest	Time factor
		Students’ lack of participation and interactions	Lack of privacy
		Students’ absenteeism	

Table 2: Challenges encountered by educators when teaching chemistry remotely

Challenges pertaining to educators

Educators' lack of preparedness for ERT

Data analysis revealed that a lack of preparedness for ERT represented an initial challenge for most participants. Educators' lack of preparedness for engaging in ERT during the COVID-19 pandemic has recently been highlighted in studies conducted by Cardullo et al (2021) and Moser et al. (2021). The drastic need to cope with ERT has led educators to feel overwhelmed, underprepared and mentally exhausted (Cardullo, 2021). Out of the eight participants, six acknowledged that they were not prepared for teaching remotely and stated:

I had no idea how to go about to plan and conduct the lessons since I rely a lot on face- to-face contact with my students to ensure effective teaching and learning. Frankly speaking, I was not prepared. Never prepared to teach online. I was not prepared at all. I was familiar with basic use of ICT in teaching and learning but never before had I used online platforms to conduct my classes. At the beginning I did not know all the functions in Zoom and Google Classroom given that I never used these applications before.

Some participants claimed that though they were familiar with use of ICT, they have never engaged in teaching online remotely. This caused some discomfort to participants who feared that teaching remotely would require lots of expertise and were worried about the problems and issues that might crop up when they would teach remotely.

Educators' lack of appropriate ICT tools

Some participants lacked appropriate ICT tools to teach remotely. One participant claimed that she taught remotely online though she had only an old laptop and the Wi-Fi connection was not always reliable. Similar findings related to limited internet access due to unstable internet connection have been reported by Izhar et al. (2021) who also stated that “an unstable internet connection will result in a less effective lesson delivery.” Another participant mentioned that “*I find myself now with a damaged personal laptop: both its sound system and video are out of use due to constant heavy continuous use during that confinement period.*” Mohammed et al. (2021) reported that one of the basic requirements to implement ERT constitutes the hardware resources, namely laptop/computer and internet access.

Challenges pertaining to students

Students' lack of ICT tools

Analysis of the data has revealed that several challenges encountered by the participants during ERT arose as a result of the students due to the students' limited access to ICT tools and to internet as some students lack of ICT tools and poor internet access as “...many students did not have a personal laptop or computer...” and “demonstrations...sometimes students could not observe them due to slow connections on their parts....” A survey conducted in Greece by Jimoyiannis (2020) had similar findings as many students did not have access to the required

digital equipment and internet connectivity. Thus, students' lack of proper ICT resources and poor internet access proved to be a major barrier for effective ERT as they were not able to follow the remote lessons, to participate in the lessons and to view materials such as videos, images and notes being shared on screen by the educator.

Students' lack of motivation and interest

Students' motivation and interest are reported to be essential for effective learning. Based on participants' responses, it was noted that there was a lack of students' motivation and interest during ERT. Some participants acknowledged that it was a challenge to sustain students' interest throughout the lesson due to a "*lack of motivation to work*" and the related challenge of "*maintaining the level of interest through the lesson*". Moser et al. (2021) conducted a survey on ERT during COVID-19 and reported that educators struggled with holding their students accountable and sustaining their motivation and interest (Moser et al., 2021).

Students' lack of participation and interactions

The importance of students' participation and interactions for effective remote online instruction has been emphasized in literature. Quality Matters (2018) informed that the best practices for planned online instruction are based on eight standards, one of which relates to learner activities and learners' interactions. Furthermore, Gunes (2019) claimed that synchronous interactions of students with their peers or educator can help lessen the feeling of isolation and increase motivation. However, the findings from this data set revealed that the participants found it challenging to teach remotely as "*students were reluctant to participate on their own;*" "*... answered questions 15 mins later, for example, or blatantly ignored;*" and "*... certain students joined the class but did not participate at all.*" All of these factors negatively impacted on students' learning.

Students' absenteeism

Student absenteeism during the remote lessons posed problems to the participants as 'some of the students were joining classes haphazardly.' It was suggested that "*attendance for the classes should be made mandatory.*" Although participants were making the necessary efforts to ensure the continuity of the chemistry syllabus and to monitor students' attendance, there were repeated absences of some students which disrupted the smooth implementation of the remote chemistry lessons.

Other challenges

Difficulty in teaching some chemistry concepts

Some participants claimed it was difficult to teach some chemistry concepts remotely. One participant mentioned that "*I wanted to teach mole concept but given that I had mixed ability students, I decided not to pursue the chapter since students had difficulties.*" Some theoretically-laden concepts proved to also be difficult for students to understand when taught remotely such

as the ‘Born Haber Cycle.’ The impossibility of carrying out practical work was also a challenge for educators as most were deeply concerned with the fact that they could not engage their learners in hands-on practical work as this hindered students’ understanding of some chemistry concepts. As one participant indicated

Chemistry is taught and learnt by addressing 3 levels of understanding- macroscopic, microscopic and symbolic. I attempted to make sure that the lessons were taught by addressing the 3 dimensions, even though this was difficult due to lack of practical work.

Another participant shared this view and indicated the impact on students’ learning when not engaging with practicals.

The theoretical and practical aspects of chemistry are contingent upon each other and when students do not engage in hands-on activities, it seriously diminishes their engagement with and understanding of theory.

Time factor

Time factor was an important theme that emerged during the data analysis. Most of the participants conceded that teaching chemistry remotely was more time-consuming than traditional face-to-face classroom teaching as “students took more time to understand chemistry concepts” and educators “did not have enough time to learn about other teaching platforms....” Educators also indicated needing “more time for correction of students’ work and giving feedback on Google platform” which was “time-consuming” as well as searching for relevant resources, such as, videos “for demonstration purposes.” These findings corroborate with those of Jimoyiannis, et al. (2021) and Kebritchi, et al. (2017) who reported that educators acknowledged that teaching online is more time-consuming than face-to-face teaching, and Izhar et al. (2021) found that educators required additional preparation time for online instruction inclusive of appropriate materials in line with the curriculum requirements.

Lack of privacy and security

Participants found the lack of privacy and security around teaching challenging. One participant indicated how “at first, I was hesitant since I knew I was going to teach remotely and was not sure about safety and security: anyone can record you and play pranks during or after the sessions” and another indicated the ways in which “via ZOOM application, safety aspects are limited in terms of the link sent to students; it is possible for outsiders to join in the class without camera and audio. The identity of such outsiders are unknown to the teacher.” Participants stated that when they taught online, some students recorded the lessons, while others gave the Zoom password to their friends who could join the lessons, and parents also could easily listen to their remote chemistry lessons. One participant indicated the ways in which “...the students took the opportunity and liberty to record our classes for later review....” Though participants considered parents’ listening as a challenge, it may be argued that this represented parental concern and support to encourage their children in their education by accompanying them.

Research question 3 | How did educators overcome some of these challenges?

Despite the various challenges encountered by the participants in their endeavour to teach chemistry remotely, the findings have brought to light their willingness and resourcefulness to overcome these challenges and to provide maximum support to the learners. Based on the findings of the study, this section will focus on how participants overcome four main challenges, namely, challenges related to time constraints, practical work, lack of preparedness for ERT and students' absenteeism. Figure 4 illustrates the means adopted by the participants to overcome some specific challenges in view of supporting their students when teaching chemistry remotely.

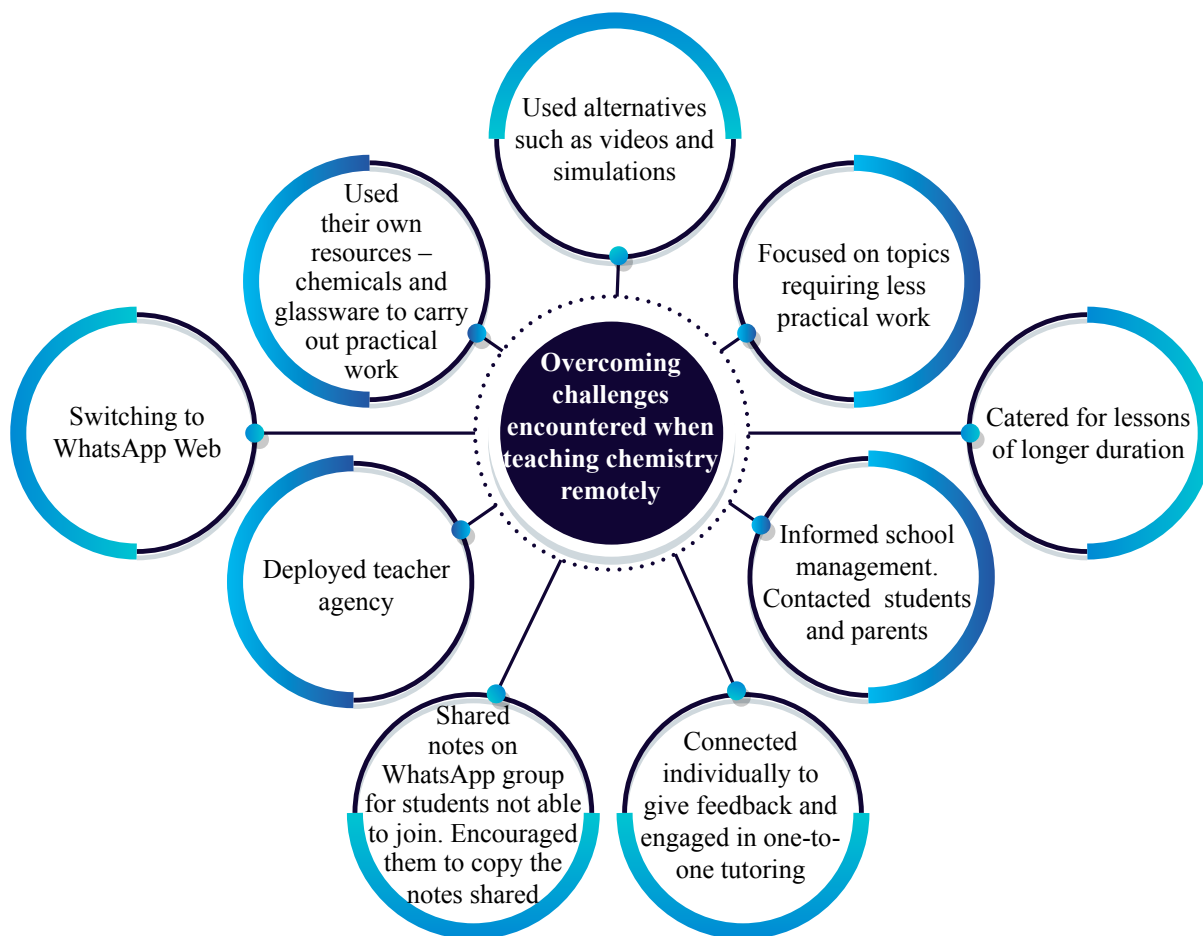


Figure 4: Overcoming the challenges encountered

Overcoming the challenge of time constraints

Though participants acknowledged that teaching remotely is more time-consuming than traditional classroom teaching, they were willing to engage and cater for lessons of longer duration. Despite the difficult and challenging time of the COVID-19 pandemic lockdown, the participants devoted additional time to support students' learning. Because more time was needed to teach the chemistry concepts, according to participants it was not possible to give individualized feedback to the students during the remote lessons. Some participants thus made necessary arrangements to provide additional tutorials to support their students. The following response demonstrates this and participant's pedagogical knowledge about the need for differential instruction.

All students do not learn at the same pace; hence the need for differentiated teaching. Students (of G11-13) were able to request for additional tutoring time for reviewing concepts they had difficulty with. A few students took advantage of this, and short Zoom calls were arranged for reviewing concepts or questions they were struggling with.

