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Editorial

Dolina Dowling

Community engagement is the third core function of higher education, yet it is often viewed as the poor relation. Research and teaching and learning have first call on resources. This is hardly surprising in that the *raison d'être* of a university is knowledge production and knowledge transfer. Teaching and learning that is underpinned by quality research is highly prized in the academy. Publishing in academic journals, impactful research that influences policy, patenting, and spin-off companies are the stars of the show. Blue skies research is also held in high esteem as it can push forwards the frontiers of knowledge, and practical applications often follow. It is through delivering programmes and awarding degrees that the next generation of academics deepen their knowledge and acquire the methodological tools to conduct meaningful research. This contributes to the socioeconomic development and growth of a country.

Where, then, does this leave community engagement in the academy? Often, it is relegated to outlier status; something adrift from the academic enterprise. In many vision and mission statements, it is an add-on, something that the higher education institution (HEI) does to make a contribution to the society in which it is located and to encourage active citizenship in its students. These are not to be decried. Numerous reports from international organisations, such as the World Bank and the Organization for Economic Development (OECD), have highlighted that for a country's development to be sustainable, there needs to be a quality higher education system that educates the youth both for an active citizenry and the world of work, whether that be as an employee or an entrepreneur. Nevertheless, consideration should be given to how community engagement can be integrated into the other core functions of the HEI to broaden and enhance student learning. This depends largely on how community engagement is conceptualised.

It is, of course, up to the HEI to decide for itself what community engagement means in the light of its vision and mission, programme qualification mix, pedagogical approach and resources. Furthermore, the way that faculties and departments organise community engagement will depend on their respective disciplines but none of this detracts from the need to integrate this function with the others. In the context of COVID-19 pandemic, social distancing and other restrictions mean that creativity is needed in community engagement activities as in the other core functions.

It is refreshing that in this second volume of the 15th edition of the journal the first article reports not only on a community engagement project at a university but also on how it contributes to teaching and learning in addition to social responsibility. This is done through a study conducted on volunteerism. The author suggests that other ways be investigated to use community engagement as learning spaces.

The following article deals with feedback provided to students from two sources: i.e. the tutor and peers. It further considers how feedback is used by its recipients. Rather unsurprisingly, it was found that students accepted tutor feedback uncritically in contrast with that provided by their peers. The latter, the authors argue, leads to self-regulated learning.

In the next two articles, foreign language teaching is dealt with, albeit from two different perspectives and different levels. The first is concerned with the issue of the non-contextualised textbooks used to teach German as a foreign language in a first-year university course. The second is a study on the extent to which teacher/student interaction aligns with the principles of English second language teaching in practice in a Pakistani school.

The next five articles consider various facets of teaching and support in schools. The first is a study of the challenges facing South African school teachers. This is followed by an article which provides evidence regarding the need for teacher-noticing, in the non-trivial sense, for optimal learning to take place. What enables and constrains teachers in science teaching using ICT tools is the topic of the next article. This is followed by research that provides a framework for the development and improvement of computational thinking in a high school with recommendations for its successful implementation. The last article in this cluster considers the strategies used by peer-led groups in providing psychosocial support in schools and recommends that this support be part of the school curriculum with an appropriate budget provided.

In the Practitioners' Corner, the authors conducted an investigation into the use of art in a female rehabilitation centre. They found that art enabled them to develop *inter alia* their creativity and personal growth. The positive influence this has on female offenders suggests that the appointment of creative art professionals would be beneficial for both the offenders and the smooth running of the centre.

Lastly, the Doctoral Corner comprises abstracts of recently awarded doctoral degrees. The publication of abstracts alerts researchers and practitioners to new research in their areas of interest.

Student volunteer experiences as a way to advance teaching and learning: a call for community service¹

Raisuyah Bhagwan, Durban University of Technology, South Africa

ABSTRACT

This paper makes a case to advance community service through teaching and learning at higher education institutions in South Africa. In particular, it highlights the benefits of student volunteerism as one pathway to engagement and promotion of social responsibility amongst students. The data are drawn from a qualitative, exploratory study undertaken with a sample of 14 students at Durban University of Technology, who participated in volunteering at different community organisations and schools during their undergraduate studies. The study found that students benefitted from this experience and believed that the university had a salient role to play in community engagement. The article concludes with an argument for academics to reconsider communities as learning spaces and to begin to advance community engagement in other ways through teaching.

Keywords: volunteerism, community, engagement, university students

INTRODUCTION

It was Ernest Boyer who urged higher education institutions 'to serve a larger purpose' (1996: 22). Despite this, most universities have been slow to interweave teaching and research with community engagement (CE) (Bowers, 2018), thereby failing to pursue the institutional change required to align the core functions of higher education (HE) with the central premise of engagement (Bhagwan, 2017a). CE can occur through various teaching and learning initiatives such as service learning, community-based research, community outreach and student volunteerism (Driscoll, 2008; Jacob et al., 2015; Bradshaw, 2016). These initiatives are designed to enable students to develop a greater sense of social responsibility and help students to become more knowledgeable and active citizens of society (Bartkowiak-Theron & Anderson, 2014; Lozano et al., 2017). Community engagement activities integrate thought, action, reason and emotion with life by connecting student experiences with communities that interact with the university context (Saltmarsh & Zlotkowski, 2011). Volunteering is one such activity that has been used to support the learning experiences of students abroad (Simha, Topuzova & Albert, 2011).

In South Africa, it was the Department of Education and Training that called for the transformation of HE, arguing that it should serve a new social order by responding to pressing societal needs locally

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(Department of Education, 1997). Prior to this notion, relationships between universities and society through student volunteerism and community activities received little attention (Thomson et al., 2008). The emergence of the Community Higher Education Service Partnership (CHESP) in 1999 further served to embed community engagement within the South African tertiary educational landscape (Lazarus et al., 2008). These previous initiatives served to advance scholarly work and a number of community-university partnerships as evidenced within the literature in the past five years in South Africa (Wood, 2016, Bhagwan, 2017b; Machimana, Sefotho & Ebersohn, 2018; Govender, 2018). This paper adds to this body of scholarly work by reflecting on the experiences of student volunteers and their views on the role of universities in communities.

LITERATURE REVIEW

Community Engagement

Globally, community engagement is defined as the university's use of 'knowledge and resources, to enrich scholarship, research, and creative activity; enhance curriculum, teaching and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good' (The Carnegie Foundation for the Advancement of Teaching, 2013 cited in Silva, White & Toch, 2015: 33). Similarly, Engagement Australia describes community engagement as a mutually beneficial exchange of knowledge and skills between universities and their multiple communities. This is a process whereby universities acknowledge community values, culture, knowledge and skills, and support the integration of engagement into learning and research activities that are socially inclusive and managed in partnership with communities so that engaged citizens, including students and graduates, are developed (Bartkowiak-Theron & Anderson, 2014). Winter, Wiseman and Muirhead (2006) noted that CE through teaching and learning can assume multiple forms of student placement, projects or workplace internships. This was in line with a call made by Newman (1985), whilst at the Carnegie Foundation for the Advancement of Teaching, who asserted that 'the most critical demand is to restore to HE its original purpose of preparing graduates for a life of involved and committed citizenship... the advancement of civic learning' should therefore become HE's central goal (Prentice 2011: 842).

The study was accordingly guided by Ernest Boyer's 'Scholarship of Engagement' (Zlotowski, 2011) which incorporated the scholarships of discovery, integration, application and teaching to address social, civic and ethical problems. This influenced the scholarship of teaching and learning, which focused on community service as the core of HE institutions. Musil (2003) argued, within the context of Boyers model, for a civic leaning framework which emphasises the need not only for disciplinary competence, but civic awareness and purpose. Saltmarsh (2011: 32) added that 'civic learning illuminates the socially responsive aspects of disciplinary knowledge, those dimensions that expand the view of education to include learning and developing the... values of citizenship'.

In South Africa, the Centre for Higher Education Transformation also stated that community engagement is a systematic relationship between HE institutions that is 'characterised by mutually beneficial interaction in the sense that it enriches learning, teaching and research and simultaneously addresses societal problems, issues and challenges' (Centre for Higher Education Transformation CHET, 2003: 4). HE institutions should therefore become participants in a highly complex learning society where discovery, learning and engagement are integrated activities that include different sources of knowledge generated in diverse settings (Holland 2005).

Towards a new way of teaching and learning

The task of academics to include engagement activities into instructional practices, in order to enhance student learning, is embedded in the notion of the scholarship of teaching and learning (Ciccone &

Meyers, 2006). Good teaching and deep learning are predicated on active learning, which cannot draw exclusively on cognitive development, but should also include affective experiences. In other words, teaching and learning should place education within students' 'lived experience' (Zlotkowski, 2011: 123). Equally salient is the importance of contextualising teaching within a set of urgent contemporary issues. Hence, whilst it is important to master disciplinary content, the ability to develop within students a sense of agency in addressing real-world problems is an important part of the scholarship of teaching and learning. HE has lost its relevance to contemporary society, and in order to re-establish its relevance, it will have to recognise that in addition to 'foundational' and professional knowledge, it has to create and disseminate socially responsive knowledge. This means we can 'no longer perform our teaching role without paying close attention to the impact of that role on the communities that surround us' (Gardner, 2011: 143). According to Gardner (2011), community service enables students to gain a better understanding of themselves and their involvement in that community, become more aware of issues in the community and develop a sense of responsibility in terms of addressing these issues and become more aware of diverse communities and engage their preconceived notions regarding diversity. The volunteerism project within the context of this study had these goals. According to Bringle and Clayton (2012), civic learning occurs through volunteer opportunities, as students acquire knowledge related to the complexity of issues in society and understand ways to contribute to communities and society. He added that these experiences teach students communication and listening skills, the importance of and ability to work with others from diverse backgrounds, and sensitivity towards diversity in a pluralistic society.

Student volunteerism

Student volunteering coincides then with a greater emphasis on the democratic and public purposes of higher education, in cultivating undergraduate personal and social responsibility (Reason & Hemer, 2015; Saltmarsh & Hartley, 2011). Globally, millions of people dedicate themselves to providing help to people and groups in need, by way of social support, physical assistance, organising and advising, or acting on behalf of causes or movements. Universities in particular have a large potential of student volunteers at their disposal (Van den Berg, Cuskelly & Auld, 2015). These volunteers can provide crucial help at schools, clinics, animal shelters and various other community organizations (Stukas, Snyder & Clary, 2016). Service learning (SL), which has been a popular pedagogical tool to advance learning and community service differs slightly from volunteerism (Domegan & Bringle 2010; Waterman, 2014). SL is a course-based, credit-bearing, educational experience in which students participate in an organised community service activity that fulfils identified community needs. Students have to reflect on the service activity to gain a deeper understanding of course content. Volunteerism differs from SL in that it is not credit bearing but, like SL, can enable a deeper appreciation of the discipline and an enhanced sense of civic responsibility (Bringle & Hatcher, 1995; Kogan & Kellaway, 2004). It can be regarded as a community service activity that supports community engagement by virtue, and that is linked to care, citizenship and social responsibility.

Student volunteerism is a distinct form of volunteerism in that it occurs within the structure of universities. This structure provides for two types of volunteering, i.e. (i) volunteer-driven, student-led societies and (ii) off-campus volunteering in partnership with community organisations (MacNeela & Gannon, 2014). Student societies catalyse change at universities and actively pursue a 'cause in a domain such as culture, politics, or social action' (MacNeela & Gannon, 2014: 410). Recently, short-term, episodic volunteer day-long events have been effective to support graduate involvement in the community. A 'Day of Service' involves students engaging in any form of voluntary service activity, in any community organisation or context; hence, internationally a 'Day of Service' approach has been used as a co-curricular strategy to involve students in short-term volunteer experiences (Hahn et al, 2015: 2). Episodic volunteering is a newly recognised form of volunteering and has been described as a specific 'short-term task with clearly defined boundaries and responsibilities for the volunteer' (Hahn et al, 2015: 2).

Service-oriented functions, which encompass volunteer activities, include hospital services and immediate services such as providing food and accommodation for the homeless. Other ways to classify volunteer functions are those who help or serve the elderly, underprivileged children, disadvantaged women or other special populations such as ethnic minorities or persons with disabilities (Demir, Khanna & Bowling, 2015). The current paper focuses on episodic volunteering, amongst a group of undergraduate, Child and Youth Care students at Durban University of Technology, with similar populations to the ones listed before.

Volunteers in the university context are a significantly under-researched population (Holdsworth & Quinn, 2010; Gage & Thapa, 2012; Williamson et al. 2018; Haski-Leventhal et al., 2020). There have been several studies, however, that provide evidence that volunteer activities have a number of benefits for undergraduate students (Stroup et al., 2015; Haski-Leventhal et al., 2020). The National Survey of Student Engagement (Prokess & McDaniel, 2011) in the US found that students involved in community volunteer activities derived greater levels of personal development as compared with those who were not involved in community activities. Specific benefits reflected life skills development, political and social awareness, and a greater sense of civic responsibility amongst students (Colby et al., 2000; Seider, Rabonowicz & Gilmor, 2010). Research also revealed that the pro-social actions of volunteers not only benefitted volunteers but communities as well (Snyder, Omoto & Dwyer, 2016). CE also helps students develop and nurture institutional and individual relationships with community organisations, activists and local community members (Thomson et al., 2008). Scholars have emphasised the social and transformatory potential of volunteering, since it enhances opportunities for skills development and the development of employability profiles, whilst contributing to social good (Holdsworth & Brewis, 2014: 2).

In South Africa, research on student volunteerism is sparse, except for a few scholarly articles (Perold, Caraphina & Mohamed 2006; Surujlal & Dhurup; 2008; Van den Berg & Cuskelly, 2014; Joseph, 2016). Understanding the experiences of university students as episodic volunteers will add to this area of study and strengthen the scholarly work needed to advance community engagement in HE in South Africa.

PROJECT OVERVIEW

The current study was linked to an NRF Research Project on community engagement, which sought to understand how community engagement was conceptualised, theorised and implemented at HE institutions in South Africa. It was part of one of the investigations that fell under the broad umbrella of community engagement within the NRF Project. The ethics number for this project is IREC 088/15 Project.

Although the NRF Project ran from 2015 to 2018, data for the present study were collected in 2018. Fourteen Bachelor of Technology students, who were registered for the Applied Development subject from the Child and Youth Care Program, DUT were recruited to participate in this study. This was after they had been engaging in voluntary work during that year.

Students were free to decide where they wanted to volunteer as well as the nature of their voluntary work and if they wanted to continue after their studies. They engaged in activities at the following organisations: Live Village and Little Hearts pre-Primary School, Aryan Benevolent Home, Child Welfare in Chatsworth, Masisukumeni Women's Crisis Centre, Tholuwazi Community Centre, Isibindi Child Care Centre (Kwa Dukuza), Sinozwelo Resource Centre, Luthuli High school in Port Shepstone. Much of the voluntary work centred on care for disadvantaged children, orphans, women, the elderly and those physically challenged. Their activities focused on fundraising, initiating food gardens in communities affiliated with these organisations and initiating of social or recreational programs for those at these organisations or in communities affiliated with them. Child and Youth Care, the Degree for which the students were registered, has as its focus the care, upliftment and empowerment of needy children, youth and their families. Hence,

their choice of the aforementioned organisations inevitably created exposure to situations linked to their professional preparedness as child and youth care workers.

METHODOLOGY

Qualitative research methodology was used to guide this study. The data were collected using both semi-structured interviews and a focus group discussion with BTech students (N=14) from the Child and Youth Care Program. Interviews were between an hour and an hour and a half, whilst the focus group discussion was for approximately an hour and a half. The interviews and focus group discussion were conducted by the Principal Investigator of the NRF Project, who is also a qualified social service professional. She was assisted during the focus group discussion by a qualified Child and Youth Care Practitioner, who is pursuing a postgraduate study on student volunteerism. In accordance with DUT ethics protocols, students were assured of their anonymity in terms of participating in the study and all participation was done voluntarily.

The research questions focused on how students conceptualised voluntary work, what values they had used to guide voluntary work, and how they and the communities in which they volunteered had benefitted from the volunteer experience. Transcripts from both the interviews and focus group discussions served to form a rich understanding of the students' volunteer experiences. The researcher was able to distil several themes for discussion from the participants' responses. These themes emerged from subjecting the data to thematic analysis as outlined by Terry et al. (2017). The analysis followed the following phases:

- Phase 1: Each transcript and the data from the interviews and focus group discussions were read and re-read carefully to obtain an understanding of the participants' views.
- Phase 2: The researcher generated labels to link the data to the research questions so that the data could be coded.
- Phase 3: The data and codes were examined. Broad patterns were identified, and notes were made during transcription, which translated into themes.
- Phase 4: The themes were reviewed against the dataset to determine if they tell the story of the data and if they answered the research questions. This enabled the researcher to identify patterns and check if they reflected the meanings in relation to the data.
- Phase 5: A detailed analysis was done for each theme and each theme was given a name. This was done to further refine the themes.
- Phase 6: The researcher interpreted the data and their meanings and contextualised the analysis in relation to the existing literature.

Following the analysis, member checking with the participants was undertaken to ensure that the analysis corresponded with their responses during the interviews and focus group discussion (Birt et al., 2016). This was to ensure trustworthiness.

Ethical Considerations

The researcher followed the ethical principles of anonymity and confidentiality, and informed consent. All participants were assured that their identities would be kept anonymous and that their responses would not be used without their prior consent (Arifin, 2018). No coercion was used in the recruitment of participants and they were informed that they were free to withdraw at any stage of the study. The study was granted ethical clearance by the institution's research ethics committee (IREC 088/15).

DISCUSSION OF FINDINGS

Theme 1: Understanding volunteerism

Volunteerism is to do something good for others, example children, the less fortunate and elderly people. It is something that is not forced but comes from within, meaning that one must do it wholeheartedly.

Volunteerism is offering your services for free to a person [it] is unpaid for.

It is basically doing things like doing things for other people that will benefit them with no intention of getting something in return.

It is helping out a person or people without expecting anything back or monetary value.

The students' concept of volunteerism, as illustrated by the quotations, mirror volunteerism findings as being non-compulsory, unpaid, externally oriented, formal activities taking place inside and outside the university setting. Demir, Khanna and Bowling (2015: 104) categorised it into four ways, namely: mutual aid or self-help, philanthropy or service to others, civic participation, and advocacy or campaigning. According to Penner (2004), volunteerism is non-obligatory helping or altruism, which is the act of helping another without expecting any reward (Hussin & Arshad, 2012).

The literature illustrates both the benefits of volunteerism for students and grounds notions in the data that volunteerism is very much a selfless activity. Horn (2012) wrote that students showed an increase in prosocial value orientation after engaging in community service for humanitarian organisations only when they were not explicitly pressured to do so. The ideal of active citizenship assumes then that volunteering is a choice, and the selfless volunteer who contributes to their communities is valued not just on the basis of his/her unique contribution, but because their contribution is given willingly without compulsion (Holdsworth & Brewis, 2014).

Theme 2: Values guiding volunteer work

Be accountable for whatever happens in the organisation for the work that you're doing.

Have compassion when you're doing it, do it whole heartedly.

Whenever you are going out there to volunteer, you must respect diversity of the people you're going to be working with.

You're going to meet people who have illnesses such as HIV and tuberculosis and we need to not make them feel as though they are different and distance ourselves.

I think maybe conscientise yourself with the cultural community because in that way you would know exactly what to expect and what not to expect and then you would know some little principles around culture.

As evidenced in the quotations above, respect for human diversity, empathy and being accountable were the crucial values underpinning volunteer work. Of significance was the fact that these values were similar to those underpinning child and youth care work in South Africa; hence, the volunteer experience to some degree exposed students to working with similar populations as those in their field. This was important as it strengthened professional preparedness to work without prejudice and discrimination and to demonstrate

empathy and care which are key attributes of child and youth care practice. Saltmarsh (cited in Battistoni & Longo, 2012) defined a set of civic learning outcomes for students as being based on three elements, namely: (i) civic knowledge, (ii) civic skills and (iii) civic values. The civic values acquired as evident in the data affirms the potential learning outcomes for students engaged in service activities such as volunteerism.

Scholars have concurred saying that the first function that volunteering serves is to allow people to express humanitarian values (Veludo-de-Oliveira et al., 2015). Empathy was also found to be related to one's willingness to become involved in volunteer activities (Atkins, Hart & Donnelly, 2005). This notion was evidenced amongst students who argued for compassion and empathy when working with disadvantaged communities, which was reflected in the data. Azuero et al. (2014) asserted that students who volunteer also gain in aspects related to racial concerns and tolerance, a commitment to disadvantaged communities, leadership abilities and social values. To this end, Butin (2003: 1677) states 'those doing the serving should be respectful of the circumstances, outlooks, and ways of life of those being served'. In the same vein, Banks and Butcher (2013) argued for the importance of respecting diverse individuals and communities and counteracting any form of discrimination and oppressive attitudes and actions during interactions with community members.

Theme 3: Learning from the community

It should be a mutual process because either way, both the community and the institution as well as the students, are all benefitting from it.

Especially in the area that I was working in its deep rural so if we are going out to a certain place and you need to find out things from the chief of that place.

It actually taught me the simple basics of life which I didn't know how to do, like going out in the garden and actually learning about cultivating crops, watering them, it's something that you/I didn't learn in a degree.

Because what I also found there the people might not have degrees and diplomas but they've got a lot of experience, experience that you don't learn when you go to university, something that you have to experience for so many years in order to have that particular skill or that way of dealing with things.

I think like the university isolates us from the community. So when we go back we feel like we are better, but I'm isolated from my community like 3-4 years and then when I go back I cannot interact.

I was able to grasp what the community values are. I might not have had all the knowledge and I might have a DUT qualification, I didn't know much about the rural area but I was there and also learnt from them.

What we learn here is something that can actually be taken out to our communities and what we learn there, is something we can carry with us into the institutions.

You need to be teachable.

A very important theme that emerged was the awareness that the community was a rich learning space and that students could derive knowledge from their interactions in the community. The students opined that the learning within the community was more empowering and beneficial than the knowledge gained at university. It was Ramaley (2002: 14) who noted that 'university outreach can change society and outreach

can change the university', the mutuality of this transformation being the core process of engagement. Students' affirmation of the community as a learning space filled with contextually relevant knowledge is aligned with Weerts and Sandmann's (2008: 77) argument that challenged traditional notions which held that knowledge was only found, produced and distributed within the confines of the university.

Engagement then locates the university within an ecosystem of knowledge production, requiring interaction with other knowledge producers outside the university for the creation of new problem-solving knowledge through a multidirectional flow of knowledge and expertise. In this paradigm, there are richer opportunities to learn cooperative and creative problem-solving behaviours within learning environments in which faculty, students and community members deliberate on issues and learn together (Saltmarsh & Hartley, 2011: 21).

One of the crucial functions of volunteering is its ability to promote new learning experiences and to gain a better understanding of the world, society, different cultural contexts and the self (Veludo-de-Oliveira, Pallister & Foxall, 2015). This was evidenced in the excerpts above. Scholars have suggested that some of the reasons people perform voluntary service include that they may receive the benefits of self-development and knowledge (Ryan, Kaplan & Grese, 2001; Walter, 2005). Research has documented that those who have engaged in volunteer activities have indicated increased knowledge and skills which relates to the welfare of the community (e.g., solving real-world problems and understanding people from other racial and ethnic backgrounds) (Harnish, Bridges & Adolph, 2016).

More importantly, research has found that exposing students to voluntary projects changes their perspectives on social responsibility, the meaning of life and their commitment towards community engagement (Azucero et al., 2014). This is particularly true given that one of the participants lamented that the university has 'disconnected' them from communities. This suggests that if enhanced engagement between universities and communities are nurtured, students and community members will become more involved in the co-creation of knowledge. Hence, more dramatic shifts in the way academics advance community service within teaching and learning is crucial.

Volunteer programmes within community organisations strengthen opportunities for work experience, internships, and other practical learning and research experiences for academic programmes (Sachs & Clark, 2017). More particularly, in a teaching and learning context, volunteer efforts can strengthen discipline-specific knowledge and skills, critical analytical and integrative thinking, problem solving and research capability, and creativeness and innovativeness amongst students (Sachs & Clark, 2017). One of the most important aspects of volunteerism, however, is that it is predicated on reversing the established academic practice of using the community for the university's own ends. Volunteerism revolves around community service as opposed to other forms of engagement, such as community-based research which may be based on an imbalance of benefits and responsibilities between the university and its community partners (Zlotkowski, 2011).

Theme 4: Benefits of volunteerism

You know the centre I was in, the Women Crisis Centre, the cases and everything that is happening there you kind of like ask yourself, why haven't I been doing this?

I've managed to find my ground it's kind of like kept me going truly what I have to do. I rather not do anything else but offer my services to other people.

It was self-fulfilling because going to the children's home... they make you feel like you've made their day.

And you also get happiness and when you go to these children's homes.

Working with these women especially in deep rural areas taught me something. It taught me that there is a strength in women, made me appreciate myself even more because of the things they've been through and the strength, looking forward to another day you will sit with them and listen to their stories.

It grew me emotionally.

It gave me experience as a student. I know what to do, I gained through experience. I'm not going to go out there with just knowledge. I also have experience.

The aforementioned excerpts draw attention to the importance of the civic dimensions of education, which not only emphasises the need for the development of disciplinary mastery and competence but also for civic awareness and competence. Civic learning illuminates the socially responsive aspects of disciplinary knowledge, those dimensions that expand the view of education to include learning and developing the knowledge, skills and values of democratic citizenship (Saltmarsh, 2017). Civic learning includes knowledge that is historical and political as well as civic knowledge that arises from academic and community sources. It also includes critical thinking, communication and public problem-solving skills, civic judgment, civic imagination and creativity, collective action, coalition building as well as key values such as justice, inclusion and participation (Saltmarsh, 2017).

In addition to this, volunteerism amongst undergraduate students brings with it the opportunity to broaden students' experiences of service and helping others and to simultaneously provide work-related experience (Johnston, Acker & McQuarrine, 2018). This was true of the current sample, as participants are being trained to work with vulnerable children and youth and their families. Their volunteer activities at childcare facilities and shelters for abused women provided greater exposure to the contextual realities they will face when they join the workplace as professional child and youth care workers. Volunteer experiences in deep rural spaces were even more crucial to create active learning experiences and to better appreciate the socio-economic realities that the majority of vulnerable families and communities endure in South Africa.

Hence, volunteer work with disadvantaged and marginalised people, within their real-life settings, offered students the opportunity to interact with community members in a more authentic space. Hollander and Meeropol (2006) expressed that organised, developmental approaches to service learning raise students' consciousness of poverty issues through service. They added that whilst one-on-one volunteer work may create an eye-opener for students about how socially excluded communities live, the introduction of other learning activities beyond this experience can help achieve a deeper and more long-lasting effect with regards to important discipline-specific academic issues.

Community engagement brings with it the awareness of how social justice issues are embedded within the legacies of racial, ethnic, class and gender discrimination. Those who do community service at universities are generally young people who have more advantages than those they are serving. This being the case, concerns about racism and other biases, injustice, oppression, and unearned privilege should become part of classroom discussions related to community service (Nieto, 2000). As Nieto (2000) said, challenging students to reconsider assumptions made about society and the people they interact with during community service can help them move beyond their stereotypical notions of difference. This can provoke a deeper structural analysis of the origins and causes of social inequalities and move community service 'from an individual feel-good experience to social responsibility' (Nieto, 2000: xi) as part of learning. These issues formed the crux of discussions post their volunteer work.

Research has shown that there are several benefits to undergraduates' participation in community engagement. Soria, Nobbe and Fink (2013:119) stated that undergraduates who participate in community service are more likely to discover 'new perspectives on the world through the development of connections with others'. McGowan et al. (2013) said that when students experience diversity through community service and engagement, it can serve as a catalyst for reflective experience, particularly with regards to self-questioning of assumptions. Williams, Soria and Rickson (2016) said that such changes in their interpretation of others bring a greater appreciation for diversity and reduction of negative stereotypes. Community engagement was also found both to enable identity development, civic knowledge, dialogue across difference, and to promote communication and a sense of belonging at institutions (Williams, Soria & Rickson, 2016).

Findings from the study provided both a richer understanding of what volunteerism is and of the key values of human empathy, respect for diversity and care, which were exemplified in the data. More importantly, the findings revealed that community spaces where volunteer work occurred could also act as spaces of learning, as students were exposed to different cultures and ways of life, alternative types of knowledge such as growing crops, and working through cultural gatekeepers or the chiefs of villages in order to undertake work. As indicated, students had the opportunity to transfer knowledge and skills acquired through formal university education back into the community as well. This became more visible within the context of the data in the final theme on the benefits of volunteerism as students gained exposure to the realities of issues in women's shelters and childcare organisations. Finally, what was found was deep support for the university to promote volunteerism so that students could find ways to support and care for both people and organisations who deal with issues of abuse, neglect and poverty.

Theme 5: Role of university in promoting volunteerism

All faculties and departments... it should be like a university thing like a community-based programme like volunteering where you recruit students to actually go out there and volunteer.

There is so much the students can actually give to people and communities. We need to understand that institutions are not in isolation from our communities. We need them for instance there are organisations that cannot even afford a single administrator so if we can help these institutions, like DUT working together with our communities, I hope that it can actually help to uplift these communities.

I think it will be wise if an institution maybe had a programme that definitely goes for volunteering where we have students that actually go out there into the communities and volunteer.

In South Africa you don't really hear much you get websites where people must volunteer, but universities there's not actually a programme that says we have to volunteer. So that's something that should be changed.

It's mandatory for every student to have a year of community service so why don't we do it?

What emerged within the data was strong support amongst students for community engagement to become entrenched within HE institutions and for community service initiatives. Musil (2003) concurred that civic learning must be academically based. She added that responsibility for this must occur through volunteer community centres on campus and civic engagement should become rooted in the heart of academy through its courses, its research and its faculty work. She concluded that educating for democratic citizenship should be conveyed also through what is learned in the curriculum.

CONCLUSION

Volunteerism not only benefits the students in terms of an increased skills portfolio but also an enriched educational experience, increased social capital and deeper socio-political awareness. It also inculcates a sense of responsibility in giving back to society (Sahri et. al., 2013). The notion of an engaged university challenges academic departments to rethink their teaching role so as to create greater opportunities to advance community engagement and social responsibility amongst students. It compels academics to also reconsider the evolving relationship between university and community and how community partnerships form new relationships for both students and academics. This paper shed light on one potential way in which to strengthen the incorporation of engagement into an academic department through volunteerism. Community engagement is emerging slowly alongside teaching and research in HE in South Africa. One possible reason for this is a lack of understanding with regards to how engagement may be integrated into the academic programme through service learning, community outreach and community-based participatory research. Encouraging student volunteerism is one way in which academic departments can become more engaged, as evidenced within this paper. As found not only are civic graduate attributes enhanced, but students were able to learn values that prepare them for professional practice as well. Hence, it reflected how engaged practices enhance student learning and documents the important role that communities can play in effective teaching and learning, thereby grounding developing notions of the scholarship of teaching and learning (Cicccone & Meyers, 2006).

Teachers need to create opportunities for engagement through service learning and volunteerism and create opportunities for deeper classroom discussions around such experiences. In so doing, both the classroom and community spaces will enable students to have a greater voice around community issues. Battistoni and Longo (2012: 210) concluded that teaching and learning can be enhanced by 'immersing students in the communities that surround campus so that they can learn to listen eloquently to themselves and bring the voices of the community campus, as they themselves deliberate on key community issues'. Student volunteerism creates the potential for this to be achieved.

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To use or not to use? Understanding the connection between using peer and tutor feedback and self-regulated learning¹

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ABSTRACT

Peer and tutor feedback can play a significant role in developing self-regulated learners. It is generally perceived that giving peer feedback is more useful to students. However, the extent to which peer feedback is used is relatively under-researched. This paper examines the use of peer and tutor feedback by undergraduate students. Data were collected qualitatively by means of a student questionnaire. The results show that most students passively and uncritically implemented all the tutor feedback, mostly because they regarded the tutor as the expert. However, the validity of feedback from peers was questioned and challenged, implying that more engagement occurred when implementing peer feedback than tutor feedback. The results suggest that although using tutor feedback may have resulted in better quality essays, using peer feedback led to more critical engagement with the feedback and in so doing enabled greater self-regulated learning.

Keywords: feedback, peer/tutor review, higher education, assessment, self-regulated learning

INTRODUCTION

Self-regulated learners play an active part in their own learning processes and are meta-cognitively aware, motivated students who adjust behaviours to achieve their goals (Butler & Winne, 1995; Nicol & Macfarlane-Dick, 2006). One way in which learners may become self-regulated is through peer feedback. Peer feedback, also referred to as peer review, is a reciprocal process that involves a student (or groups of students) providing feedback on the work of another student (or group of students), their peer (Ashenafi, 2015), and receiving feedback from their peer on their own work. Peer feedback may be differentiated from peer assessment which is defined as 'students grading the work or performance of their peers using relevant criteria' (Liu & Carless, 2006: 280). Peer feedback, when implemented as part of a drafting cycle, may be seen as a form of formative assessment that facilitates collaborative learning (Gielen et al., 2010) by providing students with the opportunity to learn from and with their peers. Therefore, by enabling meta-cognitive awareness about their own work in particular, and writing in general, peer feedback encourages students to become self-regulated learners (Liu & Carless, 2006; Nicol, Thomson & Breslin, 2014; Patton, 2012; Hamer et al., 2015; Ion, Barrera-Corominas & Tomas-Folch, 2016).