Catering for the impossibility of performing laboratory practical work during remote lessons

As highlighted earlier, chemistry is a practical subject which requires learners' engagement in hands-on practical work and in observing teacher demonstration for conceptual understanding and development of science process skills. The participants were aware of the importance of practical work and since practical lessons could not be carried out in laboratories during ERT, the participants used different means to overcome this challenge depending on their situation. Some participants used relevant weblinks and online videos that showcase or demonstrate the experiments to cater for the practical aspects of the concepts. For example, participants mentioned *"if there were any practical required, I looked for videos that were shared with the students reactivity of metals with water and acids."* The practical aspect of chemistry was taught through expository/integrated approach incorporated within the theory lessons supplemented with the use of *"YouTube videos, computer simulations, photographs from the net."* This finding corroborates with Shidiq et al. (2021) who reported that Indonesian chemistry educators implemented online lab work-activities using simulations and YouTube videos during the COVID-19 lockdown. One participant stated that she initially focused on topics that do not require hands-on practical work for the ERT lessons. She 'reshuffled' her work plan in such a way that topics requiring practical work were scheduled for post-lockdown.

However, one participant had his own laboratory chemicals and equipment at home and was able to carry out practical demonstrations that could be observed by his students. He stated that *"... all demonstrations were done with my personal equipment and lab resources and chemicals."* and *"I used my own lab resources. When I did not have the required chemicals, these were demonstrated as YouTube videos, available online."* While it is understood that this educator's response is an exception rather than the rule in chemistry education, it does demonstrate the educator's willingness to ensure that necessary learning support was provided to students. The later excerpt also emphasized the willingness of participants to support their students' learning when demonstrations could not be performed due to a lack of chemicals.

Overcoming the challenge of students' absenteeism

Students' absenteeism was viewed as a major problem by the participants when teaching remotely. Participants tried their best to overcome this challenge by informing school administration who then contacted the parents. Participants also called students individually "encouraging" them to join, and in continued absenteeism, participants also contacted the parents.

Overcoming the Challenges of Participants' Lack of Preparedness for Teaching Remotely

One important finding which has emerged from this study relates to the participants' lack of preparedness for teaching chemistry remotely. However, the findings have also revealed that

despite this lack of preparedness, the participants have taken this challenge as an opportunity for their self-directed professional learning and for deploying teacher agency. In the absence of policies framing how ERT was meant to be carried out, educators conceived and implemented their teaching and learning sessions in line to what they considered to be educationally required and desirable. This demonstrates that despite their lack of preparedness, some educators used this as an opportunity to innovate in their practice for the benefit of their learners. All the participants have made the necessary efforts to ensure continuation of students' learning of chemistry by familiarizing themselves with the online platforms, learning about the different features, tried to adapt their own teaching resources or look for relevant online resources that would support the teaching of the different concepts. As some participants indicated:

Before being asked to teach remotely, I had already initiated the process myself. Therefore it did not come as a surprise. I knew that ERT would be required so that the teaching/learning process could continue. As from the first few days of lockdown, I had gone through the different options I had for ERT and started to make contact with my students through WhatsApp and created virtual classrooms on Google classroom."

Another participant indicated

...I truthfully made my mind to change my way of teaching to be able to move on with the syllabus. I was ready and determined to learn new applications. Given that we were confined and definitely had more free time, it was an opportunity to learn new ways of teaching.

This finding is similar to Shidiq et al. (2021) who claim that being called to teach chemistry online during the COVID-19 led to challenges as well as opportunities for educators to become more creative in their practice. Our findings complement the latter as engagement in teaching remotely online has led educators to deploy teacher agency and initiate self-directed professional learning and growth to effectively teach online.

CONCLUSION - CRITICAL INSIGHTS FOR TEACHER EDUCATION

Teacher education (TE) in Mauritius is shaped by quality and educational sustainability concerns (Quality Assurance Authority, 2022). In adopting a competency-based approach to formulating and implementing teacher education (Grossman et al., 2013), the TE programmes offered by the Mauritius Institute of Education distinguish between the foundational and disciplinary knowledge of teaching, through courses such as Philosophy of Education and Educational Psychology, and the practice of teaching through courses such as Peer Micro Teaching and Teaching Practicum/School-Based Experience. The use of externally mandated standards guided by the UN 2030's Agenda for Sustainable Development is reflective of a performance-based approach to teacher education. This approach to teacher education limits the role of educators to being a "doer or technician who implements, in a rather simplistic and rigid way, external impositions on teaching and curriculum" (Flores, 2016, p. 190) in meeting a set of standards and outcomes. This technicist view of teacher education may adversely impact on the development

and negotiation of teacher agency which may problematise teaching when the accountability for standards-based teaching and ensuring outcomes are uncertain and suspended.

This study has shed light on how chemistry educators engaged in teaching remotely during the COVID-19 lockdown in Mauritius, the challenges encountered and how some of these challenges were overcome. Though the educators acknowledged that they were not prepared to teach remotely, they were fully aware of its importance to ensure continuity of chemistry learning of their students. They have tried to adapt their teaching and teaching resources to facilitate the transition from traditional classroom teaching to ERT. Though this shift was accompanied by several challenges, such as time constraints, students' absenteeism, lack of opportunities and ability to engage students in practical work and lack of students' interactions and participation, the educators were pro-active and engaged in self-directed professional learning to overcome these challenges.

The following three critical insights for science teacher education may be drawn:

Virtual project-based learning of science

In supporting chemistry educators to teach remotely, chemistry educators might benefit from learning to design and implement science lessons through the use of project-based learning (PBL) in virtual instruction. Presently, educators have been observed to interpret ERT as a change in platform and resources in science instruction, while retaining the teaching procedures similar to traditional classroom teaching. Findings from recent research on virtual PBL science instruction suggest the flexibility afforded to educators in engaging learners through virtual science instruction (Miller et al, 2021). Researchers found educators could engage their learners by centering the virtual teaching and learning sessions around a driving question that makes connections with the learners' community (family members); using collaboration through collaborative investigations; using extended learning that allows learners to experience through role plays to study the physical and behavioural features of the studied phenomenon (Miller et al., 2021). Moreover, it might also be useful to explore the possibility to assess using virtual project-based assessment tasks, in helping educators align the reviewed teaching methods with assessment.

Science as a tool for critical decision-making

By innovating the teaching methods adopted by chemistry educators, the aim is to move beyond teaching chemistry as a conceptual understanding but rather by foregrounding the interconnected nature of nature and societally pressing phenomenon and classroom teaching and learning, learners will be engaged in making "more societally relevant sensemaking experiences" (Verma et al., 2020, p. 487). This sensemaking may most likely promote science as a tool for critical decision-making, and in reflecting the actual purpose of science instruction.

Developing and valuing teacher agency

With educators showing their ability to initiate self-directed professional learning; teacher education programmes may be required to offer more enriching professional learning

opportunities by developing and valuing teacher agency together with teacher effectiveness. Moving away from a standards-approach that seeks to educate teachers in raising students' achievements in an increasingly diverse classroom (Flores, 2017; Kaur, 2012), developing and valuing teacher agency in pre/service teachers might be needed to help them face the unpredictable and inevitable challenges of teaching in the twenty-first century.

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Exploring perceptions of pre-service teachers' virtual learning experience during the COVID pandemic

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ABSTRACT

This qualitative case study takes place in a parastatal teaching institution in Mauritius during the COVID pandemic following national confinement in March 2021. The first prong explores how pre-service teachers perceived their learning experience via the online exclusivity model for a Communication and Soft Skills module in a B.Ed programme. The second prong investigates whether the synchronous sessions helped develop the English proficiency and soft skills of the pre-service teachers. An open-ended Google Form questionnaire and a focus group discussion via Microsoft Teams were used as data collection tools. Findings reveal that most participants felt and believed that the incorporation of diverse creative and critical activities, the use of inbuilt features of Microsoft Teams, related plugins and instantaneous tutor feedback provided opportunities for active participation and collaboration which helped develop both English proficiency and soft skills. Nonetheless, some participants also suggested that a wider range of features and plugins could have been optimised for more collaboration and a few discussed the impact of macro factors on their learning experience. Interestingly, findings also indicate that online tutors should optimise inbuilt features and related plugins to match the technological competence of adult learners to enhance both their learning experience and develop their language proficiency. Another key finding is the need for online tutors to give clearer instructions when using technological applications for activities and collaborative work. Finally, this study suggests that online tutors should pay heed to their tonal inflection during live sessions as it impacts on the learning experience of adult learners as they are more aurally attuned.

Key Words: CSCL; online exclusivity model; synchronous teaching and learning; collaboration; communication and soft skills

INTRODUCTION

Prior to the COVID-19 pandemic, e-learning was considered a viable option that was neither forced upon tutors nor learners (Pal and Vanijja, 2020) and was chosen due to its far-ranging benefits such as: reducing the cost of educational delivery, promoting flexible learning, supplementing or complementing conventional teaching and learning as well as extending education possibilities to a wider clientele (Coman et al, 2020). However, the unprecedented onslaught of the pandemic has forced education systems worldwide to adapt teaching and learning processes at all levels of education (pre-primary, primary, secondary and tertiary) inevitably changing the e-learning scenario. Rather than being a question of choice, with sanctioned confinement restrictions, many tertiary institutions have imposed an online exclusivity model conducted via synchronous and/

or asynchronous platforms to mitigate curriculum discontinuity. Yet, without strategic planning at macro, meso and micro levels, this imposition has encountered significant challenges such as public and personal infrastructural support (Kamble et al, 2021).

Although the pandemic has generated an eclectic branch of e-learning scholarship (Pal and Vanijja, 2020; Johnson et al., 2020; García-Peñalvo et al., 2020), research on adult learners' learning experiences using the online exclusivity model is still nascent (Coman et al, 2020; Allo, 2020). Only a few studies (Kamble et al, 2021; Pal and Vanijja, 2020) focus on the use of such a model via cloud-based conferencing software such as Microsoft Teams. There are even fewer studies which explore adult learners' experience using Microsoft Teams for language proficiency (Martin and Tapp, 2019). It is this research gap that this study addresses and it is anticipated that findings will help shed some light on how to improve the learning experiences of adult learners using the exclusivity model via conferencing cloud-based software especially for online language proficiency modules.

LITERATURE REVIEW

The first part of this literature review situates adult learners' experience in computer supported collaborative learning (CSCL) before concentrating on their perceptions using the online exclusivity model via cloud-based technologies such as Microsoft Teams during the pandemic. The second section initially provides an overview of scholarship on the development of English Language proficiency via virtual learning and then focuses on the use of Microsoft Teams as a virtual platform for English Language proficiency in adult learners.

Suthers (2006) defines CSCL as an umbrella term which encompasses all information and communication technologies (ICT) for the interaction and collaboration of learners and highlights that the CSCL spectrum is far-ranging. CSCL not only includes ICT as the object of study, but it also includes settings where ICT supports collaborative learning as a resource or guide. Hence, it covers diverse online settings where ICT is the medium through which participants interact either synchronously or asynchronously and it includes Blackboard, Moodle, Cisco Webex, Zoom and Microsoft Teams amongst many others.

A key advantage of CSCL is the use of embedded communication and collaboration technologies that empower learners to play an agentic role in their learning trajectory (Akgün and Akkoyunlu, 2013). As student-driven learning and collaboration are key foundations in the teaching and learning process, Jan et al., (2019) expound that CSCL stems from Vygotskian (1978) and Deweyan (1938) social constructivist theories of learning. This view is further supported by Manathunga and Hernández-Leo (2017) who clarify that CSCL clearly falls under constructivist and interactionist epistemologies as it foregrounds a collaborative learning approach whereby social interactions are supported by diverse technologies to foster and enhance deep learning opportunities for learners. In this optic, it may well be argued that the wide spectrum of possibilities that CSCL offers is ideal for TEIs or even individual tutors who wish to promote such a pedagogical approach.

As aforementioned, Microsoft Teams is a CSCL conferencing software and is included in the suite of Microsoft Office 365. Over the years, Microsoft Teams has garnered popularity as a viable teaching and learning platform. A key reason is its inclusion in the Microsoft Office 365 package used by many educational institutions at secondary and tertiary levels which makes it readily available to both tutors and learners (Tran, 2021). Another pertinent reason is its ubiquitous user-friendly communication and collaborative features which according to Hewson and Chung (2019) allow the tutor to assume the role of the facilitator and/or mediator. Interestingly, Martin and Tapp (2019) and Tran (2021) underscore that Microsoft Teams has become a viable choice for HEIs during the proliferation of the COVID pandemic as it has facilitated collaboration and active learning opportunities.

Although the perceptions of learners' experience are a nexus of interdisciplinary research where different lens, methodologies and instruments are used to explore this phenomenon across different subjects, scholars (Valencia-Arias et al., 2019; Rodrigues et al., 2019; Pal and Vanijja, 2020) generally agree that learners' perspectives in engaging in miscellaneous forms of e-learning are mostly positive. For example, while Duderstadt et al., (2002) highlight how learners believe that virtual learning contributes to sharpening problem-solving and collaborative skills, Robinson and Hullinger (2008) underscore how learners perceive it to be a means to improve their ICT skills and critical thinking. Similarly, Chen (2014) discusses how virtual platforms allow for the practical application of knowledge.

Conversely, several studies accentuate learners' negative perceptions of virtual learning due to tutors' pedagogical choices and technological incompetence. For instance, Littlefield (2018) discusses how some learners view e-learning as detrimental to their progress due to the lack of instantaneous tutor feedback and guidance. Similarly, Sun et al., (2020) emphasise how learners believe that tutors who lack technological competence resort to lecturing which leads to passive learning and disengagement on their side. From the aforementioned points, it seems evident that learners' perceptions of virtual learning are nuanced and a key takeaway is that tutors need to be more proactive as it may well correlate to the learning experience of their learners.

Considering the proliferation of scholarship on the impact of the pandemic on education systems, studies on adult learners' experiences using the online exclusivity model via conferencing cloud-based technologies such as Microsoft Teams are still embryonic. Pal and Vanijja (2020) concentrate on the difference(s) between perceived usability of Microsoft Teams on laptops and smartphones and conclude that tutors' lack of self-efficacy leads them to resort to lecture-based delivery rather than capitalize on the inbuilt features of Microsoft Teams and relevant plugins thus prohibiting learner interaction and collaboration. Kamble et al., (2021) use a qualitative case study to explore learners' perceptions following unplanned and forced e-learning using Microsoft Teams. Findings indicate that adult learners believed that inaccessibility, internet dysconnectivity, course content, Online Learning Environment (OLE) effectiveness and interactions between learners and tutors negatively impacted on their virtual learning experience.

Turning more specifically to online language education scholarship which features both cloud conferencing technologies as well computer-assisted language learning (CALL), findings prior and during the pandemic indicate that although virtual language learning in all its diversity has several benefits, it is not without its own set of challenges. While Gas et al., (2020) highlight

how online language education allows for flexible and individualised teaching and may lead to an increase in attendance and engagement of learners, VanOostveen et al., (2018) underscore how certain language tutors avoid changing their pedagogical approach and continue to use traditional teaching and learning strategies inappropriate for online language study. Interestingly, Hampel (2003) not only underscores several benefits of synchronous sessions in practising language skills, but also draws attention to how tutors' choice of interactive tasks and assessment impact virtual language learners. Lastly, the study by Martin and Tapp (2019) reveal that learners appreciated tailored collaborative learning spaces via channels on Microsoft Teams during synchronous sessions as they could improve their professional vocabulary, syntactical formulations and pronunciation due to personalised group resources and feedback provided by the tutor.

RESEARCH CONTEXT AND BACKGROUND

Similar to the surge of COVID-related scholarship worldwide (Kapasias et al., 2020; Tran, 2021; Pal and Vanijja, 2020; Kamble et al., 2021), this paper also stems from the unprecedented advent of the pandemic and specifically focuses on its second wave in Mauritius following imposed national confinement in March 2021. Like other HEIs, the only parastatal teaching institution in the country also responded to the onslaught of the pandemic by adopting an online exclusivity model to ensure that teaching and learning across different programmes and disciplines continued despite imposed national confinement. Hence, this section not only provides an overview of a B.Ed 'communication and soft skills' class but it also describes the changes I made as the tutor of this module in regard to its delivery during forced online migration.

The module is a generic NQF level 6 core module in Semester 1 of Year 1 with a notional learning time of 90 hours inclusive of 45 hours face-to-face contact time and 45 hours self-guided learning time. It aims at developing English proficiency and soft skills in diverse academic and professional spaces. Through a range of strategies and activities, pre-service teachers engage in role-plays, debates, discussion, and group work; they also play language games and create their own blackout poems, 50- word stories and produce articles, reports, work-based emails and letters for creative and critical purposes.

With forced migration to virtual teaching and learning, as the tutor, I deemed it necessary to gauge the pre-service teachers' technological competence as well as their emotional and mental well-being especially since they did not have experience using the exclusivity model prior to the pandemic. During the first two online sessions, the pre-service teachers were given the opportunity to discuss how they were faring using Microsoft Teams and their feelings pertaining to studying virtually. As the pre-service teachers had developed a bond during the face-to-face sessions, they candidly shared their initial reactions.

From the discussion, although most seemed technologically competent in using the Microsoft Teams platform, they shared their apprehensions of coping with the virtual exclusivity model. While some mentioned spatial and temporal constraints due to shared spaces and technological devices, others complained about internet connectivity issues such as power cuts due to maintenance work and limited bandwidth. Most undergraduates shared how they

felt overburdened with the sudden switch to the online exclusivity model and requested the rescheduling of the sessions and reviewing coursework submission dates. They also requested that the sessions remain activity based.

Based on their feedback, the timing of the sessions was rescheduled and due to impeding macro factors such as internet connectivity, synchronous sessions were audio-recorded, and materials were uploaded to allow those who could not attend the live sessions to catch up. In addition, coursework was reconceptualised so they could submit a multimodal e-portfolio that incorporated videos and pre-recorded PowerPoint presentations, and assorted written tasks and coursework deadlines were reset to reduce their level of stress.

As this skills-based module rests upon the foundation of socio-constructivism, the teaching shift lay in researching and learning how to: (i) incorporate and maximise collaboration via Microsoft Teams to develop English language proficiency and soft skills and (ii) foster the social bond and interaction that had been initiated during face-to-face sessions. Hence ubiquitous features such as file-sharing, screen-sharing, recorded video-conferencing and audio-calling, instant group-chats and direct one-to-one chats (inclusive of Emojis, GIFs and stickers), collaborative whiteboards and group channels were used in addition to plugins such as Google Forms, Survey Monkey and YouTube amongst others.

Pre-activities using YouTube videos, songs, and interviews were used to build upon prior knowledge, trigger discussion and debate and spark interest. Similarly, a whiteboard was used for brainstorming and planning and channels were created to allow small group collaboration for role-plays, recorded PowerPoint presentations, and miscellaneous activities. These were subsequently shared with the rest of the class for feedback and discussion. A shared screen was used for the co-production of writing activities such as group narratives, scripts, blackout poems, letters, articles, and emails. Google Forms were used to develop reading skills through multiple choice and open-ended questions for thematic exploration, language analysis, and opinions and results from the polls were shared and discussed. Group chat and one-to-one messaging were used for instantaneous tutor feedback, student responses, and clarifying content points. The raised hand icon was used for voting, asking questions and participation in discussions and debates. Below are a few redacted screenshots of how the inbuilt plugins and related applications were used.



Figure 1: One channel where students had recorded a video of a task

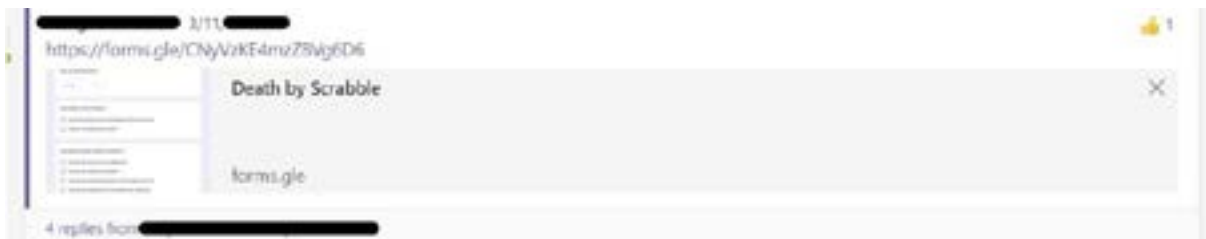


Figure 2: Google Form for textual analysis



Figure 3: Spontaneous talk via chat

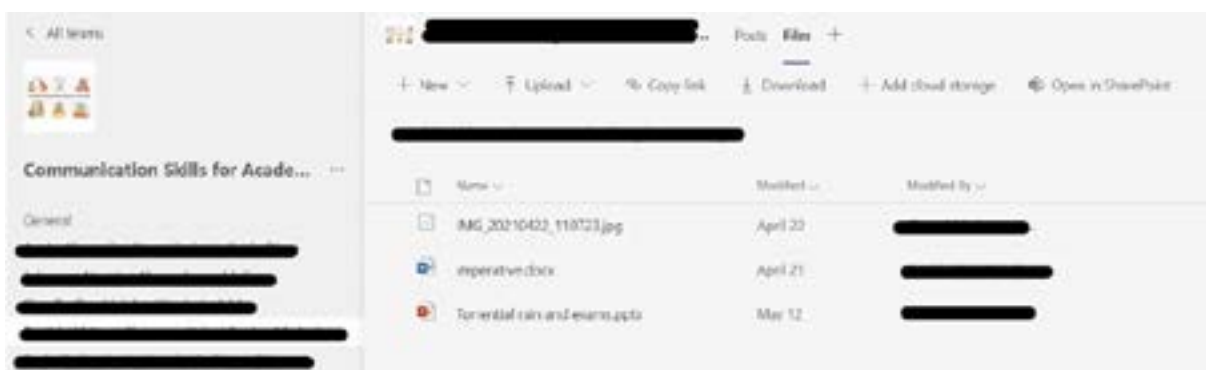


Figure 4: Uploaded multimodal work via a specific channel

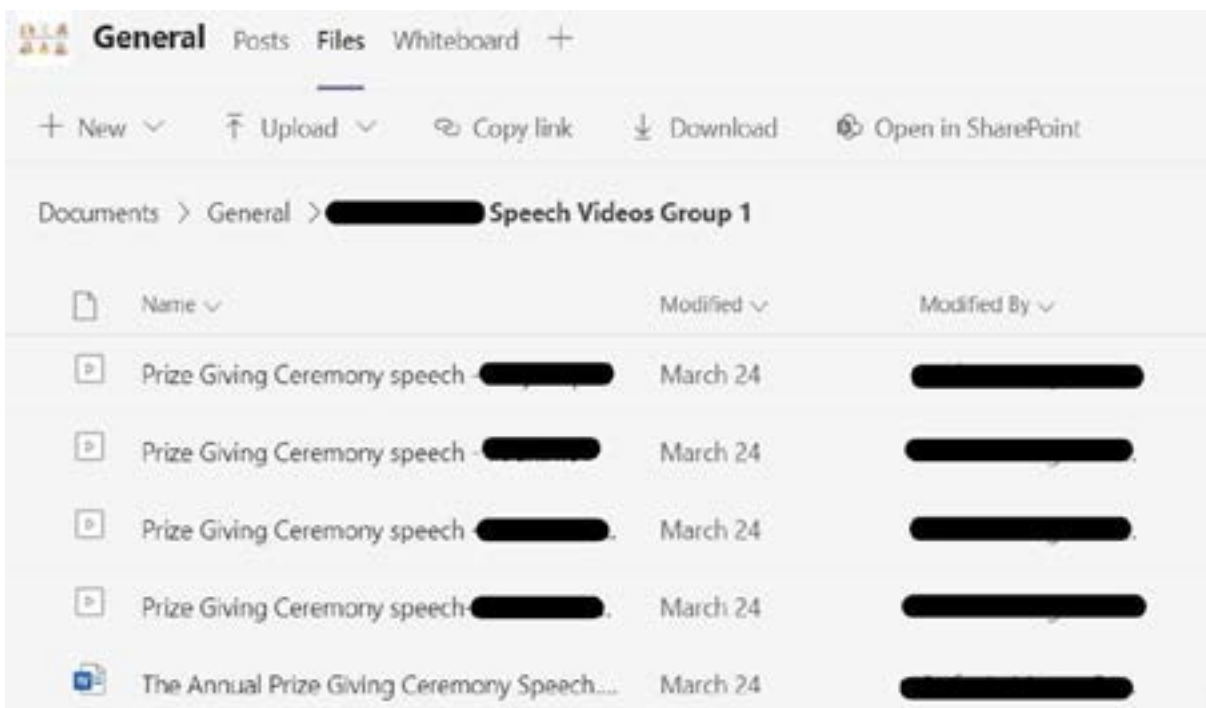


Figure 5: Uploaded work of pre-recorded speeches

AIMS AND OBJECTIVES

The aim of this paper is to discuss the perceptions of pre-service teachers' learning experiences for a Communication and Soft Skills module during the pandemic and to engage in the debate on how to improve the synchronous language learning experiences of adult learners. Falling under practitioner research, the objective of this qualitative case study is two-pronged. One prong explores how pre-service teachers in a parastatal teaching institution perceived their learning experience following forced migration to the exclusivity model via synchronous sessions during the second wave of the pandemic for a Communication and Soft Skills module in a B.Ed programme. The second prong investigates whether these synchronous sessions helped develop their English proficiency and soft skills.