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Feedback, in general, plays an important role in students' becoming self-regulated learners by serving as an external stimulus for internal development (Butler & Winne, 1995; Nicol & Macfarlane, Dick, 2006; Nicol et al., 2014). This is because feedback enables students to engage with the more knowledgeable other (MKO), that is someone who knows more about a specific topic or task (Vygotsky, 1978). The MKO could be either tutor and peer (Li, 2016). Moreover, from a social constructivism standpoint, peer feedback is ideally situated to enable students to develop and learn through collaboration with others (Butler & Winne, 1995; Vanderhoven et al., 2012; Li, 2016).

Peer feedback, specifically, is an opportunity to 'empower students and foster active learning' (Li, Liu & Steckelberg, 2010). However, generally, peer feedback is perceived to be more helpful to the giver than the receiver (Nicol et al., 2014; Lundstorm & Baker, 2009; Li et al., 2010). Walker (2015), for instance, found that students were better at providing feedback to their peers than in making use of the feedback provided to them. This is largely because students view giving feedback to their peers as a more active process that is more helpful at enabling them to become independent, self-regulated learners (Nicol et al., 2014). However, this paper argues that an understanding of the choices that students make in whether to use peer feedback are just as important for the facilitation and development of students' self-regulated learning and is worthy of further exploration.

The issue of using peer feedback – as opposed to giving peer feedback – is still relatively under-researched (Walker, 2015). Harland, Wald and Randhawa (2017) explored the use of peer and tutor feedback and required students to provide a rebuttal as to why a comment was accepted, partially accepted or rejected. However, the study did not actively consider the factors affecting the use or lack of use of peer feedback. Additionally, Walker (2015) speculated that the reason peer feedback is not always used may be related to the giver of the feedback rather than the feedback itself, while Zhao (2010) found that students were more likely to accept and use tutor feedback than peer feedback. Considering the factors that determine the use, or discarding, of feedback is especially important, as without any engagement with feedback, learning from feedback during the drafting process is limited (Vardi, 2012). This study, therefore, contributes to the growing literature on peer review by exploring the extent to which feedback was used for a writing task by undergraduate students and the factors that influenced whether students used the feedback from their peers. In addition, the study is extended to include students' perspectives on tutor feedback, in particular, the extent to which they used it and why.

THE RESEARCH PROCESS

Research context: This research was conducted in an academic development context at a university in South Africa. This university is a historically disadvantaged university that draws most of its student population from lower socio-economic groups. In general, academic development courses in South Africa are part of the higher education plan to increase throughput rates. The academic development course in this study, called English for Educational Development (EED), is compulsory in some disciplines in the University's Faculty of Community and Health Sciences (CHS). The teaching and learning approach used in EED is in keeping with the academic literacies approach (Lea & Street, 2006: 368) which is concerned 'with meaning making, identity, power and authority, and foregrounds the institutional nature of what "counts" as knowledge in any particular academic context'. In order to facilitate this process, the different CHS disciplines have their EED lectures and tutorials separately, allowing for the inclusion of more subject-specific literacy practices into the course.

One of the assessment tasks in EED is the writing of an argumentative essay. Throughout the course, the process approach to writing is followed whereby students go through the stages of brainstorming, mind mapping, drafting and re-drafting before submitting their final essay. The drafting and re-drafting stages of the writing process include structured opportunities for students to engage with the peer and tutor feedback

processes. Researchers (Quinn, 1999, Vardi, 2012) concur that these processes can help students learn the appropriate conventions in their disciplines, as well as begin the process of being initiated into the culture of the university as a whole. To assist students through the writing process, students are given a rubric and a rubric checklist. These tools make the lecturer's expectations of the task explicit and both tools are discussed at length in the lecture. In addition, students are encouraged to use these tools to guide them through their writing.

The drafting stage of the writing process involves feedback from peers, as well as feedback from the tutors. The peer-review process occurs in a tutorial period and students play the role of both assessor (reviewer) and assessee (reviewee) (Li et al., 2010), as they give feedback on another student's essay and receive feedback on their own essay in the same period. During the period, students swap their essays with one another; students may choose to do so with the person sitting next to them or more randomly. They then read through the essay and provide written feedback on the essay. To aid students through this process, they are encouraged to use both the rubric and rubric checklist. In addition, to ensure that students do not go through the process in a mechanical fashion, each student reviewer is given a reviewer sheet with a set of questions related to the essay to answer.

Some questions include: 'Does the introduction provide sufficient background information for the reader? Yes/No.; What suggestions would you give the writer to improve the introduction?; Does the writer have sub-claims? Yes/No. Briefly list them.; Does the writer consider counter-arguments? Yes/No. State one counter-argument.; and Provide suggestions on how the writer could improve his/her essay'. Gielen et al. (2010) suggest that feedback quality could be raised through the use of such directed questions. After students work through each other's essays, the reviewer sheet is handed back to the reviewee together with the essay. After reading through the feedback provided by their peers, students are given time in the tutorial to consult with the reviewer for clarity and further explanations on the feedback received. Thereafter, students have a week in which to revise their essay and submit it to their tutors. The tutors provide students with detailed constructive feedback, which is aimed at developing students' higher-level thinking rather than focusing on surface errors. When the essays are returned to students, an entire tutorial is dedicated for them to go through the feedback to rework their essay, with the assistance of the tutor. The final essay is submitted a week later with both drafts (peer and tutor) attached.

Research Methodology: The overall aim of this research was to establish the extent to which peer and tutor feedback was used for a writing task as well as the reasons students chose to use some feedback and not others. As such, the research questions addressed are:

- How much of the peer and tutor feedback was implemented?
- What are the factors that play a role in determining whether students use and/or not use peer and tutor feedback?
- Are there differences in the factors that determine whether students make use of peer and tutor feedback?

Since the above questions relate to students' opinions on tutor and peer feedback, a qualitative research design was found suitable to answer the above questions. According to Denzin and Lincoln (1998), qualitative research allows for the in-depth examination of opinions, beliefs, and emotions of people in particular settings.

Participants: The participants in this research were 35 first-year undergraduate CHS students registered for the EED course. These 35 students were from one CHS discipline. There was a mixture of English First Language and English Additional Language speakers.

Data collection: Data were collected by means of a student questionnaire which was designed to elicit student responses to the peer-review and tutor-review processes. The questionnaires were handed out by the tutors after the final essay had been submitted. The questionnaire consisted of both open- and closed-ended questions. For the purposes of this paper, the following question on the questionnaire was used: How much of the peer feedback was implemented? Students had to choose from the options: all, most, some or none. They also had to provide an explanation for their answer. The same question was asked about tutor feedback.

Data Analysis: An initial data analysis was done by the first researcher who grouped student responses according to the option they chose (i.e. all, most, some or none). These were counted and recorded. Their explanation as to why they chose a particular option was read. During this reading, the key words and phrases were highlighted, searching for thematic similarities and differences in responses. Next, the second researcher analysed the data in a similar manner as the first researcher and also captured the data in table form. Two tables were constructed: one for the peer feedback and one for the tutor feedback. The two data sets, derived from the work of the first and second researchers, were then discussed and confirmed by the both researchers.

Ethical Considerations: This research followed the ethical guidelines provided by the University. In particular, ethical clearance was obtained from the University for the research to be conducted and students signed a consent form giving their permission for their responses to be used anonymously. To ensure anonymity, the questionnaires were assigned a random alphanumeric code during analysis.

RESULTS AND DISCUSSION

Peer feedback

The extent to which peer feedback was implemented

A total of 35 students completed the questionnaire. Students were asked how much of the peer-review feedback they used and were given four options to choose from, i.e. all, most, some, and none. While all 35 students indicated that they made use of the feedback given by their peers, the extent to which they used the feedback varied. A total of 12 (34%) students indicated that they used all the feedback, while 13 (37%) said that they used most of the feedback, and 10 (29%) indicated that they used some of the feedback. No student indicated that they used 'none' of the feedback.

Factors that influence students' use of peer feedback

Although the students indicated varying extents to which they used feedback (see above), the reasons for using all, most, or some of the feedback tended to be quite similar with the analysis pointing to four main factors that influenced whether students used peer feedback comments. These included the perceived relevance and usefulness of the feedback, agreement (or disagreement) with the reviewer, the clarity and ease of the feedback given, and the perceived quality and accuracy of the feedback given. Although there may be some overlap between these broad factors, we will discuss them individually.

1. Perceived relevance and usefulness of the feedback: For most of the students, a big determiner for whether feedback should be used is the perceived relevance or usefulness of the feedback. If they felt that the comment would help improve their essay, they would be more willing to implement it. The 12 students who mentioned that they used all the peer feedback regarded the feedback they received as being useful and constructive. For instance, some student quotes include:

I implemented all the peer review feedback because they were constructive criticism which helped me identify ways to improve my essay. (B8)

and

I did a lot of mistakes on my assignment therefore needed to fix them by starting afresh and the review really helped me figure out my mistakes. (A1)

In determining what is considered to be 'useful', a growing development of metacognitive awareness and self-regulated learning emerging in the students' responses are noted as is reflected in the following quote:

I used the grammatical help and some suggestions about linking paragraphs, but not all recommendations were taken into consideration. (B9)

Responses like the one above may indicate that these students did not go through the process in a mechanical fashion but gave thought to the comments made by the reviewer; in other words, they engaged with the process and, only after weighing the validity of the comments, made changes to their essay, thereby facilitating the learning process. Similarly, Nicol et al. (2014: 113) points out that peer review 'offers great promise as a method through which students might develop their capabilities as independent and self-regulated learners'. This is evident in some student responses: some indicated that in the process of looking at the reviewer feedback they were able to spot their own mistakes and make adjustments accordingly.

In contrast to engaging with the feedback, one student wrote:

The feedback I got from the peer-review demanded changes therefore I had to make all the changes where my flaws were pointed out. (C5)

In this instance, it appears as if this student felt almost 'forced' to address all the changes. This could lead to mechanistic behaviour which may result in limited or no learning, which could possibly negate one of the many benefits of the peer-review process, especially since peer review plays an important role in student learning and development (Vickerman, 2009).

Moreover, the process of engaging with other students' work can help 'students become more detached and critical about their own work' (Hamer et al., 2015: 151). In the present study, for instance, students used their own work as a basis for comparison in the process. For example:

I did consider my peer feedback a little bit because the person who reviewed my essay was comparing it to hers. I was not going to take all of her feedback because I did not want our essays to be similar ... (C4)

Although the point raised above about not wanting their essays to be similar may be attributed to a concern about possible plagiarism, it shows, more importantly, that the student is aware of what her essay is doing and how it is similar or not to the other essay. In other words, the student was able to take ownership of her essay and did not uncritically accept and implement all the peer feedback.

2. Agreement (or disagreement) with the reviewer: Another factor that greatly determined whether students used the feedback was the extent to which they were in agreement with the suggestions made by the reviewers:

I implemented all the feedback because I found that the points made were true, and I needed to improve on some of the things in the feedback. (B6)

All of the feedback received during the peer-review process was valid and helped a lot... (B14)

and

I did implement some of my peer review feedback because I noticed my peer was right about the mistakes I did. (A4)

However, some of the students who said that they used most or only some of the peer feedback indicated that they were not in total agreement with the reviewer and that some of the feedback was not useful:

Some of the feedback was to shorten my paragraphs... I preferred my paragraphs that way. (B13)

and

I thought most of the feedback was useful but some of it wasn't helpful. (B15)

In these instances, the level of agreement or disagreement with what the peer reviewer has said suggests growing confidence in, and awareness of, the strengths of their writing. This points to one of the benefits of taking part in the peer-review process; namely, it enables students to take a step back from their own writing and gain a greater understanding of what makes 'good' writing (Nicol et al., 2014; Lundstorm & Baker, 2009).

3. *Clarity and ease of feedback.* Another factor that seemed to affect whether students used the feedback was how understandable the feedback is and, concomitantly, how easy it is to implement the feedback. To this end, many students referred to the correction of surface features as indicated by the following response:

I implemented all because I made mistakes by writing with small letters and I used abbreviations, so the peer review helped me to rectify those mistakes. (A5)

Although such feedback is superficial and lacks quality and depth, students generally find it easier to address as correcting these errors are not cognitively demanding. Similarly, Gao, Schunn and Yu (2019) found that students tend to address less demanding problem areas.

The next example further illustrates how students were more likely to implement the feedback if they knew what was required of them and if the feedback was easy to implement:

The feedback was useful and easy to understand because she explained everything to me... (B12)

In this instance, students' understanding of the peer feedback was additionally facilitated by allocating time in class for the reviewer and reviewee to discuss the feedback. Creating such spaces within the classroom enables feedback to be viewed as a dialogue rather than unidirectional and immutable (Hamer et al., 2015; Boud & Molloy, 2013). Additionally, Hamer et al. (2015) explain that during peer review, students take on several roles. They are first authors of their own work, then assessors where they are expected to read their peers' work, form opinions and produce feedback. They are also receivers of feedback, which requires making decisions on whether to use the feedback advice given. Clearly then, providing space in the classroom for discussions between the reviewer and reviewee will assist students in making such decisions.

Interestingly, only one student indicated that he did not understand the feedback:

I implemented some because there is some feedback, I did not thoroughly understand... (A10)

In this instance, it is possible that the challenge may have been on how to address the feedback rather than an understanding of what the feedback required. It could be conjectured that the changes that the student did implement may have been ones that focused on surface errors, for example, punctuation, typing and spelling errors, and concerns about the length or organisation of paragraphs, which, as mentioned earlier, are always easier to work through as opposed to content knowledge which is cognitively more demanding. This again highlights the importance of both clarity and ease of feedback in determining which ones get used.

4. Quality and accuracy of the feedback: The last factor that determined whether students engaged with the feedback was the perceived quality of the feedback. While students appreciated that the feedback given helped improve their essays, there were some students who had higher expectations of the peer-review process as illustrated by the following quotes:

I did not feel that the feedback I received was very constructive. The peer mostly commented on grammar and not where I was lacking in terms of the sections and what I could incorporate to enhance it. (A7)

and

It is because my peer only said beautiful comments about my essay but didn't realise that there are things that were not there and a lot of mistakes to be fixed. (A6)

This is similar to Gao et al. (2019) who found that peer feedback tended to focus on less demanding problems. In the current study, this might be because, despite the rubric, checklist and worksheet, students did not have sufficient understanding of what to look for when giving feedback, or perhaps they lacked the necessary confidence. Additionally, the accuracy of the feedback also influenced whether students used the feedback. For example, one student said:

Some of the feedback or edits on my essay were not exactly correct, in that the grammar correction was wrong or she misunderstood what I was saying in the essay. (C4)

As other studies have shown (see, for example, Liu & Carless, 2006; Gielen et al., 2010), the quality and accuracy of peer feedback (especially in comparison with tutor feedback) are a general concern about the peer-review process. In this instance, however, the quality and accuracy of the comments may have been due to other factors. Forming opinions and generating feedback is a cognitively demanding task (Hamer et al., 2015) and a student who is disadvantaged by linguistic issues – as is the case in the current study – may experience difficulties in providing feedback that is deemed adequate or valuable. It could also be that the reviewer did not have the 'expertise' to suggest changes and therefore felt that the essay was good or it could just be that the reviewer did not want to disappoint the writer. Whatever the case, these issues could result in a student potentially losing confidence in the peer-review process.

Of note is that although other studies have claimed that students may be hesitant to accept feedback from their peers due to a lack of perceived authority in the peer reviewer (see, for example, Geilen et al., 2010; Walker, 2015), in the current study, this did not appear to be the case. Instead, students' reluctance to accept feedback seemed to stem not from the giver but the feedback itself, as well as from students having a different vision for their essay. This suggests that students are taking ownership of their work rather than not trusting the peer reviewer, *per se*. We therefore see a critical engagement with and 'weighing up' of peer feedback and not just blind acceptance.

Tutor feedback

The extent to which tutor feedback was implemented

A total of 34 students completed the tutor feedback section. Twenty-four (71%) students indicated they used all the feedback, six (18%) said they used most of the feedback and four (11%) said they only used some of the feedback. As with the peer feedback, no student indicated that they used 'none' of the feedback.

Factors that influence students' use of tutor feedback

As with peer feedback, the use of tutor feedback was also influenced by issues of clarity and understandability. For instance:

I did not fully understand the last part so I did not change it/write more about it as she had previously suggested. (B2)

and

I struggled to read what was written and I was unable to fix some of [my] mistakes. (C8)

However, the greatest and most prevailing factor that influenced whether students used tutor feedback was the implicit confidence and trust students had in their tutors' abilities and expertise, and, therefore, the students felt that they should heed the advice of their tutors in order to improve the quality of their work:

I attempted to incorporate all my tutor's feedback, to ensure I improve the quality of my work submitted. (A9)

These students reported that the tutor feedback was useful as the tutor pointed out exact errors:

The feedback I received from my tutor was very helpful. It provided me with new ways of doing or looking at things. It showed me which areas of the assignment I was slacking in and what I could do to improve it. (A7)

Some students used all the feedback provided by their tutors because they 'look up to their tutors' as indicated by the following quote:

My tutor is more knowledgeable than I am in the English reading/writing aspect. This is why I chose to accept and learn from all my mistakes so that I may increase my knowledge also. (A9)

It appears that the mere fact of viewing the tutor as the 'more knowledgeable other' (Vygotsky, 1978) and the authority figure may have resulted in corrections being passively attended to which limits learning as reflected by the following quote:

Each point the tutor underlined I have tried to improve it and all mistakes were manipulated. (A3)

This is similar to Patton (2012: 724) who pointed out that 'students demonstrated a very high level of investment in the expertise of their tutors' which was reflected in the way that students were more willing to accept the feedback from their tutors than they did of their peers. Similarly, Zhao (2010) in an investigation of learners' use and understanding of peer and teacher feedback on writing found that learners used more teacher feedback and that there was a passive acceptance of teacher feedback.