METHODOLOGY

In line with the aims and objectives of this research, a single case study framework was the most viable methodological framework. According to Yin (2011) a single case study foregrounds the particularistic nature of the single unit of analysis. While Merriam (2002) underscores how a case study focalises the contextual reality to increase the trustworthiness of the findings, Starman (2013) further adds how robust detailing accentuates the complexity of the phenomenon. Hence, a single case study allowed me to factor the multi-layered contextual situation where the teaching and learning process was dictated by superimposed macro and meso factors such as national confinement and institutional forced online migration and analyse how these impacted on learning experiences at micro-level. Paying heed to Gobo and Marciniak (2016) and Harrison et al., (2017) who clarify how a case study sets parameters (participants, location, context(s) and processes) and Gall et al., (2005) who argue that its strength lies in describing, interpreting, explaining or evaluating a social phenomenon through the experiences of participants. This framework was the premium choice mainly because it allowed me as a practitioner-researcher to inductively explore and interpret the perceived learning experiences of a group of pre-service teachers for a particular module in a specific teaching institution during a bracketed period without striving for statistical generalization and as Ridder (2017, p.282) accentuates where contextual conditions were neither “delineated” nor “controlled.

Participants

Out of the 20 pre-service teachers for this module, 9 participants were selected. According to Polkinghorne (2005), a key aim of selecting multiple participants for qualitative research is to provide rich and varying perspectives on the research aim which serve as a kind of triangulation on the investigated experience. Since this study is anchored within the interpretative and constructivist paradigms where the subjective experiences of the pre-service teachers are foregrounded, a purposive strategy was chosen to include participants with different profiles in terms of their core subject major, their initial target language proficiency, and technological competence.

Ethics

Informed consent was sought from the participants who were provided with information regarding the duration, purpose and their involvement in this study. To ensure the anonymity of the participants, pseudonyms were used and when their work was used to illustrate a point, permission was sought and their names redacted as illustrated in the screenshots above.

Data collection tools

A Google Forms open-ended questionnaire was created for each of the nine participants to complete. In addition, an audio-recorded focus group discussion via Microsoft Teams with the 9 participants was used for data collection. These tools were chosen to gain an insight on what the participants thought, felt and believed about their learning experiences during the synchronous sessions and the development of their English proficiency and soft skills. The focus group discussion was chosen because it allowed opportunities for dialogic discussion (Doecke et al., 2007) and complemented the written answers in the open-ended questionnaires.

Data analysis

Thematic analysis (henceforth TA) was chosen for data analysis. In particular, the inductive approach was deemed the most appropriate as instead of fitting the data corpus into a predetermined coding frame based on the researcher's analytic preconceptions or existent literature (Braun & Clarke, 2012), this approach relies on the iterative process of coding in the form of themes, categories, typologies, concepts and even tentative hypotheses (Merriam 2002). As a result, oral information from the audio-recorded focus group discussion via Microsoft Teams was transcribed, read and re-read for initial codes and sub-codes and written data from Google Forms also underwent a similar process. These codes were further explored for emerging patterns and connections and subsequently re-read and analysed for major themes and subthemes regarding to the research aims and objectives.

FINDINGS

Overall, the 9 participants perceived their learning experience via the synchronous sessions to be mostly positive. Data generated from a distinct section of the Google Forms questionnaire which requested the participants to describe their learning experience for the nine live sessions via the online exclusivity model is summed up in the word cloud below.



Figure 6: Participants' profile

Closer scrutiny of their lexical choice reveals several clusters of emerging themes. One cluster indicates that the participants perceived their learning experience to be enjoyable. Words such as “cool”, “pleasant”, “lively”, “fun”, “entertaining,” and “uplifting” infer that they did not find the sessions to be particularly heavy or boring despite having expressed their initial apprehension as explained in the context section. A second cluster is the appreciation of technology with descriptive words such as “new”, “techno-centric”, “effective,” and “easy” which may well allude to their appreciation of the sessions matching their own level of technological competence. Interestingly, a third cluster is the appreciation of proactive socialized learning with words such as “autonomous”, “interactive”, “engaging”, “empathy”, “courage” and “collaboration” indicating that they felt that the synchronous sessions contributed to both their own independent and collaborative learning and also allowed them to better understand their peers. Another cluster is the way the Microsoft Teams platform was used with words such as “management” and “disciplined.” In contrast, the last cluster signals how some participants perceived their learning experience to be of a more nuanced nature as reflected in words such as “challenging”, “messy” and “hectic” suggesting that they may have felt overwhelmed at times. Analysis of data from other parts of the Google Form questionnaire and the focus group discussion gives a deeper insight into the aforementioned themes.

Enjoyable due to changes to the original timing of the sessions

Rescheduling the sessions to accommodate their request was considered a key factor that contributed to their positive learning experience. Several participants shared how this temporal

change helped reduce their level of stress and contributed to their active engagement and collaboration in the activities. This change was keenly appreciated by participants who were sharing technological devices and learning spaces with family members during the confinement. Interestingly, Participant 2 further disclosed that she preferred studying synchronously as she did not have to travel extensively, explaining how she had to take three buses for the early face-to-face sessions and would often arrive late due to infrastructural road work and would feel lost and demotivated to engage in group activities that had already started. By being at home and starting the sessions later in the morning, she shared how she felt less tired and was more motivated and buoyant during class.

Enjoyable due to smooth transition to the exclusivity model via a range of strategies, tasks, and activities

Participants unanimously mentioned that the range of strategies such as discussion, role-play debate, group work and the diverse collaborative tasks and activities inclusive of language games, blackout poems, real-time group stories, emails, reports and articles alleviated their fear of having lecture-driven sessions. In this respect, several mentioned that they appreciated the smooth transition to the virtual synchronous sessions particularly since neither the style of teaching nor learning had changed drastically. This is encapsulated in the comment by Participant 2 who shared how the blackout poetry session *“really made me feel that we were in our usual classroom space.”* Interestingly, the comment by Participant 4 captured her surprise in being able to develop language competencies via the online platform. This is apparent in her use of “but” in her comment *“we were on an online platform but we were able to develop our listening, our speaking, and our writing skills. It was not limited to only one type of communication.”* Similarly, Participant 3 listed several strategies and activities that motivated her to participate and collaborate in the sessions such as *“role-play when learning about emotional intelligence”* and *“when we are asked to use the chat section”* and *“speak to each give a sentence when writing a chain story in real-time.”*

Engaging language skills experience due to user-friendly features of Microsoft Teams and related plugins

Participants believed that inbuilt Microsoft Teams features such as: shared screen, chat, audio and video recording options and channels contributed to their English proficiency. The majority of participants discussed how miscellaneous features were relatively easy to use inferring that these predominantly matched their technological competence. Most commented on the benefits and enjoyment of using shared screen for developing writing skills both autonomously and collaboratively. This is succinctly summed up by Participant 9 who says that:

It did help with the overall learning experience as it helps with keeping the concentration levels up. For example, while doing short stories we were asked to each add a piece to the story that was being made and that for me helped with the whole online experience better.

A few also mentioned how using shared screen for collaborative writing tasks helped improve their grammar, lexical range, and syntactical structures, as feedback from both the tutor and

their peers meant that issues were immediately spotted, discussed, and collectively corrected as they actively engaged in the writing process which in turn helped improve the planning, drafting, editing, proofreading, and publishing of their work. Participant 9 also explained how the chat option empowered her to use the target language more spontaneously thus highlighting that English proficiency was being developed for both formal and informal purposes.

Participants further revealed that the synchronous sessions also improved listening competencies such as listening for general ideas, specific information, inference and pleasure as well as practising active listening etiquette. While Participant 3 underscored how she became more attuned to active listening which contributed to her general understanding, Participant 7 revealed how the sessions helped her practise active listening etiquette stating that she learnt *“not to interrupt while others are talking and wait for turns to talk.”* Most participants further expressed how they enjoyed listening to songs and interviews via YouTube links because it was *“entertaining”* and made the sessions more *“fun.”*

Similarly, several participants shared their positive learning experiences in developing their reading skills. For instance, Participant 1 explained how the use of a Google Form multiple choice questionnaire to develop reading for key information and inference was instrumental in engaging him in the activity. He elaborated that he particularly enjoyed being shown the statistics on how the reading questions had been answered by the whole class and how this led to a rich discussion on how to apply skills-based reading competencies.

Participants also appreciated the consistent use of channels for group work especially for a prerecorded audio PowerPoint presentation, emphasizing on how this task enabled them to practise their speaking skills in the target language and thus improve their vocabulary as well as their pronunciation. In addition, a few mentioned how group work via channels helped develop soft skills such as problem-solving, collaboration, group time-management and negotiation. Interestingly, one participant specifically explained how the pre-recorded PowerPoint presentation enabled group members to collaboratively problem- solve ICT related issues. Participant 2 underscored how the interaction and inclusion of all team members fostered a dynamic learning atmosphere. As she says *“it was a win win situation for both sides as there was effective communication and good response from all team members. No one was excluded.”* This is echoed by Participant 5 who pointed out that *“with the PowerPoint slides we were encouraged to actually help each other out by doing it as a group first to sort out possible issues that we might have.”*

Uplifting language learning experience due to diverse modes of communication for different profiles

Several participants highlighted how diverse modes of communication motivated them to actively participate and improve their language proficiency as these appealed to their learning profile. For example, Participants 5 and 7 commented on their increased proactivity during the synchronous sessions as there were alternative ways of communicating. Taken from the Google Form questionnaire, Participant 5 explains this by writing:

Being kind of an introvert, studying online was relieving for me in some way or another. I felt really at ease because the teacher did not impose the compulsory use of video call. Instead, we were given our time to answer either via the chat or simply by making use of the little raise hand, emoji.

Participant 7 echoed a similar view by writing that:

It helped me to be more interactive by answering questions or asking questions or even by giving my opinion. I think if the same thing would have been in a classroom, I would have hesitated to participate.

Most participants commented how they felt more empowered to participate and communicate with peers and the tutor in comparison to the face-to-face sessions due to the embedded use of chat with its range of emojis and GIFs. Two participants also highlighted how use of the interactive whiteboard made them feel less self-conscious during brainstorming activities as their peers were contributing simultaneously which deflected attention from them. The takeaway from these comments is that the participants appreciated varied ways of engaging in socialized learning that did not always entail oral communication but allowed them to contribute, participate, and collaborate during the sessions.

Increased level of instantaneous feedback and guidance from tutor improved English proficiency

The increased level of tutor support and guidance in the form of instantaneous feedback also contributed to enhancing their learning experience and helped develop their English proficiency. During the focus group discussion, Participants 2 and 8 elaborated on this aspect and compared the level of tutor support in the virtual sessions to the face-to-face sessions explaining that it was not always viable in the latter. Both participants described how they felt motivated by instantaneous tutor feedback. Participant 2 appreciated individualised comments as illustrated below:

We were actually very much encouraged to participate in class and the teacher put little likes on our comments, praised us when we gave good answers always intrinsically motivating us to be more confident in our answers.

Interestingly, Participant 8 felt that gentle tutor guidance helped set specific targets which contributed to improving specific areas. This is underscored in the comment below:

The tutor gave instantaneous feedback and guidance in every session. Whenever there was something wrong the tutor would correct us in a non-judgmental way and gave us ideas on how we could respond to a specific matter or how we could improve.