Differences in the factors that determine whether students make use of peer and tutor feedback

The same questions were asked for the peer and tutor evaluation (see methodology section). More students indicated that they used all of the tutor feedback (71%) than all of the peer feedback (34%). As seen from

above, the main reason for this seems to lie in the perceived and accepted expertise of the tutor (perceived to be above that of the peer), which resulted in an almost automatic acceptance and implementation of the tutor feedback. In contrast, the validity of peer feedback was questioned more. This could have resulted in students checking and confirming the validity of the feedback given by their peers against the rubric or rubric checklist, suggesting a greater critical engagement with the process, which could possibly have resulted in the internalisation of the assessment criteria thereby enhancing learning which would more likely be transferred to other learning contexts. This appears not to have been the case when implementing tutor feedback. Similar findings were reported by Yang, Badger and Yu (2006), who found that although students were more active in questioning and confirming the feedback they received from their peers, they tended to make more use of the feedback received from their teachers. Yang et al. (2006) imply that student questioning/confirming of peer comments is as a result of lack of trust. However, another point of consideration for the students questioning their peer feedback and not the tutor feedback could be that they considered their peer as their equal and felt comfortable with them, and, therefore, did not hesitate to question the feedback that they received, while also being aware that challenging their peers' feedback will not result in any negative consequences.

For the majority of the students, it almost seemed as though there was a passive acceptance of the tutor feedback as the tutor was regarded as the expert. The lack of questioning of tutor feedback may have led to students attending to corrections in a mechanistic manner which does not help in facilitating the learning process although the end product may be improved. However, it may also be that students felt that not improving their essays according to the suggestions made by the tutor, i.e. failure to take into account tutors' suggestions, may compromise their final mark and, therefore, felt forced to attend to all the tutor feedback. Whatever the case, working through feedback without critically engaging with it does not enhance learning. Students' critical engagement with their peer feedback, as noted in the current study, should be viewed as a positive factor as it shows growing development of their metacognition skills and taking ownership of their own work, which ultimately leads to greater self-regulated learning (Ion et al., 2016).

It was also noted that with peer feedback, students mostly made reference to the surface-level feedback that they received which was not the case with tutor feedback. This is understandably so because students are still 'non experts' in the field. Regardless of this – as it was pointed out earlier – the peer-review process provided students with the opportunity to compare their essays with the essays they had to review, thereby giving them a different perspective on how to address the question. This may have helped them improve their own essay. These findings are different from that of Yang et al. (2006) who report that peer feedback led to more changes in meaning of students' writing while the teacher feedback led to more surface changes. In the current study, while this point could not be verified because the writing tasks were not assessed after the peer-review process, it did appear as though – from students' responses of what feedback they did and did not use – that the peer-review process resulted in surface changes while the tutor feedback resulted in more substantial changes. However, greater deliberations occurred during the peer-review process.

In conclusion, then, the results from the study suggest that the choices students make regarding whether to use peer feedback or the extent to which they use peer feedback may reflect their development as self-regulated learners. That is, the process of deciding whether to use feedback reflects their taking an active part in their learning and writing.

IMPLICATIONS AND RECOMMENDATIONS

Although the study is situated in a particular context, the results point to a few practical implications and recommendations for feedback in general, and for peer feedback specifically. Firstly, the results from this

study suggest that the factors that influence whether, and to what extent, students engage with their peer feedback are suggestive of their becoming self-regulated learners by showing metacognitive awareness of their writing and taking ownership thereof. In contrast, the almost passive acceptance of tutor feedback may be less conducive to this kind of development. These results therefore point to the importance of the peer-feedback process in enabling the development of self-regulated learners (Liu & Carless, 2006; Ion et al., 2016). Additionally, since self-regulated learning develops over a period of time (Butler and Winne, 1995), it has implications for classroom practice, which talks to the next point.

Secondly, related to the above, the results of this study also point to the importance of including peer review in a more deliberate manner. For the most part, peer review has been introduced in an *ad hoc* manner and is not always integrated into course design (Patton, 2012; Ashenafi, 2015). As this study shows, including peer feedback as an active component in the assessment schedule may ultimately be advantageous to students, above and beyond merely receiving and engaging with tutor feedback.

Lastly, the results have implications for training purposes. For the most part, the emphasis has been on training students how to give feedback (see, for example, Gielen et al., 2010; Patton, 2012) rather than how to use it. Training to improve the peer-feedback process should therefore also include how to best make use of feedback, as this may ensure that both giving and receiving feedback are beneficial parts of the process. Moreover, taking cognisance of the factors that determine why student use feedback could, for example, emphasise that an understanding of the feedback during the implementation process is a critical step in student learning as opposed to passive acceptance and implementation.

LIMITATIONS

A few limitations to the study need to be acknowledged. Firstly, the data collected are limited to the questionnaires; a more detailed response would likely have been received had interviews with the students also been used. Secondly, the lack of use of both sets of drafts and the feedback on them meant that we had to rely on students' responses to questionnaires. Nevertheless, this enabled an initial exploration into the factors that affect the use, or not, of peer feedback. Future and follow-up studies could include interviews as well as data from the actual drafting processes.

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A reflection on the 'non-place' character of German foreign language (GFL) courses and coursebooks in South African higher education¹

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ABSTRACT

This paper argues that the reductionist, and increasingly trivial, nature of foreign-language textbooks has an adverse impact on how German language, culture and society are represented and perceived by foreign-language learners in South Africa reframing German-speaking countries as 'non-places'. Reflecting on a coursebook prescribed at a South African university, this paper posits further that coursebook users, especially learners, are decontextualised and perceived to be homogenous by publishers who are guided by a construct of the average learner. This paper maintains that teaching coursebooks without adaptation to incorporate students' epistemologies and ontologies endorse a 'non-place' classroom. Such practice perpetuates alienating conditions lamented in discourses common to higher education (HE) institutions which are facing calls for transformation. The paper examines the non-place representation of German-speaking contexts in German Foreign Language (GFL) coursebooks and its creation of a non-place classroom. Following a consideration of the disciplinary aims of German courses in South African HE, the paper advocates a curriculum which fosters a critical engagement with coursebook content. Finally, it argues that by cultivating learner-responsiveness in language courses, and by localising content, one can withstand a foreign language classroom which is devoid of place and belonging.

Keywords: foreign language education, teaching German as a foreign language, critical reflection, teaching material practice

INTRODUCTION

This paper emanates from an ongoing PhD study which seeks to gain a deep understanding of the underlying principles which shape German Foreign Language (GFL) textbook practices in GFL courses at South African universities. The aim of the larger study, and this paper, is not based on an interventionist approach, nor is it to prescribe textbook teaching practice. Instead, it aims to understand the textbook as 'cultural artefact' (Gray, 2010: 1) and teaching resource in GFL curricula as it is situated within a South African HE context. Drawing on existing literature on Foreign Language Teaching Materials (FLTMS) and first-hand experience as lecturer (and former student) of German, this paper offers a reflection on the character and use of commercial foreign language textbooks in the context of teaching GFL in South African Higher Education (HE). The focus of the study is on beginner-level textbooks, used in first-year

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courses for students without prior knowledge of German, as this represents the largest group of students who register for German courses nationally (Annas, 2016).

Critically reflecting on what one teaches and the professional and pedagogical beliefs which guide one's teaching practice (including the choice and use of teaching materials) allows one to uncover taken-for-granted practices (Mezirow, 1990; Thompson & Pascal, 2012). Furthermore, being a critically reflective practitioner, i.e. questioning 'what one does and why', encourages the continual development of one's teaching practice (Thompson & Pascal, 2012: 319) and it is a crucial part of curriculum transformation (Weber, 2018). The intention of this paper is not to offer textbook teaching methods, to charge German lecturers with using textbooks in a certain (incorrect) way, or to suggest that the problematic aspects of foreign language (FL) textbooks discussed in the paper can be eliminated. The intention of this paper is to stimulate critical reflection on what lecturers teach in GFL courses in local HE – why they add, omit or create content (or not) – and how their teaching-material practices relate to their students' learning. The fact that there is no literature emanating from South African GFL scholarship, which specifically focuses on language teaching material (LTM) practices in university GFL courses, makes this discussion relevant.

It is common practice in German courses to prescribe coursebooks for every undergraduate level and the curriculum is variably structured around the progression and content of the book, depending on the institution.² However, FL textbook publishing today is such that one book must be applicable to a global learner group, which in its attempt to accommodate everyone, inevitably engages no-one. While the inability to cater to individual learners has been an ongoing feature of textbooks, globalisation only 'exacerb[ates the] social, cultural, and ideological diversity' (Kramsch & Vinall, 2015: 13) of learners and the contexts about which they are learning (Kurtz, 2011).

The development of FL textbooks is influenced by research and pedagogy in FL teaching and learning. The audiolingual method, popular in the 1960s, was underpinned by a behaviourist approach to teaching and learning (Simon-Pelanda, 2001). This method was characterised by the presentation of contrived sentences and texts in the foreign language, and learning happened by means of repetitive drill-exercises (Quetz, 2006). The focus in FL textbooks of this time was on grammar progression, and instances of communication tended to be based on 'verallgemeinerten ahistorischen Alltagssituationen'³ (Simon-Pelanda, 2001: 47; Quetz, 2006). Hence, socio-cultural content was not integrated in what were essentially grammar manuals.

By the 1970s, communicative competence, rather than grammatical correctness, became the predominant outcome of Foreign Language Learning (FLL) (Röttger, 2010; Dobstadt & Riedner, 2014). It was argued that the core outcome of FLL should be the ability to use the foreign language to negotiate intercultural situations (Maijala, 2008). The ability to communicate and 'use' the foreign language (Quetz, 2006) coincided with the argument that real communication takes place within a socio-cultural setting, for which one would need (inter)cultural competence (Maijala, 2008). Therefore, *Landeskunde* (cultural studies) became increasingly integrated in FL textbooks (Simon-Pelanda, 2001). Yet, as language acquisition was still the main preoccupation of the materials, themes and content were chosen to serve the communicative outcomes, which placed socio-cultural engagement on the periphery of the textbook's focus (Simon-Pelanda, 2001).

2 Nine universities in South Africa offer German (Annas, 2016), of which eight prescribe commercial coursebooks published in Germany in their language courses. At first-year level these textbooks include *Menschen*, *Studio D*, *Aspekte neu*, *Motive*, *Deutsch Na klar!*, and *Kipp und Klar*. One German section prepares its own material.

3 'generalised a-historical instances of everyday life'

Today, most textbooks claim to follow a *handlungsorientierten* approach which, similar to the communicative approach, places emphasis on the practical use (*das Handeln*) of the language in realistic situations (Hölscher, Piepho & Roche, 2006). However, Dobstadt & Riedner (2014) highlight the tension between action-oriented aims of cultivating authentic (and as such, dynamic) communicative scenarios in which learners can actively participate, and the focus in GFL teaching and learning on standardisation, efficiency and measurability of competencies underpinned by the CEFR.⁴ Consequently, most current commercial GFL textbooks still contain exercises which stem from a behaviourist tradition (for example, tables and fill-in-the-blank exercises), with sociocultural elements integrated into a primarily language-learning resource. Textbook-provided tests and exercises in *Menschen*, the textbook prescribed at my institution, reflect a prioritisation of grammatical knowledge.

While textbooks inadvertently promise to provide access to the foreign language and socio-cultural context, little space is in fact available for linguistic and cultural information which is not superficial or highly generalised. In *Menschen*, cultural information is usually placed in the 'additional' pages at the end of a chapter and in the glossary. Hence, textbook content reflects a mix of current and traditional trends of language pedagogy as well as of old and new perceptions of language learning and language-learner constructions (Kurtz, 2011). Often, the accepted structures in textbooks, like the PPP approach (presentation, practice, production), are not based on substantiated evidence that it contributes to language learning (Tomlinson, 2013).

Integrating familiar 'ways of doing things' with innovative content design is a way for publishers to cautiously ensure that their publications succeed (Bell & Gower, 1998). Therefore, textbooks today represent an accumulation of developments in FL teaching and learning. Furthermore, textbooks have become commodities in a neo-liberal education system (Apple, 1988). The result is that textbooks are often conceptualised on the basis of marketing strategies such as standardisation and ease-of-use rather than pedagogical principles of FL learning (Littlejohn, 2012). Functional aspects of language learning, promoted by the communicative approach and intensified by growing commodified views of education and language learning (Bori, 2018a), result in textbook content which allows one to approach communication strategically and to 'consume' culture with ease (Kramersch & Vinall, 2015).

The reductionist nature, or 'tourism discourse' (Kramersch & Vinall, 2015), of foreign Language Teaching Materials (LTM) impacts on how language, culture and society are represented. Tourism discourse in FL textbooks implies a presentation of the foreign context which is predominantly positive and welcoming, while avoiding politically and historically contentious topics, much like one would find in a tourist brochure (Bori, 2018b). The book as a representative of the foreign-speaking contexts can thus be understood as a 'non-place' (Augé, 2008). Augé discusses places like airports and shopping malls as examples of non-places. Non-places are not naturally and socially occurring places, but have been constructed to serve a specific purpose (Augé, 2008), such as air-travel or consumption. These places have been created to be navigated and understood by any visitor, and they can be duplicated. What individuals in non-places have in common, Augé argues, is their reason for being in that space – they are travellers, passengers or

4 The Common European Framework of Reference for Languages (CEFR) is described by the framework document as follows: 'The Common European Framework provides a common basis for the elaboration of language syllabuses, curriculum guidelines, examinations, textbooks, etc. across Europe. It describes in a comprehensive way what language learners have to learn to do in order to use a language for communication and what knowledge and skills they have to develop so as to be able to act effectively. The description also covers the cultural context in which language is set. The Framework also defines levels of proficiency which allow learners' progress to be measured at each stage of learning and on a life-long basis' (Council of Europe, 2001: 1). The framework offers descriptions of language proficiency in six levels, from beginner to advanced, namely A1, A2, B1, B2, C1 and C2. In South African university-level GFL courses, students generally have to be on A1 level at the end of their first year, A2 at the end of their second year, B1 in their third year and B2/ C1 in their honours year.

consumers. The FL classroom is also a 'non-place' in that it is not an anthropological place in itself (Augé, 2008) but is rather connected to the shared identity of those language learners who inhabit it. These learners meet in an imagined space, facilitated by the textbook, 'only remotely related to the reality we associate with the traditional place' (Lapidus, 2013) – in this case, German-speaking countries.

Non-places, according to Augé (2008), are 'spaces formed in relation to certain ends [such as language learning, engaging with another culture], and the relations that individuals have with these spaces'. Therefore, creating a simplified socio-linguistic reality of German-speaking contexts in FL textbooks is understandable, because it allows for manageable engagement with and insight into the complex and dynamic linguistic and cultural world of the Other. Although these resources attempt to accommodate the heterogeneity of learners who engage with this 'non-place', they are still limited by an idea of the average learner at the intersection of all the diverse identities of actual learners.

Although Augé (2008) claims that the definition of 'non-place' need not be negative, this paper argues that it contributes to the kind of alienation one finds in discourses on transformation in South African HE (Boughy & Mckenna, 2016). Following a discussion on the non-place representation of German-speaking contexts in coursebooks, the paper explores the decontextualisation of GFL learners and learning environments by LTMs. Particularly highlighted are the core disciplinary outcomes of critical engagement and intercultural competence in South African German academia, and how these outcomes align with the textbook as curricular tool of language teaching and learning. Lastly, the paper reflects on how lecturers could withstand a FL classroom which is devoid of place and belonging by adopting a critical attitude towards LTMs and cultivating learner-responsiveness in GFL courses.

TEXTBOOK CONSTRUCTIONS OF GERMAN-SPEAKING CONTEXTS AND GFL LEARNING ENVIRONMENTS

It is acknowledged in FL teaching and learning that globalisation has created tensions between real-life complexities of culture and language, and 19th century notions of a nation state (in the case of Germany) with homogenous native speakers, standard-language use and unilateral cultural practices (Kramsch, 2014). As the complexity of a globalised society is becoming more evident, the uncountable variables influencing foreign-language learning success within learners and their interaction with the environment is receiving more attention (Larsen-Freeman, 2018; King & Alison, 2016). Furthermore, changing views in language teaching and learning demonstrate a growing acknowledgement that there is no such thing as 'one nation, one language' (Larsen-Freeman, 2018). Nevertheless, textbooks continue to construct mother-tongue speakers, and the spaces they inhabit, in a manner which suggests that they all speak flawless, standard German and live in a DACH⁵ country. Moreover, non-mother tongue characters in GFL textbooks generally come from other European countries and speak standard German with high levels of competence – unlike most beginner FL learners of German in the South African context. However, there are pedagogical, and at times, unavoidable reasons for creating characters who do not mirror real speakers and learners of German.