Positive learning experience due to effective use of the Microsoft Teams platform and adaptation of coursework

Another contributing factor was how Microsoft Teams was used. Participants appreciated the uploading of pre-session materials as well as the audio recording of the synchronous sessions for those who could not attend, and which also doubled as a source of revision. They positively responded to the assigned group channels as they found these helpful since they had the autonomy to upload their own group materials and resources and record their group sessions which contributed to better organising and progressing with their work.

Similarly, conversion of the initial coursework into a multimodal e-portfolio contributed to reducing the level of boredom in the synchronous sessions as several participants explained they found it difficult to listen and watch real-time PowerPoint presentations and speeches by their peers at one stretch. As they were asked to upload their e-portfolio to be viewed by others at their convenience, this motivated them to put additional effort into their work which is summed up by Participant 9 who recalled that *“the good side is that my work was more detailed and I could add videos and songs to my projects.”*

Nuanced learning experience due to miscellaneous issues

Although participants generally perceived their learning experiences to be positive, there were also some nuanced views. For instance, Participant 8 drew attention to certain macro factors such as internet discontinuity and power cuts especially during the torrential rain period admitting that *“it was quite stressful when we could not connect to our groups as time was limited and despite recording, the group work would not appear.”* A few also mentioned how micro factors such as the quality of technological devices and the speed of their bandwidth impacted viewing quality and access to internet links. They also underscored how these factors impeded their participation and engagement in activities. They admitted that despite listening to post-session audio-recordings, their level of commitment in engaging in tasks was not the same and Participant 9 shared how *“connection problems have sometimes affected the even delegation of tasks.”*

Despite integration of strategies and activities via inbuilt features of Microsoft Teams, Participant 1 is less convinced about the effectiveness of these for the development of all language skills. So although this participant appreciated the use of Google Forms for the development of reading skills, unlike the others, he was less convinced about the use of shared screen for the blackout poetry session admitting that he found himself *“switching off after as little as 15 minutes”* stating that if this had been conducted face-to-face, *“I would feel more intrigued and connected”* and shared how it would have helped to have short breaks. A key takeaway is that it cannot be taken for granted that the participants were completely immersed in the synchronous sessions. In addition, Participant 5 also remarked that *“despite having a positive learning experience,”* there were *“some impediments”* which prevented the smooth sailing of the tasks. Nonetheless these triggered collaborative problem-solving skills where *“students volunteered to help!”*

In a similar vein, a few participants commented on the lack of clear instructions for different activities when using embedded technological features which sometimes led to confusion. The

use of the interactive whiteboard for brainstorming and planning was cited by two participants who perceived it to be “*too messy!*” and “*overcrowded at times*” especially since participants thought that they had to write simultaneously and thus they inadvertently overwrote their peers’ comments. Closer introspection reveals that solely assessing the pedagogic value of applications and matching these to the technological competence of learners does not suffice. In addition to these, instructions for the use of these applications must be crystal clear to avoid confusion.

Interestingly, Participant 2 makes a pertinent revelation on how she improved her subtle understanding of tone as she inadvertently picked up on the nuanced tonal inflections of the tutor especially when the latter projected irritation and annoyance which although improved her language proficiency “*contributed negatively in my online learning experience*” clarifying that she would have been oblivious to this in the face-to-face sessions. The participant explained that listening more carefully when the tutor did not use the camera option, helped notice how the tone and pitch of the tutor’s voice changed when repeating things, and gave her the impression that the tutor was annoyed or at times tired which prevented her from asking for clarification.

Lastly, while Participant 1 reflected on the effectiveness of inbuilt features and relevant plugins that were used, he also suggested that a wider range could have been optimized which would have enhanced his learning experience. This suggestion is seconded by Participant 9 who decreed that “*[t]he lack of eye contact with the lecturer and students made it more difficult to remain focused*” and that consistent use of the camera option for both the tutor and peers would have allowed them to gauge paralinguistic features and non-verbal cues essential for communication.

DISCUSSION

Several takeaways from this study indicate that most participants had a positive learning experience where they were able to develop both their soft skills and English proficiency. Findings clearly reveal that they appreciated the smooth transition from the face-to-face sessions to the online exclusivity model as the andragogic approach, the range of strategies and activities did not change drastically, and the constructivist foundations remained the same. Hence, this study supports the claim by Jan et al., (2019) who accentuate how CSCL environments facilitate student-centred Vygotskian and Deweyian theories of learning, and this aligns with findings by Akgün and Akkoyunlu (2013) who highlight how communication is a key pillar in interactive CSCL environments.

The findings also indicate that acquiescing to the simple request of rescheduling the synchronous sessions helped reduce the participants’ level of stress and contributed to their engagement and collaboration. In addition, the choice of ubiquitous Microsoft Teams features and related plugins matched their technological competence and learning profile which directly contributed to developing both their soft skills as well as their speaking, listening, reading, and writing skills in addition to the subskills of grammar and vocabulary especially since they received instantaneous tutor feedback. In this respect, it seems that the findings align with the arguments propounded by Dick et al., (2005) who underscore that it is pivotal to understand learners’ needs and thus create personalised learning opportunities which help enhance learning experiences.

Findings also corroborate with Peterson et al., (2018) who clarify that the multiple features of synchronous platforms allow a tutor to give instantaneous feedback and mediate learning which improves both learners' experience and their subject knowledge. Interestingly, this study builds on the study by Iivari et al., (2020) as it clearly shows that it does not suffice to merely acknowledge the micro issues learners may encounter in terms of shared technological devices but reveals how empathy and accommodating simple learner requests impact positively on both their learning experience and their engagement the sessions.

In contrast to Hewson and Chung (2019) who argue that it is important to choose the most viable inbuilt features of Microsoft Teams and relevant plugins due to their perceived pedagogic value and disregard sophisticated ones associated with sunken costs, findings from this study suggest that this is not always the most viable decision. Conversely, it indicates that sometimes it is worth learning how to use the more sophisticated plugins depending on the technological competency of the learners. However, this study also hints that using a range of both simple and sophisticated inbuilt features and plugins may not be the sole solution as at times, learners feel bored and distracted during long intervals and it is more important to allow intermittent breaks and to be clear in giving instructions when using technological applications for specific activities.

Lastly, similar to the study by Martin and Tapp (2019), findings highlight how individual and collective learning spaces via channels allowed for small-group collaboration which helped improve overall language proficiency. Lastly, an unexpected and yet valuable finding is the way the auditory competencies of learners sharpen during audio-synchronous sessions. Although learners improve their own practical subject knowledge as they become more attuned to the nuances in tonal inflection, the way that they pick up on subtle emotions of the tutor may negatively impede their learning experience if the tutor inadvertently projects negative inflections.

CONCLUSION

This study concludes by emphasising that learners' experience for a 'communication and soft skills' module via the exclusivity model during the pandemic was mostly positive and that it contributed to their English proficiency. However, the wider implications of this study indicate that inbuilt features of Microsoft Teams and related plugins should not be used only for their pedagogical value but should match the technological proficiency of the learners. Moreover, it recommends further scholarship on the way adult learners react to tonal inflection during sessions and whether clearer instructions do contribute to more positive learning experiences and better subject knowledge.

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Exploring trainees' experience in the teaching practice component in the post graduate certificate in education part-time programme

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ABSTRACT

Professional Teaching Practice is a core component in Teacher Education Programmes offered by a teacher education institution in Mauritius. It is serviced by tutors across departments who guide their teacher trainees throughout their training programme. The teaching practice component (TPC) is meant to influence them as they negotiate the contextual realities with the recommendations made by their tutors. However, the level of disparity and incongruence observed and voiced out by trainees during the teaching practice led us to explore the extent to which the teaching practice was empowering for them. This paper explores the experience of trainees after the completion of the Post Graduate Certificate in Education Part Time (PGCE PT) teaching practice component. The theoretical lenses of reflection (Schön, 2017) and community of practice (Wenger, 2004; Wenger-Trayner & Wenger-Trayner, 2015) are used to understand how participants negotiated their understanding of teaching practice in school with tutors (Maseko, 2022). A qualitative study based on an interpretivist paradigm was deployed. Anxiety of trainees was found and captured through in-depth interviews and focus group discussions. The learning gains and challenges trainees experienced during their training programme was explored. The insights gained inform the direction to optimize the teaching practice, inform trainees' reflexivity and serve to promote professional practice in a more collegial approach, and have led us to reconceptualise the nature of professional support required in the context of a community of practice.

Key Words: Teaching practice; community of practice, reflexivity; anxiety

INTRODUCTION

The programmes of study offered by the institution to pre-service and in-service professionals evolved since 1979 and essential components such as the Teaching Practice Component (TPC) have remained key and of constant necessity across programmes. However, the merits of Teaching Practice as a core component in teacher education is under-researched in the Mauritian context. A recent study conducted by Thondee (2022) focused on the practicum at primary school level, but few research in the local context positioned its significance in secondary schools. In this respect, the merits and challenges of the teaching practice in a teacher education programme was explored, namely the PGCE part-time (PT) programme given its significance for secondary schools.

The PGCE (PT) programme is specifically meant to empower and support in-service educators working in secondary schools in their pedagogical practice through guided, formative, and summative feedback. The teaching practice is an integral part of the Professional Practice Component (PPC). As indicated in the PGCE part-time (2020-2021) handbook, the PPC comprising of the practicum aims at empowering students (or trainees) for “transformative and reflexive practice” (2020, p. 93) through constructive feedback from their tutors on their class preparation and delivery. They can, thus, aspire to attain the required professional standards in terms of lesson planning, instructional skills, classroom management, and assessment practices. The mechanism to support trainees throughout the teaching practice is usually complex and multi layered. For tutors, it involves a preparedness while considering contextual realities, assessment needs and procedures, and the trainees’ expectations. However, these considerations are often unvoiced, and ill-captured in discourse because the process involve practices which at times remain tacit and under documented (Allen & Wright, 2014; Cochran-Smith et al., 2020). What has been more common are workshops for tutors aimed at discussions on ways to improve the teaching practice from an institutional perspective. These focused on the technical components and modalities of teaching practice rather than insights from the participants’ experiences. In the meantime, teachers’ voices remained sparingly listened to and not illustrated through research. There is, thus, the need and importance to listen to trainees’ experience with regards to the teaching practice with a view to inform the process.

This timely research project is the outcome of a series of academic reflections emanating from the researchers in their positions as tutors, and teaching practice tutors across various teacher education programmes. Prompted by the main question ‘How do trainees based in secondary schools experience the teaching practice component?’, this study sought to bring to light the learning gains and challenges trainees experienced during the teaching practice.

Conceptualising teaching practice in the context of the study

The PGCE part-time programme spans over 4 semesters and, two tutors (one from the School of Education and another from the student’s subject area such as Mathematics) are responsible for their teaching practice visits during the second and third semester. As trainees are already in schools as practicing educators, each tutor visits them at least twice for formative and summative purposes. During this process, a series of interactions take place; communicating with the student, appraisal of timetable and contextual information including liaison with school stakeholder prior to the school visits. In this study, teaching practice is conceptualised as the exercise which comprises preparation, school visits, and feedback effected by tutors who are academics at the institution in view of assessing their trainee(s) following a PGCE course. The teaching practice at the institution is multi-layered and rests on several variables subjected to contextual realities such as the school context, teachers’ experience, student population and their profile. These form part of the contextual considerations that tutors need to accommodate while providing feedback during the teaching practice. To understand the phenomenon further, the theoretical lenses of communities of practice and reflexivity among others were used.