Literature dealing with the issue of representation in FL textbooks generally identifies three reasons why the complexity of language and culture in practice, societal representation, and context-related learner needs are ignored in textbooks: the vast learner group, the pedagogical purpose of the resource and the dominant worldview of the context where these books are created. Each of these points are discussed below.

⁵ Germany, Austria, Switzerland.

The vast learner group

In order for publishers to sell their books in any place in the world, they avoid any content which could be considered taboo, inappropriate or controversial (Bori, 2018b) (such as menstruation, alcohol-abuse and homosexuality), exemplifying the kind of 'tourism discourse' problematised by Kramersch and Vinall (2015). Textbooks are often used in contexts different from the ones in which (and for which) they were developed, and themes are often superficial and trivial in an attempt by publishers to maintain their suitability – especially on a global scale. As such, published materials will not be completely rejected or fail in any given context, but neither will they aim at succeeding fully in a particular context (Kramersch, 2014). Hence, materials manage to 'surf' (Kramersch, 2014: 302) communication and superficial aspects of culture, resulting in a 'shallow treatment of diversity' (Kramersch & Vinall, 2015: 25).

Pedagogical purpose

Presenting too much ambiguity, especially in the early stages of language learning, does not make sense from a pedagogical standpoint. It is nearly impossible to represent a whole, dynamic and complex socio-linguistic system, while enabling learning, all in the confined pages of a textbook. Gray (2010: 1) compares LTM with the design of a map: 'the inclusion of too much detail defeats the map's purpose and results in the creation of something which is impractical'. A filtered presentation of reality in LTMs is inevitable, as materials designers have to 'choose among multiple norms and endless sources for reading' (Del Valle, 2014: 369-370) to fit within the physical constraints and learning outcomes of the LTMs.

Therefore, including inauthentic texts which correlate with learners' language competency level, and which do not include too much emotive, abstract language use, is common practice in LTMs. Yet, Andon and Wingate (2013) find a correlation between the authenticity of language exposure and the motivation of learners – the more authentic the exposure and opportunities to use the language, the higher the perceived relevance of what they are learning. Even so, when Bišofa (2012) asked Latvian students of German to comment on their preference of authentic or textbook materials, the majority felt that textbooks cannot be replaced by authentic materials completely. Her study revealed that students value clear structure, many explanations and examples as well as a revision section. This dichotomy of needs is well understood by Tomlinson (2003: 6):

My own view is that meaningful engagement with authentic texts is a prerequisite for the development of communicative and strategic competence [...] I also believe, though, that for particularly problematic features of language use it is sometimes useful to focus learners on characteristics of these features through special contrived examples.

A reduced representation of language and culture is practical, and attractive, if one's aim is efficient and speedy acquisition of communication abilities by means of a curriculum which is transferable to many contexts.

While enabling ease of engagement with the new language and culture requires a measure of normativity and essentialisation, the contents of textbooks nevertheless depict constructed ideas of what the essential information is that should be imparted by FL textbooks (Apple, 1988). The social and cultural reality depicted in LTMs is neither an accurate nor a neutral reflection of the real society and culture. Canale (2016: 226) describes FL textbooks as being 'legitimised versions' of the social world, reflecting hegemonic views of 'Germanness' validated by textbook writers, rather than being 'repositories of historical facts and objective truths' – which relates to the third reason why language teaching materials present a skewed view of the foreign language and culture.

Dominant worldview of textbook-designer context

Various scholars investigate the inaccurate representation of language and culture in LTM in various contexts and scopes. Corti (2016) addresses the normative representation of language varieties and socio-cultural aspects in Spanish LTMs. He claims that these norms might not be decided upon consciously by the materials writers, but that it nonetheless presents particular language use as neutral. Similarly, Azimova and Johnston (2012: 338) explore the representation of diversity in Russian-language textbooks and find that because learners will have very little (or no) contact with native speakers of Russian (similar to South African learners of German), 'their understanding of who Russian speakers are [is based on the] totality of the [...] speakers referred to or described in the pedagogical materials'. Thus, certain minorities are to an extent 'erased' (Azimova & Johnston, 2012: 338) from the perceived reality of the learner.

Gray (2013) too raises the issue of erasure in (English) LTMs, in this case regarding the absence of LGBTQ representation, arguing that 'heteronormativity is the default position when profits may be at stake'. Coffey (2013) ascribes selective representation to the communicative teaching methodology, in particular its practice of selecting instances of communication to depict in textbooks which 'package' (2013: 159) language in a certain way, and he puts forward implications it might have for learner constructions of these places – places that only consist of cafés, bakeries, parks, hospitals and apartments – while precluding places like prisons, refugee housing, landfills and politically-charged events. In commercial German LTMs, such as *Menschen A1* (Evans, Pude, & Specht, 2012), one finds an emphasis on communication in places related to fitness and well-being, on professional development, work ethic, consumerism, and productivity.

These representations play a larger role in shaping the socio-cultural epistemology of these places for students learning German outside of German-speaking contexts than to those learning whilst in Germany. Many students enrol in German courses at South African universities without any prior knowledge of the language or culture, apart from what they know from the media. Students are thus not afforded the opportunity to compare their experience of German-speaking contexts in the textbook with real contexts and thereupon re-evaluate their understanding of these places. Consequently, students' presuppositions relating to German-speaking societies are not called into question and these imagined (non-)places are further mediated by LTMs. In addition, the textbook does not teach them to critically reflect on their own essentialised representation of (German) society. In textbooks such as *Menschen A1*, certain groups and identities are excluded from the constructed German contexts, which preserves dominant views of what it means to be German (Çalışkan, 2014; Moffit, Juang, & Syed, 2018). The image is projected that German speakers are all white, middle-class, productive, punctual individuals who speak flawless standard German and never swear or code-switch. Therefore, if GFL-textbook content is taught unreflectively, it could be detrimental to students' understanding of the German language and its speakers. It is also harmful to those German speakers denied ownership of the language and culture (Canale, 2016), such as citizens with African and Turkish immigration backgrounds (Whose Heimat?, 2018).

Currently, the projected relevance of teaching materials used in South African GFL courses has been determined in Germany where the materials have been written and published for learners vaguely described as *young adults* or *adults* (Hueber, 2019a). The focus of the materials is most often on learning for prospective German immigrants or for people wanting to obtain a language certification, such as the Goethe Certificate.⁶ The chosen communicative scenarios in a textbook are based on what materials

6 The beginner level Goethe Certificate is described by the Goethe-Institute on their website (<https://www.goethe.de/en/spr/kup/prf/prf/sd1.html>) as follows: 'The Goethe-Zertifikat A1: Start Deutsch 1 is a German exam for adults. It certifies that candidates have acquired very basic language skills and corresponds to the first level (A1) on the six-level scale of competence laid down in the Common European Framework of Reference for Languages (CEFR).'

designers perceive to be useful to learners with these aims in mind. *Menschen*, for example, states that its choice of themes and progression is based on the different language-proficiency levels of the CEFR and with current internationally standardised language exams in mind (Hueber, 2019b). These presented contexts, however, might not reflect the real-life experiences of the learners, creating a misalignment between the book's construction of the learner and the actual learner. If taught as is, learners become outsiders in textbooks, observers and imitators of insider-communication rather than participants and creators of meaning. Weber and Weiner (2016) analysed popular GFL textbooks, such as *Menschen A1*, *Studio D*, and *Schritte International*, and found that non-German characters in LTMs fulfil specific pedagogical functions, such as providing information about the foreign language and context,⁷ rather than representing actual examples of German non-mother-tongue speakers. Their findings showed that these foreign language characters, contrary to actual foreign-language speakers, do not divulge much about their own culture, which makes it seem as if they do not have one. They are also integrated, active participants of the foreign culture (Weber & Weiner, 2016), projecting an image of easy assimilation into the foreign context, and demonstrating a value of cultural assimilation.

Such a representation of foreign-language learners is not aligned with the experience of many actual learners of German who struggle with grammar and pronunciation, have existing backgrounds and values, and have to 'renegotiate[e] [their] sense of self in relation to the [foreign-language context]' (Norton, 2010: 350). Admittedly, learners might implicitly understand that real foreign-language speakers residing in Germany are not really as fluent, integrated or confident as they are portrayed in the book, especially not in the early period of their move to Germany. Moreover, learners might not necessarily be passive in their engagement with a reduced view of language and culture. However, beyond simply not catering to diverse learner needs and identities, LTMs may in fact elicit certain identities from learners (Auerbach & Burgess, 1985; Kullman, 2013). Kullman (2013) argues that, if taught as is, LTMs shape learner identities by favouring certain discourses in which particular identities are validated above others. For example, Kullman (2013) found that in UK-published English textbooks there may be an emphasis on having students express themselves on topics such as lifestyle, but not on topics such as sexuality or religion. Furthermore, he claims that in these textbooks, learners play out scenarios in which they might never find themselves in the real world. Examples from *Menschen A1* include complaining at the hotel reception because the heater in their room does not work (this may be far removed from the reality of many students who come from an underprivileged background), or making plans with a friend based on a schedule (filled with appointments with 'friends' and activities such as soccer practice) provided by the book which does not resemble their life at all. Even in talking about validated themes such as family relationships, vocabulary is limited, for example omitting step-families or half-siblings. While one can never include every aspect of social reality, this example does demonstrate that there is a selection process which prioritises certain aspects of reality above others.

Not only do many LTMs neglect diversity and complexity, but they do not have the capacity to 'take into account [...] realities [such as] large classes, unmotivated learners, lack of adequate time, lack of resources and the need for examination preparation' (Tomlinson, 2013: 2). Furthermore, in my experience, FL textbooks' lack of relevance to students' field of study, or their personal interests and lived reality, may negatively affect the textbook's perceived personal relevance to students. In a first-year course evaluation focusing on students' experience of *Menschen A1* which I conducted in 2018, some students commented on the topics in the textbook in addition to functional aspects. The comments reflect issues related to relevance and thematic presentation of language and culture:

⁷ In *Menschen A1*, for example, characters Carmelo and Benito from Italy talk about their experiences at the German music festival, Rock am Ring.

Sometimes its use of specific themes for every chapter felt awkward.

Some of the content is a bit silly and unrealistic.

Some chapters seem a bit far-fetched[,] it [the content] is not that relatable.

Projecting a consumerist view of learning onto learners, presupposing that learners view 'language only as a job skill' (Bori, 2018a: 16), decontextualises learners and learning (Kramersch & Vinall, 2015). LTM inadequately foster critical reflection and 'scrutiny of the social world' (Santos, 2013: 109) – which one could argue is a large part of what education in the humanities should do (Higgins, 2014). Lecturers are thus instrumental both in mediating coursebook content and the contextual reality of their students, and in encouraging critical reflection on German-speaking contexts, which is lacking in commercial coursebooks.

CRITICAL REFLECTION AS A DISCIPLINARY AIM OF GERMAN COURSES IN HIGHER EDUCATION

FL textbook content underpinned by pragmatic and standardised outcomes of language learning reflect the changing aims of education in general. Traditionally, universities were institutions with the objective of developing critical-thinking faculties and engaging with knowledge 'for its own sake' (Sin, Tavares, & Amaral, 2017: 2). Today, however, a discipline's value is increasingly measured by its ability to address the demands of its student clientele and the labour market, rather than maintaining its legitimacy purely through the pursuit of developing and sharing knowledge (Le Grange, 2009). Viewing HE as having a largely vocational purpose (Weelahan, 2014) has especially impacted the perceived value of disciplines in the humanities and social sciences (Higgins, 2014). Many disciplines have subsequently reformulated how they market themselves and have restructured their courses in order to demonstrate more explicitly how they are beneficial to graduates in terms of prospective careers, for example, the incorporation of language-acquisition modules in previously largely literature-based German courses at South African universities (Laurien, 2006; Weber, Domingo & Fourie, 2017). Tensions between education for economic growth and employability on the one hand, and education for the development of engaged citizens on the other, is explored by Nussbaum (2010). She regards the humanities as being crucial in fostering a 'humane, people-sensitive democracy', compassion, and interest in understanding people different from ourselves (Nussbaum, 2010: 14-15; see also McArthur, 2011). German as an academic discipline generally legitimises its place in HE in three ways: (i) its relevance to research and epistemology, (ii) its role in developing intercultural competencies, and (iii) its pragmatic contribution in the form of career-oriented language learning (Hamman, 2009). In terms of the increasing utilitarian purpose of HE, language learning makes up the most attractive component of the course to students – and most students register for one year of German (Annas, 2016), where emphasis is largely on language acquisition. The core outcomes of first-year foreign-language courses at the majority of HE institutions entail practical competencies, such as acquisition of vocabulary, grammar knowledge and communicative abilities. Hence, critical thinking is relegated to other, traditional aspects of the course, like literature and cultural studies, which are usually only introduced from second year.⁸ However, one cannot assume that devolving the development of critical engagement to areas of literature and cultural studies automatically cultivates critical reflection on representations of language and culture in LTMs (Mühr, 2009). If the emphasis in German language courses is on beginner-level language acquisition, one might ask when in this phase of language learning the development of critical engagement with the complexities of language and culture takes place. This would align with the aspect of the discipline concerned with epistemology.

⁸ In beginner-level courses focussed on language acquisition.

In terms of the subject's pragmatic function, the reality is that German programmes today prosper where the curriculum offers students personal and professional relevance (Ammon, 2014). Roche (2009) argues that one can only come to understand the purpose and objective of GFL when one is able to understand what drives people around the world to learn about German language and culture. Making central to a course the lived realities and aspirations of the persons who find value in studying German is an imperative within current discourses on curriculum transformation in South African HE. Hence, one might pose a second question: How are we as GFL lecturers negotiating the decontextualised teaching resources and the very real contexts and identities of our students?

FOSTERING CRITICAL ENGAGEMENT WITH COURSEBOOK CONTENT

It is impossible to achieve total coursebook-context compatibility because both German-speaking and local contexts are constantly in flux. However, the development of local materials, the adaptation of commercial materials to suit local needs or making the textbook the object of critical reflection have all been suggested as possible ways of addressing the shortcomings of LTM's discussed in the first section of the paper.

Some scholars suggest localisation of content as a way to achieve coursebook-context compatibility (Dat, 2003; Lin & Brown, 1994; Maijala & Tammenga-Helmantel, 2016). Locally published resources initially appear to address the problem. However, the cost of development, small scale distribution and questionable credibility of a language-teaching resource which does not originate from the same country as the language and its speakers might not make this a viable solution. Contributing yet another textbook to an already overcrowded market might not be plausible and the act of publication alone renders it unable to respond to changes. Lastly, it increases the effort of preparing materials and curricula. At the very least, commercial LTM's save teachers and course designers an immense amount of time in structuring course content and resources (Maijala, 2007). According to a survey completed by GFL lecturers in 2019, LTM's in South African GFL courses perform a central curricular function. Textbooks in our context are perceived by GFL lecturers to fulfil the role of providing progression through a systematic approach to grammar, preparing students for Goethe exams, providing exercises and online resources, developing students' listening, reading, writing and speaking competencies, and providing content which reflect up-to-date German language and culture organised into relevant topics. While some, such as Thornbury (2013), advocate foregoing coursebooks altogether, LTM's are so intertwined with FL curricula (Guerrettaz & Johnston, 2013) that it would be unreasonable to suggest that LTM's be removed from the curriculum because of their unavoidable shortcomings.

Thus, adaptation offers a more realistic solution and entails aligning the LTM's with the context, especially in matching materials with learners' potential, relevance, personality and preferences (Dat, 2003). Adapting materials stand to aid learners in expressing their identity by providing tools with which they can utilise their personal knowledge and which requires their 'affective involvement' (Dat, 2003: 2). Saraceni (2003) follows this orientation to materials adaption by drawing on research which emphasises the learner's contribution to course design and which values collaboration with learners in developing content. Saraceni (2003) offers a model which allows for learner-centred, relevant adaptation, with the features of such adaptation including flexibility in terms of student interest and needs, culturally provoking topics, and authentic texts depicting realistic situations. Her case study demonstrates how learners and teachers decide together on acceptable and relevant provocative topics, which is then presented through an authentic text. Saraceni (2003: 83) promotes the empowerment of learners by allowing them to 'express themselves instead of simply communicating'.

Saraceni (2003) specifically draws on the influential contribution of Clarke (1989: 134), who argues that the 'externally imposed' curriculum of teaching materials are bound to be influenced by the teaching and learning environment, and Clarke thus advocates a 'negotiated syllabus' which is internally generated

both by teachers and learners. In this way, the adaptation process becomes more meaningful and suited to the immediate context. Furthermore, by placing learners in the active role of collaborator in materials writing, their level of required commitment is not only increased, but it is naturally situated within relevant content which suits their 'cognitive, emotional, and pragmatic needs' (Clarke, 1989: 133). Learners' active involvement in creating materials might, additionally, raise their awareness that LTMs are only selected compilations of *aspects* of language and culture.