LITERATURE REVIEW

Teaching practice is integral to teacher education as only experiences provided by classroom situations can lead to readaptation of a teacher's knowledge (Cohen & Manion, 2010; Grossman, 2011). This claim is supported by Schön's (2017) notion of the reflective practitioner that implies that teachers should use reflection in action to adapt their knowledge of teaching in a classroom situation. Reflection being the driver in the back-and-forth movement between a teacher's knowledge and experience, it becomes the linchpin of teachers' professional development across the years (Feucht, Lunn Brownlee, & Schraw, 2017; McArdle & Coutts, 2003). Schön's (2017) notion of the reflective practitioner was further developed to encompass inwards reflection directed towards the self (Lunn Brownlee, Ferrugson, & Ryan, 2017). Archer (2012) defined reflexivity as an internal dialogue that results in transformative practices. Reflection and reflexivity is becoming increasingly important as teachers find it challenging to care for trainees who face diverse socio-emotional issues, which impair their ability to concentrate in their studies (Forghani-Arani, Cerna, & Bannon, 2019). To meet the needs of the trainees, teachers need to move beyond "a knowledge base of discrete skills to a stage where they integrate and modify skills to fit specific contexts, and eventually, to a point where the skills are internalized enabling them to invent new strategies" (Larrivee, 2000, p. 294). In line with these findings, teacher education institutions must ensure that their trainees develop reflexivity during their teaching practice as a fundamental component of their professional development in order to meet the demanding needs and issues faced by the student population (Maher & Fitzgerald, 2020).

Evidence from the literature indicates that in some cases the challenges faced by trainees which can include adaptation and school-based problems during teaching practice can act as barriers to reflection and reflexivity (Alirio Insuasty & Zambrano Castillo, 2010; Deocampo, 2020). Teaching practice is seen as "a particularly stressful and demanding period which involves considerable amounts of distress, changes in psycho-physiological patterns and an increasing sense of weariness and 'vulnerability' (Caires et al., 2012, p.172). Fear and anxiety related to "evaluation anxiety" (Matoti & Lekhu, 2016, p.306) during the teaching practice is another challenge and has been attributed to factors such as "evaluation, pupil and professional concerns, class control and teaching practice requirements" (Ngidi & Sibaya, 2003, p.18). Studies also indicate that the abovementioned areas of concern which act as barriers to reflexivity have been related to unpreparedness since "teacher training does not "prepare them for the real tasks they must accomplish" (Boakye & Ampiah, 2017, p. 3). Matoti and Lekhu (2016) highlight three other major areas of concern faced by trainees during teaching practice, namely, maintaining discipline in the classroom, building professional relationship with colleagues and the preparation and implementation of lesson plans. The unpreparedness is mainly due to a disjuncture between being theoretically prepared to teach and the reality of the classroom context which can be exacerbated by the type of school they are posted in. The discrepancy is rooted in their preparation for teaching which is of a more theoretical nature rather than practice based. Teacher trainees find that their theoretical knowledge is unrelated to the teaching challenges that they encounter in schools requiring more context-based knowledge on how to teach learners of mixed abilities coming from diverse and sometimes disadvantaged backgrounds (Botha & Baxen, 2018).

The incongruence between theory and practice can be buffered by creating communities of practice which has been shown to support reflection and reflexivity (Jimenez-Silva & Olson, 2012). Community of practice (COP) is defined by Wenger-Trayner and Wenger-Trayner (2015, p.1) as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”. Membership in communities of practice engages trainees in collaborative collegial reflection which contributes to their individual thinking (Yost et al., 2000). According to Shields and Murray (2017), providing teacher trainees with a sense of belongingness, emotional and pedagogical support as well as space for their autonomy by the mentor and school community plays a key role in their level of engagement and resonate with a study by Mtika (2011) who argues for a stronger partnership between secondary schools and teacher education adding that it would lead to the creation of a safe space that would facilitate “growth of reflexivity” (p.563) among teacher trainees. A key element is engagement in a community of practice which according to Daniel, Auhl, and Hastings (2013), would enable teachers to reflect upon their daily teaching practice and allow them to “constantly reconsider, challenge and renew the quality of practice in their field” (p. 60) through what he refers to as ‘critical transformative dialogue’.

However, engagement in a community of practice can be affected by a lack of support from the school mentor or no access to a community of practice. The absence of mentors leave the trainees on their own with little supervision or with very little opportunity to teach lessons (Maseko, 2022). In cases where there is a lack of community of practice in a school, the role of tutor feedback and interactions becomes fundamental (Mtika, 2011). After observing one or more classes, teaching practice tutors who are considered as experts in the field, provide trainees with feedback on their practice (Brandt, 2008). The purpose of the oral and written feedback enables trainees to identify strengths and weaknesses that they might not be aware of. The findings of Akcan and Tatar (2010) show that feedback encourages reflection among trainees, and it allows them to think critically about their lessons. After a teaching practice, reflection is thus essential as it enables them to bridge the gap between theory and practice. Moreover, feedback also plays a crucial role as it allows for critical thinking even in the absence of a community of practice. However, the way tutors provide feedback is essential as it may jeopardize the process as indicated by the findings of Brandt (2008) in her study looking at integrating feedback and reflection in teacher preparation. Participants in her study claimed that tutors involved in the teaching practice had conflicting understanding of the assessment criteria used by trainees and rarely communicated among themselves. Some participants in the study did not value the feedback as they felt that the tutor was not genuine, and the feedback was incompatible with how they rated their own performance. They also claimed that enough time was not given to them to justify their pedagogical choices. It is for this reason that Brandt (2008) suggests that post teaching practice sessions should allow for ‘reflective conversations’ (p. 43) whereby trainees are given a voice during their evaluation process and are encouraged to reflect on professional goals that they may wish to attain. Whether support is lacking at the level of the school or educational institution, professional growth and transformation may depend on trainee motivation. Seithers, Hyson, Hull, and Jensen (2020) found that intrinsically motivated educators sought out opportunities to improve teachers’ practice without formal support from their educational institutions.

THEORETICAL FRAMEWORK

The theoretical lens of this study is derived from the literature which indicates the relevance of three main concepts as contributing to the exploration of teaching practice as a pedagogical core component which are illustrated in Figure 1 below. We consider the described role of first, community of practice (Wenger-Trayner and Wenger-Trayner, 2015), followed by reflexivity (Forghani-Arani et al., 2019) and, finally, professional support (Seithers, et al., 2020) as the three main pillars which assist educators during the teaching practice exercise in enabling transformation. Community of practice refers to the collegial and collaborative entente which arise in the trainees' immediate professional milieu to sustain professional growth. Reflexivity is acknowledged as the ability of the educator to reflect in and on teaching both during and even beyond the teaching practice phase. Finally, professional support refers to formal and informal assistance and care deployed within the teaching community or professionals in the institution to help the educator during the teaching practice period. The model (see Figure 1 below) orients teaching practice as constantly evolving and dynamic as trainees' expectations and experiences do not always match and are always changing in view of enabling meaningful professional transformation/evolution.



Figure 1. Conceptual lens enabling professional transformation

Drawing on the model above, the study drew upon the following research questions:

- What are the trainees' experiences of the teaching practice component?
- How far does the teaching practice component enable transformation in our trainees following the PGCE part-time programme?

METHODOLOGY

Researchers see reality, knowledge, and truth as multiple, diverse and co-constructed within a context (Ormston, Spencer, Barnard, & Snape, 2014; Campbell & Wasco, 2000; Fraser, 2020). Consequently, meaning of aspects is co-constructed by analysing and interpreting experience within the context in which they are experienced (McNamee, 2014). This study is, therefore, situated within an interpretivist paradigm (Smith, Flowers, & Larkin, 2009), where meaning is constructed through the lived experiences of participants. Those experiences are perceived as

being authentic and unique in their context as they adopt and adapt to a professional development course at a given time in their lives (Beattie, 2000; Blanchet-Cohen & Reilly, 2013). Through this qualitative approach and insider-practitioner-led study, the researchers of this study construct and gain an understanding of teachers' experiences and gain insights as voiced by the participants themselves (Shaw & Lunt, 2018). In doing so, the researchers acknowledge their positions as insider researchers since the researchers are the tutors and also at times the teacher-educator of PGCE part-time trainees on the programme. Insider research is conducted by a researcher who has an a priori knowledge of and who is involved in the context and community within which the investigation is being carried out (Greene, 2014). This proximity with the context, the participants, and the phenomenon under study, necessitated the researchers to establish robust methodological parameters to meet several ethical considerations which are established throughout the study.

The researchers of this study paid particular attention to ensure that the voice of participants are heard and represented in the study. Researchers attempted to remain insightful throughout the research enabling themselves to be open to interrogations, discussions within the team, to negotiate areas and construct meaning in an authentic manner (Greene, 2014), thus making the research authentic and reliable. The adoption of a Participant's Information Sheet (PIS) and Consent Form (CF) were also pillars that allowed us to think through the processes involved and to simultaneously adopt a collegial approach to optimise collaboration and rapport with the participants.

Design and data collection

In line with the study's research design, the team opted to deploy semi structured interviews and focus group discussions (FGDs) to garner more depth into the participants lived experiences during the data collection phase. The FGDs enabled participants to emphasise on aspects of their experience collectively and as a community of practitioners sharing similar concerns. The interaction among participants aimed at probing further into the commonalities and divergences that existed across the teaching practice experiences of the participants. In addition to the above, field-based information and the individual teaching practice tutors' journal entries also informed researchers' approach to 'meaning making' process and reflection on the findings.

Profile of participants

PGCE programme is one of the key programmes of the institution and offered to both full time and part time (for practising educators). Experienced educators and trainees mainly following the PGCE part-time course on campus at the time were targeted. Therefore, intended participants were PGCE part-time trainees across subject areas who were in-service teachers based in public and private secondary schools across the island. As trainees of the institution, they were under the supervision of two tutors; one posted in the Education Studies Department and the other posted in their respective subject area department. An estimated sample of 90 trainees were initially contacted to participate in the study but only a few responded due to the Covid-19 pandemic. Ultimately the team had to resort to a purposive sampling strategy which led to the initial identification of 10 participants. They responded positively to two main data collection methods, namely the individual interviews and FGDs. Ethical considerations adopted for this

study included securing consent of the participants after they given the information sheet. They were reassured that the data would be treated anonymously and in all fairness. Although participants were informed that they could stop their participation any time during the data collection period, none of them signalled the intention to quit their participation.

Data analysis

The data collected from the individual interviews and FGDs were analysed with a view to identify the themes. The process of analysis was in line with the steps of thematic analysis identified by Braun and Clarke (2006), i.e., proceeding by identification, analysing and emergence of themes within the data. Data from the interviews and FGDs were analysed and led to the emergence of core themes, based on coding and classification. In line with a qualitative approach and an interpretivist paradigm, this process included considering authenticity and trustworthiness as primordial in ensuring the rigour and consistency attributed to this study (Bazeley, 2009).

Challenges for data collection

It was commonly agreed that participants would not be contacted during the Covid-19 confinement period for safety reasons. Added to that was the staggered school calendar, imposition of online learning, and a second lockdown that seriously influenced participants' priorities and availability during the period. The circumstances of the confinement and the novelty of online teaching were considered as factors that could be generating stress for the participants who were not in their best dispositions for the interviews and FGDs.

RESULTS

Thematic content analysis of the interviews and FGDs resulted in a rich and detailed account of the experiences of trainees as they journeyed through the Teaching Practice component. The main themes that emerged from the data are *bridging the gap between theory and practice; developing reflexive practice; and the empowering quality of tutor-tutee dialogue*. Furthermore, the analysis of the data also led to the identification of the complexity of the challenges that participants faced as they journeyed through the teaching practice.

Bridging the theory and practice gap

Participants contended that teaching practice enabled them to “bridge the gap” between what they studied as pedagogical concepts in theory and how to implement those in their practice. They explained that when they joined the PGCE (PT) course, they were confronted by theories that they could not always relate to or connect with in their daily experiences in the class. Some participants highlighted the complexity of the concepts that were taught in the different subject areas and education studies modules. They claimed that in the first place they found it challenging to build understanding of these topics at the time they were being taught in the professional development course and secondly, they could not always find concrete ways in which they could adopt or translate their understanding of these theoretical concepts in their teaching. Some participants who said that they had the capacity to make meaning of the

theoretical concepts and who also believed in their pedagogical value, explained that they did not however comprehend how they could adapt what they were learning to the actual contexts in which they worked. As one participant stated “...*what is being taught in our training at the institution is not necessarily applicable in a class. On paper, in theory, everything is good but when it is time to apply it in class, it is different.*”

Although they recognised the pedagogical value of what they were studying in the PGCE (PT) course, some participants shared that they felt intimidated by certain contextual constraints that appeared as obstacles to the adoption of new practices based on the theoretical concepts studied in the different modules. Participants admitted that this inability to translate theory into practice created frustration and they at times felt that what they were learning was utopian and that it was not adapted to their contextual realities. This perspective changed during the course of the third semester when they started the teaching practice. Having to plan for a class which would be visited for formative purposes by their tutors, participants felt they had no other choice but to devise a lesson that reflected the pedagogical concepts that they were recommended to implement in their teaching. Some participants shared that they were contacted by their tutors prior to the visit for a discussion on the modalities of the teaching practice and for some of them it was that meeting that gave them the confidence to speak about their anxiety and apprehension to their tutor with regards to their incapacity or doubt on the teaching practice.