In *Menschen A2*, the textbook prescribed at second-year level at my institution, one chapter deals with the theme of festivals and events. In one exercise, students read a text in which various 'Germans' talk about their favourite festival or event, why they enjoy it so much, when it takes place, and what happens at this event. The book then asks the students to choose one of these events and play out a dialogue with a partner in which they plan to visit one of the events together. I ask students to write about a festival or event which they have attended or would like to attend, either locally or internationally, in order to, firstly, create a connection between the content and their lived reality, and, secondly, for them to talk about their immediate context. I compile all the writing pieces to create a similar text to the one found in the textbook. From this collaboratively created resource, students now choose an event and plan their trip with a partner, in addition to acting out dialogues suggested by the textbook.

In line with Paulo Freire's orientation to education, Littlejohn and Windeatt (1989) propose positioning the materials as the object of critical focus. Freire (2003) argues that education plays a role in cultivating critical attitudes toward one's context and generally, naïvely accepted reality because only a critical awareness of one's context can allow a meaningful interaction with the way things are, or seem to be. Thus, Freire (2003) believes that by deepening one's understanding of the social world by questioning it, one gains the power to oppose shallow interpretations of society. Teaching students to challenge simplified versions of reality stand to empower students to engage independently with knowledge, emancipating them from subject matter which make claims about what is real and what is normal. Similarly, Littlejohn and Windeatt (1989: 174) consider it vital to obtain a 'holistic impression' of the materials by critically considering what learners learn beyond language – such as general knowledge about the speakers and their culture, which social values and attitudes enjoy preference (ontological aspects), what the learners' role in the learning context is, and what language learning involves (epistemological aspects). They argue that this implicit information communicated to learners (mostly unintentionally) should be made explicit and scrutinised by teachers and learners. On that account, explicit critical textbook-practice by lecturers stands to foster a similar engagement with LTMs and language learning from students.

The solution in both HE and in FL curricula structured on commercial textbooks lie in compromise, by marrying its pragmatic role with the underlying pedagogy of critical engagement with knowledge. Spivak (2016: 7) argues that this compromise involves

[the] lesson of being folded together with your enemy, being complicit, [...] not complicit in the sense of conspiratorial or involvement in something underhanded. Often we teach in a knowledge-managed way against our best convictions because we want to keep the job; we are folded together with what we want only to oppose. [...] Not excusing but also not accusing the protocols of whatever it is that we are critiquing so that we can locate the point in the system that can turn it around, for use.

The aim of a recent cultural studies module, which I taught to second- and third-year undergraduate students, was to examine how German language, culture and society are portrayed in a simplified way in GFL teaching materials. The module explored why essentialisation in LTMs happens as well as why such practice may be both problematic and necessary for learning to take place, and for students to consider changes that could be made to better align their exposure to 'Germanness' with reality. Discussions and

assessments were built on previous engagement with notions of culture and cultural competence in the same module, and they were conducted in English so as to allow for robust engagement with the topic. In one instance, to demonstrate the underpinning claim of the module, students watched the film 'Deine Schönheit ist nichts wert'⁹, directed by Hüseyin Tabak, which deals with a Kurdish-Turkish family seeking asylum in Vienna. Students compared the place, people, behaviours and language use in the film with that of their textbook. Moving beyond supplementing the textbook with other forms of representations of language and culture in the form of texts, films and literature, as is common practice among German lecturers in South Africa, the reasons for the supplementation was made overt to students. In this way, students were explicitly asked to call the textbook contents into question whilst simultaneously dissolving borders between critical and functional components of the course.

CONCLUSION

This paper has argued that there is value in fostering a critical awareness of normative practices in language textbooks, especially in a HE context where learning outcomes should transcend pragmatic communicative aims. The paper acknowledges the advantage of the structure, progression and resources which coursebooks offer, and that foregoing commercial textbooks altogether might not be feasible. However, it argues that lecturers should critically reflect on the reality presented by the chosen textbook (preferably in collaboration with students). Encouraging critical reflection of materials in language courses, particularly at first-year level, integrates the aspect of the discipline concerned with epistemology and intercultural competence with the pragmatic function, already inherent in GFL courses.

The three systems – commercial LTM, HE, and German as a discipline – described in this paper share characteristics of commodification, standardisation, and an increased demand for responsiveness to learner diversity. The interaction between these contexts influence and shape one another. For an academic discipline such as German to ensure that it makes a meaningful contribution to a changing HE landscape, it does not have to blindly adopt external curricula by commercial textbooks which reflect the demands of a commodified education system, neither can it afford to ignore demands for responsiveness to students who enter these spaces. Place fosters belonging and deep engagement with the surroundings because it is in non-places 'in which the individual feels himself to be a spectator without paying much attention to the spectacle' (Augé, 2008: 70). A GFL classroom which is not devoid of place is one that is shaped by the relations, histories and identities (Augé, 2008) of those who navigate these spaces. Hence, incorporating student identities and lived-realities into a course which is steeped in the immediate context, makes it a place.

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⁹ English subtitles were made available.

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Teacher-Student Interaction Management: A Study on the Practices and Principles in a Pakistani ESL Classroom¹

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ABSTRACT

This study investigated Teacher Talk (TT) quantity, TT quality, teacher questions and feedback to determine whether the teacher-student interaction practices in a Pakistani language classroom align with ESL (English as a Second Language) principles or not. For this purpose, two lessons in a Pakistani secondary level ESL classroom were recorded and analysed through conversation analysis (CA). TT was observed to dominate in the classroom. The teacher used display questions more than referential questions. There was a slight use of second language (L2) in the classroom that was limited to the use of key terms in the lessons. Feedback was romantic in nature. All of these practices were observed as less effective teacher-student interaction practices. Therefore, the study concluded that teacher-student interaction did not align with ESL classroom management principles. Since TT, teacher questions and feedback were the important forms of teacher-student interaction in an ESL classroom, this study suggested to manage TT, teacher questions and feedback in the Pakistani ESL classroom for effective L2 teaching.

Keywords: ESL classroom management, feedback, teacher questions, teacher-student interaction, teacher talk

1. INTRODUCTION

Generally, classroom management (CM) is considered as a classroom control (Debreli, Ishanova & Sheppard, 2019) to solve problems related to maintaining order or handling disciplinary actions (Chambers, 2003; Labaree, 2006). Consequently, a teacher is deemed as a control-establishing mechanism to manage the learners' behaviour in the classroom (Kaufman & Moss, 2010) which means that CM is all about classroom control or discipline. However, studies have added to the scope of CM, which includes teachers' decisions to support learning (Krause, Bochner & Duchesne, 2003); and the use of activities to create and maintain an encouraging and orderly environment (Tan et al., 2003). Other studies (see Evertson & Weinstein, 2006; Manning & Bucher, 2013) consider CM as a blend of discipline, teaching method and organisation of classroom utilities. All of these ideas can be synthesised to define CM as a wide variety of teachers' skills and techniques to organise and order the learners, and to keep them attentive, focused, on task, and academically productive in the class.

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CM is an integral part of the teaching profession and is observed across all content areas (Macías, 2018). CM varies depending on a number of factors like education level, teaching place and subject matter (Martin & Yin, 1997). Therefore, management of ESL classrooms can be different from managing geography, history or math classrooms. The reason is that ESL CM particularly demands the use of English language along with other skills and capabilities (Ababneh, 2012). Macías (2018) distinguishes the management of ESL classrooms from other subjects' classrooms owing to the unique features like interaction patterns, target language (TL) use and teaching methodology. These features reflect three significant characteristics of language teachers in Borg (2006), which include (i) foreign language teaching demands interaction patterns like group work that is desired but not essential for teaching other subjects, (ii) foreign language teaching is the only subject that demands the teacher to use the same medium that is being taught (language) for effective instruction, and (iii) foreign language teaching methodology is diversified and aims to create contexts for communication and maximise learners' involvement.

Everything in the classroom happens through a live person-person interaction. Therefore, interaction can be called the key feature of classroom instruction (Ellis, 1994). Interaction (both verbal and nonverbal) is the basic requirement of the classroom events (Allwright & Bailey, 1991). Teacher-student interaction ensures the development and success of a class (Tsui, 1995) by facilitating acquisition through conversational and linguistic modification and provides the learners with essential input for language acquisition (Long, 1996). Interaction is regarded as a significant feature of ESL CM. Richards and Rodgers (2001) assert that ESL CM requires teachers' control over students' behaviour and teacher-student interactions. For Nunan (1991), teacher-student interaction and CM are integral to sound methodological practice. Thus, realising the significance of interaction, this study aims to investigate teacher-student interaction practices in a Pakistani ESL classroom.

1.1 Teacher Talk

TT is an important means of teacher-student interaction in the classroom. TT is a language used by the teachers while addressing L2 learners (Ellis, 1989; Ur, 2000). Nunan (1991) views TT as a tool which teachers use to organise a class for language teaching. He considers TT crucial not only for classroom organisation but also for language acquisition. Actually, TT is important for CM and organisation, in Nunan's (1991) view, because it is through the language that either a teacher fails or succeeds to implement his instructional plans. Similarly, TT is important for acquisition because it provides comprehensible teaching and learning input to the learners. Therefore, TT is an essential part of foreign language teaching in organising activities, and the way a teacher talks not only determines how well he or she makes his or her lectures, but also guarantees how well students will learn (Yanfen & Yuqin, 2010). Thus, whether a class is successful or not depends, to a large extent, on the effectiveness of TT (Hakansson, 1986).

TT has significant features (Yanfen & Yuqin, 2010). Hu Xuewen in Xiao-Yan (2006) categorised them into formal and functional features. Formal features are concerned with the form of TT and include speech modifications, pauses, repetitions and speed (see also Jing & Jing, 2018). Functional features, on the other hand, are concerned with the control and organisation of the class which include TT amount (quantity), TT quality (appropriateness or effectiveness), teacher questions and feedback on learners' performance (Hu Xuewen in Xiao-Yan, 2006; Nunan, 1991). Since the usefulness of language teaching depends on the type of interaction and language used in the classroom (Long & Porter, 1985), TT should be of high quality to create an effective and harmonious environment for student-teacher interaction. Otherwise, the teaching will be nothing more than a monodrama in the classroom (Jing & Jing, 2018). Hence, this study aimed to investigate the TT quality in a Pakistani language classroom and considered the functional features only. Research (Berlin, 2015; Boyd, 2015; Cook, 2016; Davies, 2011; Kareema, 2014; Lindholm-Leary, 2001; Paul, 2003; Yanfen & Yuqin, 2010) has already been conducted to explore TT features, talk turns

(between teachers and students) as well as what language the teachers use to manage the class. This study is an addition to these studies and aims to explore functional features of TT (quality, quantity), teacher questions, feedback and what language the teacher uses to manage the class, which no previous study has so far explored.

1.1.1 Amount of Teacher Talk

TT amount means the quantity of TT in a classroom. In simple words, TT amount means how much the teachers talk while instructing in the classroom (Kareema, 2014). Nunan (1991) believes that teachers by far do the most talking in the classroom. Research (Chaudron, 1988; Cook, 2016; Nunan, 1991) established that the teachers talk 70-80% of the whole class talk. Frey, Fisher and Allen (2009) have stated that the students are expected to sit hour after hour with little interaction with peers to take notes and answer occasional questions. Hurst, Wallace and Nixon (2013) reported a Kindergartener saying to his mother: 'what all teachers do is talk, talk, talk'. Similar words were repeated by him after his first days at high school and college. After analysing 12 (30 hours-long) sessions, Azhar, Iqbal and Khan (2019) observed the teachers using 65% of the total class time. Moreover, the teacher dominates the classroom by occupying more linguistic space than the students (Abbas, Ali & Hussain, 2017; Inamullah, Hussain & Din, 2008; Jule, 2002). These studies validate Nunan's (1991) belief that the teachers talk too much in the classroom. There is no doubt that Nunan (1991) considers TT good for providing TL input. However, he also recommends that teachers avoid excessive talk in the classroom. This may have serious implications as it may lead to the teachers' dominance in the class, which can severely restrict student talk (ST) in the classroom, which may further affect the development of language proficiency among learners. With this in view, this study aims to investigate TT in a Pakistani ESL classroom to know its amount (quantity) and see whether it is effective (quality) for TL learning.

1.1.2 Teacher Questions

As a discursive move of teachers' choice in an ELL classroom (Boyd, 2015), teacher questions are given greater importance in education (Wu, 1993) and are commonly used by the teachers (Chaudron, 1988; Harmer, 2000; Kim, 2015; Richards & Lockhart, 1994) to (i) assess what the learners know (Wu, 1993); (ii) help the learners to adjust to their language and make it more understandable (Harmer, 2000); (iii) extend and validate learners' thinking (Boyd & Rubin, 2002; Haneda & Wells, 2010); (iv) help the learners in learning the topic (Kim, 2015); and (v) help the teachers to induct the learners into particular ways of thinking and language use; (vi) direct classroom talk; and (vii) encourage ST (Boyd, 2015). That is why teacher questions have been attracting the attention of researchers (Boyd, 2015; Chin, 2006; Fitriani & Amilia, 2017; Haneda & Wells, 2010; Ho, 2005; Kim, 2015; Omari, 2018; Sedova, Sedlacek & Svaricek, 2016; Wright, 2016). These studies investigated teacher questions as a source of teacher-student interaction as well as the functions and types of teacher questions in ESL classrooms. This study adds to the existing literature on teacher questions by exploring the function and type of frequently asked questions by the teacher in a Pakistani ESL classroom, particularly from the CM perspective which no previous study has so far explored.

Long and Sato (1983) classified teacher questions into (i) display questions and (ii) referential questions. Display questions demand the learners to display the knowledge obtained in the class; and extract mechanical, short and simple answers (mostly require one-word answers like 'yes' or 'no') that (answers) are already known to the teachers. On the other hand, referential questions are exploratory in nature and mostly require complex and lengthy answers that are not already known to the teachers. Nunan (1991) added a third category, namely elicitation questions to display and referential questions. Richards and Lockhart (1994) later classified questions into convergent, divergent and procedural questions. Convergent and divergent questions were asked to involve the learners in the lesson whereas procedural questions were concerned with classroom routines like CM. Convergent questions were close-ended whereas

divergent questions were open-ended. Thus, convergent and divergent questions were similar to display and referential questions respectively. In the past, teacher questions have commonly been investigated in different categories such as closed and open questions, display and referential questions, and convergent and divergent questions, which often created the impression that there are six types while there are actually only two (display and referential questions). Therefore, this study considered teacher questions in two categories that were display and referential questions, after merging closed/convergent and open/divergent questions into display and referential questions respectively. Elicitation and procedural questions were excluded on the grounds that they did not fall under display or referential questions' categories.

Vebriyanto (2015) reported the use of display questions (69%) more than referential questions (31%). Similar results were reported by Erlinda and Dewi (2016) who observed the teachers asking display questions (495 times) more frequently than referential questions (134 times). Another study (Fitriani & Amilia, 2017) also reported display questions as the more frequently asked questions (120 times) as compared to referential questions that were asked 101 times. A similar lead of display questions (86%) has also been observed in Omari (2018). These studies show that display questions are common in teachers' use in the language classrooms. This study therefore aims to see which type of questions (display or referential) the teacher frequently asks and what function these questions perform in a Pakistani ESL classroom.

1.1.3 Teacher Feedback on Learner Performance

Feedback is another source of teacher-student interaction in the classroom. It is a significant constituent of TT (Liu & Le, 2012). It refers to the evaluation of learners' responses by the teacher (Cook, 2016). Giving feedback on learner performance is a significant aspect of teaching (Xiao-Yan, 2006). Feedback is usually provided by teachers on learner performance in the form of comments, praise or silence (Richards & Lockhart, 1994). Nunan (1991) refers to feedback in the form of negative and positive responses. Negative feedback shows the teacher repeating students' responses with a rising tone whereas positive feedback shows the teacher using short interjections, for example, alright, correct, good, ok. However, Nunan (1991) terms the use of words like 'alright', 'correct', 'good' and 'ok' as 'romantic feedback'. In fact, Nunan (1991) appreciates positive feedback; however, he is not in favour of providing feedback through short interjections. To Nunan (1991), positive feedback serves two functions: (i) it motivates the learners and (ii) it informs the learners about their correct performance. For this type of positive feedback, Nunan (1991) recommends the teachers to follow Brophy's (1981: 26) guidelines for effective praise (see Table 1).

Table 1:
Guidelines for Effective Praise

Effective Praise:

1. Is delivered contingently;
2. Specifies the particulars of the accomplishment;
3. Shows spontaneity, variety, and other signs of credibility;
4. Suggests clear attention to the student's accomplishment;
5. Rewards attainment of specified performance criteria (which can include effort criteria, however);
6. Provides information to students about their competence or the value of their accomplishments;

Effective Praise:

7. Orients students towards better appreciation of their own task-related behaviour and thinking about problem solving;
8. Uses students' own prior accomplishments as the context for describing present accomplishments;
9. Is given in recognition of noteworthy effort or success at difficult (for the student) tasks;
10. Attributes success to effort and ability, implying that similar successes can be expected in the future;
11. Fosters endogenous attributions (students believe that they expend effort on the task because they enjoy the task and/or want to develop task-relevant skills);
12. Focuses students' attention on their own task-relevant behavior; and
13. Fosters appreciation of and desirable attributions about task-relevant behavior after the process is completed.