In response to this, some tutors offered to discuss the lesson plan prepared by the secondary school educators and participants explained that this discussion prior to the visit gave them more insight into how some theoretical concepts could be translated into a lesson. For some participants, this exercise facilitated the adoption of theory into practice and the ability to gradually imbibe their teaching with some theoretical concepts to the feedback and guidelines that they obtained from their tutors during the pre-visit meeting. They explained that the discussion that followed the formative visit provided them with opportunities to rethink some steps in their lessons that required revision and it was this reflection on their practice that led them to explore what they had studied in class to remediate or consolidate some of their practices in view of making them pedagogically sound and appropriate for their learners.

Some participants admitted that prior to the TPC, they continued to teach the way they usually did even if that implied traditional and predominantly teacher-centred practices. However, when they knew they would be assessed by the tutor, they felt they needed to go out of their way “to obtain a pass”. Although this initiative was initially taken because of fear of failure, participants shared that it directed them to walk out of their comfort zone and experiment with concepts which they had so far seen as being theoretical only. Some participants contended that the lesson they planned for the formative and summative teaching practice were different from what they usually planned. One participant stated:

Those lesson plans which we normally do, are different from those used when the tutors come. The usual one is very brief compared to when tutors come. For the teaching practice, lesson plans are more detailed.

But they explained that experimenting with pedagogical practices they learned in their courses made them realise that they were capable of translating theory into their teaching practice in

class. This incidental realisation is seen by participants as not so random. They attributed their “risk-taking” with pedagogical concepts to the discussion that their tutor engaged with them prior to the visit but principally during the feedback sessions that followed the formative and summative teaching practice visits. The role of this dialogue was crucial for some. As one participant shared “*my tutors helped me a lot and now I feel ready to help my students. Teaching practice showed me how to use new teaching strategies.*”

Some participants recall their first steps into teaching and shared that they did not have any guidance from seniors about how to teach. One educator explained “*I’m an educator for almost 7 years and never had someone to come and teach or show me how to teach.*” Due to this lack of guidance, they admitted that they often devised their practice based on what they had seen their teachers do. They explained that embarking on the PGCE course and being confronted with theories about new ways of teaching and learning intimidated them as these were unfamiliar. Before they experienced the teaching practice, participants admitted they doubted the capacity to shift from their usual paradigm of practice to the theory-based practices studied in the modules. They contended that they are now conscious of the conditions that the teaching practice brought, and which caused them to transition from their comfortable teacher-centred and deductive practice to inductive, constructivist and learner-centred practices. The application in the teaching practice along with the dialogue with their tutors, prior, during and after the assessment of their practice paved the way for participants to reconcile what they termed as theory, and which refers to the knowledge they were exposed to in modules taught during their PGCE course and their practice in context.

There were participants who had different dispositions in terms of adopting the theoretical concepts they studied in the module in their classroom practice. The discovery of new ways of teaching based on understanding how learners learnt boosted them to transform their practice for the better. The participants who experienced teaching practice with welcoming dispositions happened to work in contexts where constraints are less and where they have administrative support. For these participants, the teaching practice was an opportunity to experiment with the theoretical concepts and adapt them to their classroom realities within the context of their professional development. Since they knew that they would be assessed for the teaching practice during the third and fourth semester of the course, they prepared themselves by implementing concepts that they were learning prior to the TPC. As opposed to the participants who were triggered by the fear of failure, these participants were motivated by the experimentation of new practices that gave them a sense of satisfaction which at the same time transformed their practice pedagogically as expressed by one participant:

During my PGCE, I realised that every student is different. Now while doing my class, I try to make everybody understand using different strategies. Little by little I apply techniques which I learned in my PGCE. I prepare my teaching aids despite time constraint since I have only one period per day.

The teaching practice appears to be a source of motivation for participants to reconcile theory with practice. Whether it is out of fear of failure or based on the intrinsic motivation they have to enhance the quality of their practice, experiencing the teaching practice can be said to have caused teachers to move out of their comfort zone and their traditional teaching to experiment

with theoretically grounded pedagogical concepts in their classes. The teaching practice was considered by the participants as a transformative experience as they learned to teach and at the same time manage the class, an aspect of teaching that participants admitted they were not always confident about. Participants indicated that through the teaching practice component, they could use different teaching strategies and pay more attention to individual differences in the classroom.

Developing a reflexive practice

The teaching practice is perceived by participants to have created a space for reflective and reflexive practice. Participants acknowledged that prior to enrolling in the PGCE course, they had not always considered reflection as an important part of their teaching. They stated that they adopted a corrective approach to their practice, readjusting ‘what did not work’ without necessarily taking the time to understand the nature of the challenges they faced and the possibilities for improvement and/or remediation. They attribute this particular attitude to the dominant view that teaching is about content delivery and assessment of this content in summative way. When then enrolled on the PGCE course, some participants realised that their role was a much more complex one and that it required them to endorse roles that went beyond ‘teaching content’; the complexity of teaching and learning appeared to some of the participants as a novelty. A few participants shared that during the process of this realisation, they walked into their classes discovering a totally different view of themselves, of their learners, and of teaching and learning.

Some participants explained that when they started realising the complexity of their roles as teachers and the multi-layered dimensions of teaching and learning, they engaged into their teaching with enhanced caution since they were becoming increasingly aware and careful about the various implications of what happened in their classroom and beyond. They attributed an important part of this self-awareness process to the teaching practice as they contend that having to prepare for and live through this component lead them to move from the doing mode to the thinking mode and to infuse this thinking about their practice back into their teaching with the view of fine-tuning and enhancing it. Participants appeared to develop reflection on their practice as from the first time they met their tutor before the first formative visits. Some participants admitted that they presented a lesson plan to their tutor, and it is upon discussion of the pedagogical value of this lesson that they were led to rethink some of the aspects of what they had planned to implement in class. That process of evaluating one’s own planning prior to implementation in class was new to some participants. Becoming aware that teaching required self-evaluation even before the class is conducted, brought some of the participants to the realisation that reflection was an important aspect in their professional growth and improvement. The value of reflection would allow them to develop practices that went beyond the realm of pedagogy and border on philosophical aspects of education. One participant realised following a discussion with her tutor that she had not thought of addressing diversity in the class and that the comment of her tutor led her to come this realisation as illustrated in the quote below:

For my first teaching practice, my tutor told me to cater for all kinds of learners; he said, ‘you need to give the chance to all students.’ I realised that every student is different. Now while doing my class, I try to make everybody understand using different strategies....”

Most participants acknowledged that the feedback mechanism involved in the teaching practice initiated them to engage in reflective practice. Engaging with their tutors after the formative and summative evaluation enabled them to reflect on their work from different perspectives and this drove them to uncover several layers that make the complexity of their practice. Participants shared that having the feedback of a critical observer in their class allowed them to see aspects of their teaching that they were not conscious of. The teaching practice tutor who is the critical observer brought to their attention details about their trainees and the ways in which they are responding to teaching that the educators themselves did not always notice. Participants received these observations as critical information that they could use to fine-tune and modify their practice. But most importantly it allowed them to identify what had been in their blind-spot and which they had not been aware of. These signposts from tutors enabled some participants to adopt a different perspective on their practice and led them to adopt a broader perspective, which in turn led to paradigmatic shifts in their practice. One participant stated that *“I was working in a school where there was low performance, I had a tendency of using a teacher-centred approach with the mindset that the students would not have any constructive thing to say.”* Following the teaching practice visit from the Education area tutor, the participant stated that she *“...was called to go beyond mastery of subject area and adopt a student-centred approach.”*

When interviewed on this, the participant explained that the feedback she obtained on the lesson did not recommend minor tweaking of the strategies or the activities. She explained that it changed the way she conceived teaching and learning and that this helped her a lot to *“... understand how teaching and learning takes place, how to prepare a class, how to implement proper strategies, and how to self-evaluate.”* Becoming aware that it is in her worldview that a change was required made her realise that the teaching practice did not only aim at making one or two lessons better but aimed at self- transformation. She became conscious that her rapport with her students in schools was determined by her worldview. This capacity to reflect on the way one perceives oneself and others (learners) and the relationship (teaching and learning) that connects them is a step towards the development of reflexivity. Some participants attributed the teaching practice and the discussion with their tutors as being critical in their professional growth. They acknowledged that the teaching practice did not target only the improvement of the technical aspects of their teaching but aimed at triggering in them the capacity to self-evaluate which in turn gave to the act of teaching and shaped their practice. This reflexive exercise is what they acknowledged triggered the professional and personal transformation targeted by the teaching practice.

The empowering quality of tutor-educator dialogue

Participants highlighted the determining value of the tutor-educator relationship. Although some participants acknowledged that they were at first anxious at the thought of a ‘stranger’ in their class who had come to assess them, many of them realised after their first meeting with the tutor that they did not need to ‘fear’ the tutor. This shift in perception and emotional disposition was due to the approach that the tutor adopted in the first meeting and also in the feedback sessions that they conducted with the educators.

Participants who had positive experiences with their tutors explained that the reassuring nature of their exchanges made them redefine their understanding of the teaching practice as well as their

understanding of the roles of their tutor. They understood that alongside the role of an assessor, the tutors were also critical observers whose role was to bring to the attention of the students, aspects of their practice that worked well and also areas which required reconsideration and improvement. They discovered that the tutor was here to think with them of the possible ways in which these actions could be taken. Some participants contended that their anxiety level decreased considerable when they understood the role of their tutor and the kind of professional relationship that could be weaved between them and their tutors. Participants understood that the tutor would still be their assessor, but this no longer intimidated them as they felt supported by all the other roles that the tutor would accomplish throughout the teaching practice. The misconception or assumption of the educators led them to think that the tutor had an assertive role over them because s/he was the assessor. But they were brought to understand that the power that the relationship between them and the tutor was shared. They understood that the space that they would share with the tutor during the teaching practice was a democratic one in which they could engage into ‘dialogue’.

Participants shared that it was because some tutors took the time to understand the context of the educators, they felt they could express their fears about the implementation of certain pedagogical concepts. The response of some tutors was to acknowledge the challenges that impeded on the implementation of pedagogy-driven practices. This was interpreted by the participants as a sign of respect by the tutor. Feeling understood and respected by the tutor therefore gave the participants the impression of being in a democratic and fair dialogue with the tutor. The dialogical rapport they built with their tutor helped them construct their experience of the teaching practice with increased confidence. They knew that they were not being judged and this gave them the self-assurance they needed to adopt authentic practices when their tutor came for the formative and summative visits. Participants added that it was because tutors were authentic and genuine in their approach and feedback that they valued the teaching practice. The authenticity and veracity of the tutor-educator rapport convinced them of the importance of the teaching practice in their PGCE (PT) course. They highlighted that this type of rapport gave them reason to consider the feedback of tutors in view of improving the quality of their practice. They admitted that if they would have had the impression that the tutors were not genuinely and intrinsically involved in the teaching practice, they would not have adopted the feedback provided by their tutors.

Teaching practice component: a journey of negotiation

School context based

Some of the challenges evoked by participants are the constraints participants faced during the teaching practice exercise. These include school context related challenges such as timetabling and access to school infrastructure. Participants indicated that their schools were badly equipped, and it was challenging for them to plan a lesson with the standards required for the teaching practice component. It generated a lot of stress for them to make required arrangements for the teaching practice visits. Some participants explained that they needed to buy material needed for the teaching practice from their own means. One participant for instance deplored the unavailability of a proper classroom to conduct classes and explained that each time he had to wait for an empty space to work with his students.