This study aims to see whether the teacher feedback on learner performance in a Pakistani ESL classroom is positive or not.

RESEARCH QUESTIONS

This study was initiated to investigate Nunan's (1991) teacher-student interaction practices identifiers of CM in a Pakistani secondary level ESL classroom. In further detail, the study looked for answers of the main study question followed by four sub-questions:

- Do the teacher-student interaction practices in a Pakistani secondary level language classroom match with ESL classroom management principles?
 - i. What is the quantity and quality of teacher talk in a Pakistani secondary level ESL classroom?
 - ii. Which language does the teacher use to manage teacher-student interaction practices in a Pakistani secondary level ESL classroom?
 - iii. What function do the frequently asked teacher questions perform in a Pakistani secondary level ESL classroom?
 - iv. What is the nature of feedback in a Pakistani secondary level ESL classroom?

2. METHODOLOGY

This case study examines Pakistani ESL classroom management practices within a classroom's institutional frame in order to investigate the quantity (amount) and quality of teacher talk, types of teacher questions and feedback practices. The researchers provide a comprehensive account by adopting a CM approach to study the naturally occurring discourse patterns during teacher-student interaction that are productively used in the analysis of learning and teaching practices in L2 classrooms (Sert, 2015; Waring, 2016). In L2 classrooms (where content is also the medium of instruction), language carries special significance for participation opportunity and learning (Long, 1983). While adopting the lens of CA, the researchers highlight the practices of a multimodal teacher in an ESL classroom as Stivers and Sidnell (2005) define it: face-to-face interaction in terms of 'multimodal interaction' where a teacher manages participation and learners expand their language use through this opportunity (Waring, 2014). Thus, a teacher's positive feedback in an ESL classroom encourages the students to extend their turns and engage themselves in L2 learning behaviours (Walsh, 2002).

For the purpose of this study, the focal audio-recording was taken from a public sector school located in a town city of Okara district in Punjab, Pakistan. The total number of participants of the study was 54: one

teacher and 53 students of Grade 10. The age group of the students was between 14-17 years and they belonged to different social backgrounds. Some of the students belonged to urban areas whereas others belonged to rural areas. They spoke Urdu and Punjabi languages with their parents and siblings as well as in other social settings. Their parents were associated with different professions like teaching in public or private sector schools, trade or agriculture. The majority of the students got formal education in the medium of instruction Urdu/English from private or public sector schools located in their nearby rural and urban areas. These students were enrolled at the current school in Grade 9 in April 2018. During the data collection phase, they became the Grade 10 students of the current school and English was mandatory as a medium of instruction in the English language classroom, though both teacher and students were not very competent in speaking the English language. Therefore, the teacher used Urdu as the medium of instruction in the English language classroom. The rationale behind using the Urdu language might be that English impacts negatively on learners and is less accessible to the students (Marsh, Hau & Kong, 2000). Moreover, (on average) students who are proficient in their instructional language tend to become more successful than those whose native language is different from their instructional language (Arsad, Bauniyamin & Manan, 2014; Lo & Macaro, 2012).

In instructed language-learning settings, the teacher holds a Master's degree and a Bachelor's-level professional degree. He has been teaching English over a decade to Grades 9 and 10. To record the teacher-students interactional classroom discourse, ethical considerations were carefully considered by the observer participants. The identity of the students and the teacher remained secret during data recording. Cohen, Manion and Morrison (2005) stated that by means of observational technique during the data collection phase, the researcher gets the opportunity to interact with natural social settings. The recorded data (recorded with the help of a mobile phone) comprised a total of 86 minutes and 8 seconds of teacher-student interactional discourse. The recording was used to produce a detailed written transcription by documenting the verbal conduct of teacher and students of classroom context. TT quality and quantity were considered to analyse according to the principles laid down by Nunan (1991) and discussed in comparison with different studies (see section 3). To analyse teacher questions, classification of display and referential questions was considered (see section 1.1.2 for details). The selected topic of the taught component was 'direct and indirect narration'. The topic was delivered in two lectures in which the teacher taught only a limited set of core vocabulary items like revising tense rules, reporting verbs, reported speech and inverted commas etc.

The data were analysed within the methodological and theoretical framework of CA. Despite there being a handful of theoretical and methodological frameworks, CA is being extensively used for analysing ESL/EFL classroom discourse (see Walsh, 2002). The basic argument of CA is that its main objective of investigation is social interaction (Sacks, 1984), which is highly ordered and this orderliness provides every detail of interaction and makes it potentially relevant (Sidnell & Stivers, 2013). This ensures the transparency of results (Seedhouse, 2005). Relying on micro-analysis of transcribed excerpts taken from actual ESL classroom interaction, the aim of CA is to categorise underlying structures and to illustrate organisation of social actions and activities (Sidnell & Stivers, 2013). Therefore, CA is a multimodal approach that particularly enhances the understanding of how teaching and learning is interactionally organised and achieved in ESL classrooms (Evnitskaya & Jakonen, 2017).

3. RESULTS AND DISCUSSION

Results of the study are discussed according to each category.

3.1 Amount of Teacher Talk

Two lessons were delivered in the classroom that took 86 minutes and 8 seconds time out of which the teacher talked for 66 minutes and 24 seconds whereas the students were given 20 minutes and 4 seconds

to talk in the classroom. The percentages of TT and ST were 77% and 23% respectively. These percentages showed that TT consumed the most time (see Table 2).

*Table 2:
Amount of TT in the Classroom*

Lesson	Total Amount (in min/sec)	TT Amount (in min/sec)	ST Amount (in min/sec)
1	46.21	36.31	9.5
2	39.47	29.53	10.54
Total	86.08	66.24	20.04
Percentage		77	23
Total Number of Students			53
Average Time for Each Student			23 seconds

These results (see Table 2) align with the results of previous studies (see Azhar et. al., 2019; Cook, 2016) and thus confirm Nunan's (1991) belief that the teachers talk a lot in the classroom which has also been validated in different studies (see Abbas, Ali & Hussain, 2017; Azhar et. al., 2019; Cook, 2016; Frey, Fisher & Allen, 2009; Hurst, Wallace & Nixon, 2013; Inamullah et. al., 2008; Jule, 2002). Moreover, the teacher has been observed using L1 in the classroom. TL use was limited to the key terms such as direct speech, indirect speech etc. in the Pakistani ESL classroom.

Studies support such a high amount of TT (as shown in Table 2) in the classroom on the grounds that TT is of crucial importance (Nunan, 1991): TT determines the failure or success of a classroom (Hakansson, 1986; Nunan, 1991; Yanfen & Yuqin, 2010); it provides TL input (Liu & Le, 2012; Nunan, 1991); facilitates instruction and management in the classroom (Brown, 2001; Nunan, 1991); and it mediates learning (Boyd, 2016). All of these studies (that support TT) stand on Krashen's (1985) input hypothesis: learners improve and progress along the natural order when they are provided with comprehensible TL input.

But these studies (that support TT) contradict the philosophy that learning is mainly a social action (Dewey, 1963; Lindeman, 1926). Therefore, input alone cannot ensure TL acquisition. Swain's (1985) product theory confirms the significance of output in second language acquisition (SLA). For Swain (1985), SLA takes place only when the learners take turns into assimilation. Thus, for Swain (1985) input alone is not sufficient for SLA. Output is equally important for successful SLA which, in the view of Xiao-Yan (2006) can help the students to speak and use the language in useful ways. Thus, teachers' use of L1 (in this study) negated the idea of TL input. Moreover, learners' non-engagement in teacher-student interaction in the classroom did not provide the learner an opportunity to practise L2 and thereby contributes to the output in the classroom for successful SLA. Therefore, TT is suggested to be minimised in favour of ST on the grounds that too much TT hinders L2 practice by the learners (Paul, 2003) and limits learner autonomy (Kostadinovska-Stojchevska & Popovikj, 2019). In addition, teacher-student interaction and the use of L1 are suggested to be increased to enable the learners to contribute to the TL output and thereby facilitate SLA in the classroom.

According to Hurst (1998), the person who is doing the work is the person who is doing the learning. Normally, it is the teacher who works in the classroom. The teacher reads different texts, synthesises information, selects key points and organises them to present to the learners who sit passively in the classroom. In this way, the teacher is seen doing the work and, as a result, doing the learning. This

is undesirable for a successful teaching-learning process. Therefore, Vacca and Vacca (2002) suggest to shift the burden of learning from the teacher's shoulders to the students' shoulders. Probst (2007) agrees with Vacca and Vacca (2002) saying that it is the student who should work the most in the classroom. Moreover, the students can be enabled to work more in the classroom by engaging them in social interaction with their class fellows (Vacca, Vacca & Mraz, 2011). In the view of Routman (2005), students learn more when they talk to one another.

3.2 Quality of Teacher Talk

Although excessive TT has been criticised by many researchers (see Allwright, 1981; Kostadinovska-Stojchevska & Popovikj, 2019; Paul, 2003; Xiao-Yan, 2006), they do not advocate to minimise it as an objective (Van Lier, 2001). A number of studies (see Paul, 2003; Van Lier, 2001) have emphasised the effectiveness (quality) of TT. Nunan (1991) also emphasises TT quality. For Nunan (1991), TT quality depends on its appropriateness. According to Nunan (1991), TT is appropriate if it (i) is relevant to the point in a lesson in which the talk occurs; (ii) is planned and does not cause digression; and (iii) provides potential input for TL.

After listening to the audio lesson, it was found that the teacher observed two of Nunan's (1991) three criteria for the appropriateness of TT. Firstly, the teacher was observed to remain relevant to the topic. He discussed all of the points with clarity. Secondly, the lesson was well planned and there was no digression. However, the lesson could not fulfill the third criterion of TT appropriateness. The reason was that the teacher used Urdu (L2 of learners; Punjabi being L1) in the classroom. There was a slight use of English that was restricted to the use of key terms related with the topic, for example, direct and indirect speech, first person, second person, third person, reported speech and reporting speech.

The use of Urdu and other local languages is common in Pakistani schools (Shamim, 2008; Shamim & Allen, 2000). The reason is that Pakistani teachers have to follow certain practices like 'doing the grammar' or 'doing the lesson' which involve a number of activities like reading aloud of the texts, interpreting the texts in Urdu or other local languages, and telling the meanings of texts (Shamim, 2008). Moreover, the majority of the students in Pakistan is enrolled at non-elite schools where teachers' proficiency in English is limited, which hampers the use of the English language in the classroom (Shamim & Allen, 2000).

The use of L1 by the teacher in the classroom is also common in other countries. Hernández and Faustino (2006 in Viáfara, 2011) have reported EFL teachers in Colombia using L1 more than L2 in the classroom. Kerr (2019) states that the majority of the teachers makes greater use of L1 (90%) in the classroom. Actually, most of the researchers support the use of L1 in an L2 classroom on the grounds that the use of L1: (i) is an easy and quick way to make the difficult expressions understandable (Shin, 2006); (ii) makes the learners feel relaxed and avoids any possible confusion in the classroom (Ford, 2009); (iii) can enable the teachers to explain difficult terms, show empathy and scaffold comprehension (Crichton, 2009; Macaro, 2001); (iv) serves as a source of embedding new meanings (Forman, 2012); (v) supports TL development (Lee & Macaro, 2013; Moore, 2013); and (vi) is beneficial for TL instruction (Cenoz & Gorter, 2014; Krulatz, Neokleous, & Henningsen, 2016). Some researchers, on the other hand, discourage the use of L1 and support the use of TL on the grounds that TL (i) is important for providing TL input (Nunan, 1991); (ii) helps the students to acquire linguistic competence (Antón, 1999); (iii) serves as a content-communicating vehicle (Tedick & Walker, 1994); and (iv) provides an optimal as well as a richer learning environment (Polio & Duff, 1994).

The above comparison establishes that the majority of the researchers are in favour of the use of L1 in the classroom, which is supported by the findings of the largest project by Hall and Cook (2016) who have collected the data from 2785 teachers serving in 111 countries. However, use of TL in the classroom still

cannot be reduced. The reason is that it is significant for providing TL to the students in the classroom. Moreover, researchers who support the use of L1 (see Cenoz & Gorter, 2014; Crichton, 2009; Forman, 2012; Krulatz et. al., 2016; Lee & Macaro, 2013; Macaro, 2001; Moore, 2013; Shin, 2006) do not want to reduce the use of L2 in the classroom (Forman, 2012). Thus, Forman (2012) helps to establish that L1 can be used in the classroom with maximum use of L2. As far as the matter of maximum use of L2 is concerned, the American Council on the Teaching of Foreign Languages (2010) suggests making 90% use of L2 in the classroom sparing only 10% for the use of L1. The limited use of L1 not only facilitates the extended opportunities to use English in listening and speaking but also provides useful opportunities for language acquisition (Scrivener, 2012). Thus, TL appears to be the important factor for the appropriateness of TT.

3.3 Teacher Questions

Table 3:
Type and Frequency of Questions Asked by the Teacher in the Classroom

Lesson	Display Questions	Referential Questions	Total Questions
1	62	8	70
2	51	6	57
Grand Total	113	14	127
Percentage	89%	11%	

The teacher asked 127 questions from the students in both lessons out of which the frequencies of display and referential questions were 113 (89%) and 14 (11%) respectively. In this way, display questions were observed at maximum frequency. It indicates that the teachers in Pakistani secondary school language classrooms prefer asking display questions for which the answer is already known to them to asking referential questions which prompt the students to elicit longer and syntactically more complex answers. These results (shown in Table 3) are also very common and align with the results reported in previous studies (see Erlinda & Dewi, 2016; Fitriani & Amilia, 2017; Omari, 2018; Vebriyanto, 2015).

As far as the function of the questions is concerned, display questions (i) produce just one or a few words response (Dalton-Puffer, 2007); (ii) encourage the recall of information and look for factual answers (McNeill & Pimentel, 2010); (iii) pursue questioner's agenda (Boyd, 2015); and (iv) elicit correct but not diverse answers (Kim, 2015). Referential questions, on the other hand, help the students to (i) assimilate useful output that further improves language acquisition process (Brock, 1986); (ii) scaffold reasoning (Smith, Blakeslee & Anderson, 1993); (iii) create an environment where the students can comfortably share their ideas with peers (De Rivera, Girolametto, Greenberg & Weitzman, 2005); (iv) use talk to explore understanding, to hypothesize, reason, evaluate and consider diverse answers (Smith & Higgins, 2006); (v) elicit diverse answers (Elizabeth, Anderson, Snow & Selman, 2012; Juzwik, Borsheim-Black, Coughlan & Heintz, 2014); and (vi) foster critical thinking (Fitriani & Amilia, 2017).

In the light of the results (see Table 3), it can be said that the teacher questions in a Pakistani secondary school English language classroom function to produce factual, choppy and short answers. It signifies that the questions (display) asked by Pakistani language teachers, in light of Nunan's (1991) recommendation that teachers should ask more referential questions, are not appropriate. In fact, referential questions have been preferred to display questions for a number of reasons. Firstly, referential questions are seen as a way for the students to make significant use of language which, according to Wintergerst (1994), increases up

to three times more than any other type of questions. In addition, referential questions provide long and complex answers (Brock, 1986) which increase non-verbal communication and the use of dictionaries resulting in motivated interaction, and high quality and quantity output (Wright, 2016), whereas display questions (being limited-response questions) may inhibit the learning process (Kim, 2015). Secondly, referential questions help the students to provide diverse answers based on their experiences, judgements and opinions which further help the teacher to fill information gaps. In contrast, display questions elicit low-level, short answers that correspond to the answer expected by the teacher (Erlinda & Dewi, 2016). Thirdly, referential questions, as compared to display questions, promote a higher number of speaking turns. Therefore, referential questions are more engaging than display questions (Brock, 1986). Fourthly, referential questions stir critical thinking in the students and therefore produce higher-order responses while display questions prompt factual recall, which produces lower-order responses (Bozorgian & Fallah, 2017). Fifthly, because of stirring students' evaluation and judgement abilities, referential questions are related with the highest cognitive levels. In contrast, because of prompting the recollection of factual information in the students, display questions are associated with low cognitive levels (Brock, 1986). Lastly, referential questions prove useful for increasing students' oral participation in the classroom (Bozorgian & Fallah, 2017). Conversely, display questions limit communication in the classroom (Cullen, 1998).

For these reasons, display questions (asked in maximum frequency by the teacher in both lessons in the study) do not seem good for effective teacher-student interaction management. Thus, the management of teacher questions in the classroom is not seen at par with Nunan's (1991) recommendation that the teacher should use referential questions more than display questions. Excessive use of display questions is also seen as a sign of inexperienced teaching (Farahian & Rezaee, 2012; Pica & Long, 1986). This study suggests that the teacher reconsider the use of frequently asked questions in the classroom for a better teaching-learning process.