Assessment-related anxiety

Some participants expressed anxiety related to assessment. They deplored that at the start of programme, the information around this component was communicated in an approximate manner and they contended that a more collegial approach could have helped to dissipate the tensions they felt with regards to teaching practice. Some participants initially conceptualised the process as an ‘*Inspector’s visit*’. Others reported they knew that teaching practice was an assessed component of the PGCE course, but worried about the mechanisms of the component. They evoked that they did not have a clear idea of how it would happen until much later when they met their tutor. Some participants explained that some tutors did not meet them prior to the visit, which implied that they met their tutor for the first time on the day the tutor came to their school and class for the formative assessment of their teaching practice. Participants who experienced this shared their anxiety and their feeling of being lost as per what was being expected of them. Teaching in front of a stranger and not having clearly understood what was expected of them was not a constructive experience. Participants who had undergone this experience explained that colleagues working in their schools and who had followed the PGCE (PT) course before had depicted the teaching practice in negative terms and had described the visit of the tutor as being a bad experience in which “...*they (tutor) will enter your class, they will observe, and they will assess you.*” Participants explained that these school-based rumours amplified their anxiety related to the assessed part of the component. This anxiety forced most participants to rehearse class beforehand, use detailed lesson plans which are not usually used in their daily class, and adopt a more formal approach by making extensive use of teaching aids on purpose. They also stated that the visits altered their usual classroom practices. Similar experiences were also expressed in Ngidi and Sibaya (2003) and Caires, Almeida, Vieira, and Caires (2012) studies indicating increased weariness and anxiety levels due to factors related to the teaching practice evaluation and related requirements.

Lesson plan

The participants reported that they are not required to prepare a detailed lesson plan at school as taught in their training institute. Most of them indicated that in schools “...*we have a small journal that we fill in and to which the rector will verify. We do not really have to prepare for lesson plans.*” However, during teaching practice the participants explained that “[*t*]hose lesson plans which we normally do, are different from those used when the tutors come. The usual one is very brief compared to when tutors come. For the teaching practice, lesson plans are more detailed.” Those who do write detailed lesson plans indicated it as being “*tedious, stressful and time consuming.*”

Different views were shared concerning lesson plans; some reported that different chapters are explained differently and cannot be incorporated rigidly in a lesson plan. As one participant explained

For the teaching practice as well, here (at the teacher training institution) we have learned that you should do it per minute. It is not like that. Every day is different. After my tutor’s visit, I told her that this did not work, and she agreed. Different chapters are explained differently. I will add additional stress on me if I time myself during the teaching practice.

The above is an example where the anxiety level of participants increases from a key requirement of the teaching practice component. Talking about these through feedback mechanisms help (Brandt, 2008) but are clearly inadequate if not sustained through a more rigorous process that could be enabled by a community of practice (Wenger-Trayner & Wenger-Trayner, 2015) for instance.

Tutors' attitude and feedback

The attitude of the tutor was seen as being a key element in the learning gained from teaching practice. Generally, participants appreciated the visits of both tutors from the subject area and Education area tutor. However, some were more anxious about the visits from their subject area tutor and indicated challenging experiences from both. As one participant shared

In teaching practice, we have tutors coming from education department and from the subject area as well. Sometimes we have a pleasant experience with the tutor from education department, but it is not the same for the subject area. Tutors from subject area, they tend to be aggressive.

Participants spoke about how the approach and behaviour of some tutors can be discouraging. They wished that more professionalism in their feedback given to adult educators could be demonstrated and show more understanding of the context in which they work resulting in incidences of stress, sickness, and embarrassing situations. According to one participant.

One trainee teacher felt sick because of a tutor. The trainee teacher was so stressed. The tutor came at 9h35 and the class was supposed to start at 9h05. The tutor obliged her to find somewhere to park her car...[and]...to do her teaching practice in her subject area [even] while she does not teach this subject anymore. The feedback was not good at all. The girl was totally broken.

Some viewed the feedback from both tutors to be mutually complementary and constructive. One participant discussed a moment in which both tutors from education and subject area came at the same time, and the different feedback received from both tutors.

One was positive and one very negative. After visit of both tutors, I try to implement what they have said, because they already know how we are conducting our class and our area of concern. I will try to do better next time they come.

Participants indicated they would feel more at ease if some tutors would take into consideration their years of experience and be less aggressive in their feedback. Participants also reported that they were not given information on assessment criteria. As one participant stated, “*it is only when they came for the first visit, that we got to know how it would be going and what they are expecting us to do.*” This unknown/surprise added to student-teachers' anxiety.

DISCUSSION AND CONCLUSION

The aim of this study was to explore teacher trainees' experiences in the Teaching practice component in the context of their PGCE (PT) course. The qualitative findings of this study, conducted through interviews and focus group discussions revealed three themes namely *bridging the gap between theory and practice; developing reflexive practice; and teaching practice as a journey of negotiation*. The experiences revealed participants' attempts to bridge the gap between theory and practice through internal and reflexive dialogues prior to transformation. These experiences were varied, iterative and complex requiring participants to overcome the challenges related to the organisation of the teaching practice or negotiating the dissonances between tutors as well as overcoming their own prejudices about teaching practice. Stakeholders need to ensure that participants benefit from professional support during their field-based journey (Zhao & Zhang, 2017).

The findings also revealed the extent at which participants felt that the teaching practice component empowered them in their professional journey to become a 'trained teacher'. This process is iterative and characterised by several internally negotiable processes prior to transformation. Reflexivity required them to be involved in self-analysis as if they were being analysed through a looking glass. The process of negotiation and feedback allowed for criticality, self-analysis, experimentation, risk taking thus creating space for new experiences and transformed/new practices. This journey was found to also be characterised by contextual challenges enabled by factors such as the professional support or the tutor factor (Maseko, 2022). The tutors here become the key to triggering reflexive debates through feedback mechanisms in built within the teaching practice component. These act as internal processors which then empower participants to think back, think ahead, and reflect on and around their novel practices. However, despite the challenges, participants agreed that the teaching practice component is a uniquely empowering exercise which is key to their practice.

Discussion and Implications for Teacher Education

The findings centre around three concepts namely reflexivity, professional support and community of practice. Based on participants' perspectives and experiences against the theoretical lens, this study posits a contribution towards the making of a model of COP in practice. Firstly, reflexive practice is a complex exercise requiring participants to go through a series of exercises including a personal in-depth reflection about teaching and learning as participants critically described the importance of challenges and gains they had to grapple with in making this journey meaningful for them. It indicates that the theoretical and practical journey in search of identity is embedded in a series of personal reflections which demands understanding and support. This is in line with Insuasty and Castillio (2020) who concur that the barriers in teaching practice can be stressful and with Larivee's (2000) emphasis on the need for teachers to move beyond the knowledge base and modify their approaches to invent new strategies. The necessity to compromise the barriers with the potential gains then becomes key to creating a deeper awareness for self-reflection and self-regulation and identity formation (Zao and Zhang, 2017).

The understanding of self is therefore key. It is dependent on the bond that exists between the tutor and tutee as well as stakeholders in schools. The professional support required becomes a centre for action or improvement; participants' experiences with the mechanisms involved in teaching practice such as lesson planning, class visits and feedback are key to professional practice. This view is shared by Maseko (2022) who emphasized that the absence of mentors leave the students with little opportunity for growth. The findings illustrated participants' perspectives on the importance of professional support given to them during the teaching practice journey. They value the communicative approaches and transparency leading to an understanding of shared power that decreases evaluation anxiety and promotes a dialogical rapport, hence the importance of tutor feedback and interaction for improving teaching and learning (Mtika, 2011). It however raises points to ponder on what kind of professional support is then required for this exercise. While this study indicated participants favoured one that builds self-confidence they also expressed the need for some kind 'comfort zone' where they would be able to build rapport and negotiate the journey.

With regards to professional support and feedback mechanisms, the findings indicated tutors' dispositions and engagement with the tutees are key to allowing professional growth. A better understanding of how participants conceived the modality they deployed to facilitate the teaching practice visits was found. This, however, is not devoid of elements of subjectivity and calls for a reflection on the ways teachers construct their learning trajectory in the light of 'reflexivity' and begin to initiate their own critical transformative dialogue (Daniel, Auhl, & Hastings, 2013). The element of subjectivity indicated by participants points to the need to review the professional support mechanisms or feedback meant to help teachers think critically about lessons and praxis (Akcan & Tatar, 2010). For this to happen effectively, Brandt's view (2008) on the dissonances that can exist among tutors has to be addressed. Further as emphasized by Maher & Fitzgerald (2020), emphasis should also be placed on institutional support to ensure that the demands and needs of student/teacher population are met.

The study demonstrated that participants engage in slow transformation, reflection on practice, and demand better, open practice. This practice needs to be sieved from evaluation anxiety or undue stress to promote a more collegial and harmonized approach. Partners such as school administration, academics and colleagues clearly play a key role in enabling the 'support system' that would be characterized by critical constant, deep dialogues on pedagogy, illustration of non-assessed transformation, formative feedback, engagement and professional support through mutual respect and collegiality. Reflexivity, then, becomes the outcome of a series of co-constructed events which can favour transformation. Reflexivity thus entails, introspection and retrospection; this process is key for teachers to engage in their professional routes and overcome anxiety through professional dialogues. However, as in the case of pre-service teachers (Allsopp, Demarie, McHatton, & Doone, 2006), and here in the case of in-service teachers, also, it still remains difficult to reconcile the gap between theory and practice although teachers did indicate change towards transformation in practice.

What is proposed therefore is a fresh perspective on a new COP to support teachers' professional growth in the context of field-based work or teaching practice. It becomes important to recognise the importance of adequate information at the start of the programme and ensure a constant support mechanism for teaching practice to avoid evaluation anxiety (Matoti & Lekhu, 2016).

This is possible through a platform based on a model of COP that would obviate more authentic, less rehearsed, and normalized feedback based field-practice as compared to a staged activity for the purpose of being assessed (e.g school visits as assessment). Based on the studies by Maseko (2022), Zhao and Zhang (2017) and in line with Wenger-Trayner (2015), this COP could instead be characterized by a shared passion for teaching and not ‘staging’ for assessment. The demands of students could be attended to with more rigour (Maher & Fitzgerald, 2020). It would reflect the collaborative collegial reflections necessary for engagement, belongingness and reflect a real partnership between secondary schools and teacher education/training organisation. The process within this COP would necessitate a revision of ways in which processes and procedures could be deployed to teachers including those related to instructional planning as these are conceptualized in the minds of students and by school administrators. This would address one key dissonance between training organisation and schools and help address the challenge between theory and practice.

In the light of the above, we therefore propose a COP that embeds school partners in a more active process. This would involve not only the main partners such as tutors and tutees but would obviate and define clear roles for partners such as school based mentors, school leaders as well as processes involved. This view is also supported by Zhao and Zhang (2017) in revealing the valued support of tutors who play a key role in shaping identities of participants during field based practice. This also means the resources and procedures should be more spelt out, and continuous professional dialogue to bridge the gap between theory and practice should be further discussed at institutional level to minimise the doubts and concerns of tutees. A collaboration that is clearly defined and practiced is therefore key. The feedback mechanisms should also be clearly inbuilt in the PGCE (PT) course to enable tutees and tutors to talk about and talk through the processes. This would favour the conditions for a COP characterised by multi-sectorial partnership.

CONCLUSION

Through this study, the authentic and varied experiences of participants who completed the teaching practice were presented. Teachers’ conceptualisation and experiences of teaching practice are characterized by opportunities, apprehensions, anxiety among others and reflect the views of Caires et al. (2012) on the weariness and vulnerability of students in this process. The study offered a lens related to reflexivity, community of practice, and professional support. While the growth and transformation demonstrated through the teaching practice indicate how teachers can learn to negotiate their identity through authentic experiences, they also demonstrated the challenges which require attention. These prompt for a fresh way to conceptualise COP to allow for a better planned professional support mechanism that would combine areas of concerns for educators but also avenues for growth that would involve parties. It is possible to establish reflection in critical transforming dialogue circles around these modalities through the establishment of communities of practice and tutor-tutee support (Wenger-Trayner & Wenger-Trayner, 2015; Zao & Zhang, 2017) which are institutionally, and school based. These would reinforce engagement, professional growth, reflexivity and create a terrain for dialogue, collaboration, and transformation.

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