3.4 Teacher Feedback on Learner Performance

The teacher provided feedback to the learners. He used a number of words in an attempt to provide positive feedback to the students such as 'correct', 'good', 'ok' and 'right' (these words are the translated version of the Urdu words used by the teacher). The teacher used the word 'good' (*shabbash* in Urdu) most of the time as compared to the other words like 'correct', 'ok' and 'right'.

It indicates that the teacher in a Pakistani secondary school ESL classroom provides feedback on learner performance using words like 'correct', 'good', 'ok', and 'right' while 'good' is the word that the teacher most frequently uses to give feedback on learner performance. The reason for the use of 'good' for feedback can be traced in Pakistani culture where every elder says *shabbash* (good) to the young at the time of the completion of a task or after a certain achievement. The same tradition is, perhaps, followed by the teachers in Pakistan who consider themselves elders and provide feedback on young students' performance. Nunan (1991) sees this type of feedback (provided by using words like 'correct', 'good', 'ok' and 'right') as romantic. Thus, it shows that feedback provided by the teacher in the Pakistani ESL classroom is not appropriate.

Typical teacher-student interaction in the classroom follows a traditional pattern where the teacher initiates student responses and the teacher provides the feedback (Liu & Le, 2012). The teachers should avoid the use of certain traditional words, which Nunan (1991) calls romantic. Actually, Nunan (1991) idealises positive feedback which, according to Liu and Le (2012), not only informs the students that they have finished their task but also motivates them for learning. Thus, positive feedback, in the view of Nunan (1991) is good for promoting learning behaviour in the students. For positive feedback, Nunan (1991) recommends Brophy's (1981) 'effective praise' guidelines (see Table 1). Therefore, this study suggests that the teacher follows effective praise guidelines to provide positive feedback on learner performance.

4. CONCLUSION

This study explored TT quantity, TT quality, teacher questions and feedback to determine whether the teacher-student interaction practices in a Pakistani classroom aligned with ESL principles or not. TT was observed in the highest quantity (77%) which confirmed the belief that the teachers talked too much in the classroom. The high TT amount restricted teacher-student interaction in the classroom and spared a limited time for ST (23%), which further limited the opportunity to contribute to the L2 output. On average, only 23 seconds' time was given per student in the classroom. Similarly, the teacher used L1 in the classroom which hindered the provision of TL input by the teacher to the students. Thus, the use of L1 was observed against the quality criterion for the appropriateness of TT. Moreover, the teacher asked display questions more (113 times) than referential questions (14 times) which (display questions) made the students to elicit choppy, factual and short answers. As far as the feedback was concerned, the teacher used short interjections (such as 'good', 'right', 'ok', 'correct') to provide feedback on learner performance in the classroom which did not align with the feedback principles. These findings lead to the conclusion that the teacher-student interaction practices in a Pakistani secondary level language classroom did not match ESL classroom management principles.

ESL classroom management requires intensive teacher-student and student-teacher interaction in the classroom. TT, teacher questions and feedback are the different forms of teacher-student interaction and need to be effectively managed to facilitate the language learning in the classroom. In this regard, this study suggests that teachers (i) reduce TT in exchange for ST; (ii) increase the use of L2 to provide TL input to the students; (iii) use referential questions more than display questions to make the students to elicit varied as well as long answers; (iv) give the students more chances to speak in the classroom for output contribution; and (v) follow effective feedback guidelines (see Table 1) to provide positive feedback on learner performance for an effective ESL classroom management.

A limitation of the study is that its sample is very limited (comprises two audio-recorded lessons); therefore, its results are not generalisable.

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A reflection on identified challenges facing South African teachers¹

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ABSTRACT

The ongoing crisis in South African education and constant curriculum changes puts strain on school teachers. This article focuses on the challenges confronting teachers in the South African schooling context. The methodology of grounded theory has great potential to contribute to our understanding of challenges within particular substantive contexts. In order to understand the key challenges experienced in South African schools, a qualitative research approach was employed as the best option for the collection of relevant data. Multiple case studies were undertaken, using semi-structured individual interviews with 12 heads of departments and six focus group interviews with teachers. Results revealed inter alia challenges such as curriculum change, medium of instruction, overcrowded classrooms, discipline and lack of resources. Implications for stakeholders regarding support and the implementation of any new curriculum were pointed out.

Keywords: curriculum change, discipline, grounded theory, lack of resources, learner performance, medium of instruction, overcrowded classrooms

INTRODUCTION

Countries worldwide have experienced challenges with and changes to their curriculum. Consequently, these challenges had an intense impact on the way curricula are conceptualised and implemented (Horsthemke et al., 2013). In America, large numbers of learners experience reading problems (Boyer & Burnette, 2008), while in sub-Saharan Africa, 774 million young people (over 15 years of age) and adults cannot read or write (Federal Ministry for Economic Cooperation and Development, Germany, 2013). Across Africa, ministries of education are doing all they can to ensure that standards progressively improve (Nsamenang & Tchombe, 2011). In South Africa, however, there is a long way to go: Business Tech (2015) notes that South Africa's Mathematics and Science education is among the worst in the world – that is, second last – according to global school rankings. In 2014, the *World Economic Forum Report* (Du Plooy, Henkeman & Nyoka, 2014) identified South Africa as one of the worst-performing countries in the field of education. In 2017, South Africa ranked 10th out of 15 for Grade 6 reading and 8th for Mathematics, when compared to low-income countries such as Tanzania, Kenya, Swaziland and Zimbabwe, even

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though this country has fewer pupils per teacher, better resources and more qualified teachers than other countries (Mail & Guardian, 2018). The 2018 international Institute for Management Development (IMD) world digital competitiveness ranking positioned South Africa 49th out of 63 economies – a drop from 47th place in 2017 (IMD World Competitiveness Center, 2018). Furthermore, South Africa dropped from 37th to 54th place for training and education, and ranked 60th for higher education achievements, which the IMD highlights as a significant overall weakness (IMD World Competitiveness Center, 2018). The Department of Basic Education (DBE) matric class of 2019 achieved a pass rate of 81.3%, up from 78.2% in 2018. But the number should be seen in context. In 2017, a total of 1 052 080 learners were enrolled in grade 10, yet only 409 906 learners eventually passed matric the previous year. The results show that 44.55% of matrics who passed did so with a grade high enough for admission to bachelor's degrees (South Africa's Education statistics 2020). Despite many positive developments in South Africa (SA), the education system and educational outcome face many challenges and require further improvement (Maarman & Lamont-Mbawuli, 2017). This is an indication that the problems confronting South African education is a reality, and that teachers, especially, face significant challenges.

Against this background, the aim of this research was to identify the specific challenges facing South African teachers, and to make recommendations on how to deal with those challenges.

METHODOLOGY

Theoretical framing using grounded theory

To achieve the outcome of this research, the researchers launched an open-minded inquiry into the nature of the challenges teachers face in South African schools by applying the methodology and principles of grounded theory. Grounded theory is one of three qualitative designs, namely, ethnographies, case studies and phenomenological studies (Denzin & Lincoln, 2000). Grounded theory is mainly used for the qualitative research approach, but may also be used for quantitative research (Walsh, 2014). Grounded theory has its origins in *The Discovery of Grounded Theory* (Glaser & Strauss, 1967). It was developed by Barney Glaser and Anselm Strauss who believed that theory could emerge through qualitative data analysis. This research methodology uses inductive reasoning, in contrast to the hypothetico-deductive model of the scientific method (Glaser & Strauss, 1967).

The latest reviews from South Africa advocate the possibilities and value which these grounded theory methods offer for management-related research (Burden & Roodt, 2007), career research, occupation studies (Martin & Barnard, 2013) and the social sciences (Ngulube, Mathiapa & Gumbo, 2015; Corbin & Strauss, 1990). These authors state that these methods are valuable because of the benefits of building theories from the bottom up, and for the fact that they work inductively, are less theory bound, are often conducted in local languages and can capture real-life experiences and narratives (Redman-Maclaren & Mills, 2015; Kolb, 2012; Charmaz & Belgrave, 2007; Charmaz, 2006, 2014, 2017). According to Du Plessis and Van der Westhuizen (2018), there are distinct advantages for humanities and social science researchers in using grounded theory methods. In education, grounded theory research outputs will hopefully grow in number, with theoretical contributions becoming more valued and better integrated across focus areas.

Although alternative perspectives exist on grounded theory, as explained by Underwood and Dia Lima (2015), the researchers decided to adhere to the original approach proposed by Glaser and Strauss (1967). The major difference between grounded theory and other research methods is its specific approach, which seeks to develop theory that is grounded in data which have been systematically gathered and analysed. The grounded theory approach works from the premise that initial data collection and preliminary analysis should precede the literature review.

In the context of grounded theory, data analysis consists of seeking out the ideas underlying actualities by looking for codes, then concepts and, finally, categories. During the first phase, the researcher compares data and continually asks questions about what is (and is not) understood. Categories, properties and dimensions within and among the data can be identified by applying a variety of systematic techniques (e.g., allocating numbers/codes to words or highlighting similar words in a specific colour) to examine the text as a whole or in part (Strauss & Corbin, 2008). The next step, called axial coding, entails assembling the data in new configurations that allow for connections to be made between categories. Axial coding mainly consists of questioning and comparison, which feed into inductive and deductive thinking as the substrate of relating subcategories to categories (Strauss & Corbin, 2008). Strauss and Corbin (2008) define selective coding (the final stage) as identifying and establishing the core category, systematically linking it to other categories, validating similarities and relationships between categories, and completing categories that require refinement and development. Only after the process of crucial integration (weaving and refining all the major categories into the selection of a core category) has been done, can grounded theory emerge (Strauss & Corbin, 2008). A vital part of developing grounded theory is the use of theoretical (analytic) memos or private diaries on the part of the researcher(s). 'Memos are the theorizing write-up of ideas about codes/themes and relationships as they strike the analyst while coding' (Glaser & Strauss 1967: 90). Moss, Gibson and Dollarhide (2014), Allan (2003), Strauss and Corbin (1990), and Glaser (1978, 1992) strongly recommend writing such theoretical memos, meaning that when a researcher is struck by a notion during coding, s/he should break off at that point and jot down a memo to develop the idea.

The literature tends to favour an inductive approach and, rather than trying to force data into a preconceived mould, allows the data to dictate and shape the course of research. It is deliberately fused so that initial data analysis can be used to shape continuing data collection. This is intended to provide the researcher with opportunities to increase the 'density' and 'saturation' (no new information) of recurring categories and follow up on unexpected findings (Strauss & Corbin, 2008; Johnson & Christensen, 2004: 30). The process continues until no new insights that shed light on relationships pertaining to the core idea are revealed. Only then can new theories be defined. Once a theory has been formulated, the process itself is complete and testing of the theory is not required to confirm its status as validly grounded (Strauss & Corbin, 2008; Dey, 1993; Glaser, 1992).

The following sections focus on the methodology, data collection and analysis, discussion of the findings, literature review, and conclusion.

Empirical inquiry

Interpretivism focuses on human interpretations of the social world, and the significance of both the participants' and the researchers' interpretation and understanding of the phenomenon under study (Ritchie & Lewis, 2013). Interpretivism was deemed the most appropriate paradigm for this undertaking, as it is concerned with revealing multiple realities as opposed to searching for one objective reality (Guest, Namey & Mitchell, 2013).

The researchers adopted a qualitative research approach based on a grounded theory research design, to interrogate the views of selected heads of departments (HODs) and teachers on the challenges they face in selected South African schools within the Gauteng Ekurhuleni North District. To this end, the researchers employed multiple case studies, which are designed to allow for in-depth analyses of various cases (Creswell, 2014).

Selection of participants

The researchers chose three urban and three township schools (each regarded as a case) to investigate the dynamics within different types of schools, and present evidence to ensure the validity of the results.

Purposive selection was done to conduct individual interviews with two HODs from each school (12 in total). The researchers also interviewed five to seven teachers in a focus group at each school: six focus group interviews were conducted (36 participants in total). All the participants had ten or more years of teaching experience. The right to privacy was secured by allocating a number and their subject or department to each research participant, who were subsequently identified as follows: in urban schools – US1, US2, US3; and in township schools – TS1, TS2, TS3. HODs were represented by a number and subject, for example, HOD1: Language department, HOD2: Mathematics department. Teachers in the focus group were represented as FG1, T1, T2, followed by 'Language teacher' or 'Mathematics teacher'. In this research, credibility and dependability were established by making use of two researchers. Ethical clearance was granted by the Department of Education (Gauteng) and the relevant higher education institution.

*Table 1:
The profile of the HoDs (n = 12)*

Urban school (US1)	Urban school (US2)	Urban school (US3)	Township school (TS1)	Township school (TS2)	Township school (TS3)
HOD1M Commerce 20–25 TE	HOD1F Arts 15–20 TE	HOD1F Social Sciences 20–25 TE	HOD1M Language 30–25 TE	HOD1M Mathematics 25–30 TE	HOD1F Language 25–30 TE
HOD2M Mathematics 15–20 TE	HOD2F Natural Sciences 15–20 TE	HOD2M Language 20–25 TE	HOD2M Mathematics 15–20 TE	HOD2F Language 10–15 TE	HOD2M Commerce 20–25 TE
2 M	2 F	1 M 1 F	2 M	1 M 1 F	1 M 1 F

Key: M = Male, F = Female, TE = teaching experience (in years)

As indicated in Table 1, seven males and five females were interviewed. No attempt was made to balance the genders because participation was voluntary and based on years of experience. A profile of the focus group participants is provided in Table 2.

*Table 2:
Teachers as focus group participants (n = 36)*

Urban school (US FG1)	Urban school (US FG2)	Urban school (US FG3)	Township school (TS FG1)	Township school (TS FG2)	Township school (TS FG3)
T1F Tourism 15–20 TE	T1F Mathematics 15–20 TE	T1F Geography 20–25 TE	T1F Business Economics 20–25 TE	T1F isiZulu 15–20 TE	T1F isiZulu 20–25 TE
T2M Mathematics 15–20 TE	T2F Life Sciences 20–25 TE	T2F English 30–35 TE	T2M Mathematics 15–20 TE	T2F English 10–15 TE	T2M Accounting 20–25 TE
T3F Life Orientation 30–35 TE	T3M Afrikaans 30–35 TE	T3F Mathematics 30–35 TE	T3M Social Sciences 10–15 TE	T3M Business Studies 25–30 TE	T3M Mathematics 30–35 TE

Urban school (US FG1)	Urban school (US FG2)	Urban school (US FG3)	Township school (TS FG1)	Township school (TS FG2)	Township school (TS FG3)
T4F Afrikaans 20–25 TE	T4M Natural Sciences 20–25 TE	T4F Economics 30–35 TE	T4F isiZulu 15–20 TE	T4F Accounting 25–30 TE	T4F Physical Science 30–35 TE
T5M Physical Science 20–25 TE	T5F Accounting 25–30 TE	T5F Life Science 20–25 TE	T5F Life Science 20–25 TE	T5F Social Sciences 15–20 TE	T5F Geography 20–25 TE
	T6F English 10–15 TE	T6M History 30–35 TE	T6F English 25–30 TE		T6F Technology 20–25 TE
	T7F Economics 20–25 TE				T7F Economics 20–25 TE
2 M 3 F	2 M 5 F	1 M 5 F	2 M 4 F	1 M 4 F	2 M 5 F

Table 2 shows that most teachers who participated in the research taught Language and Commerce, respectively.

Data collection

The first researcher began with a general research problem (classically in the format of grounded theory): 'As HODs/teachers of this school, what are the main challenges you face during teaching?' The interviews, which lasted approximately 60 minutes, were audiotaped.

During the interviews, the first researcher made notes (memos) to identify key words and capture follow-up questions to glean additional information (Moss et al., 2014; Green et al., 2007). Having successfully collected the data by transcribing the interviews, both researchers commenced open coding on their own, which entailed reading each line, sentence, paragraph, etc. to answer the questions: 'What is this about?' and 'What is being referenced here?' Next, key words and phrases were highlighted (in bold below) and data were broken down, examined, compared, conceptualised and categorised. Both researchers analysed the data on their own, then compared their interpretations, for the sake of trustworthiness.

Once the data had been open coded, the researchers commenced axial coding. This involved reassembling the data obtained to identify a central phenomenon. To this end, connections between the categories were identified.

FINDINGS

In writing memos to connect themes and patterns, there was neither a need for additional coding and categorising nor for data collection. Table 3 summarises the themes identified from the data analysis.

Table 3:
Main themes identified by the participants

HODs	Teachers
Curriculum change	Workload

HODs	Teachers
Poor learner performance	Dropout rate
Dropout rate	Poor learner performance
Quality of learners	Progressed learners
Medium of instruction	Medium of instruction
Overcrowded classrooms	Poor subject content foundations
Discipline	Low standards
Lack of resources	Overcrowded classes
	Discipline
	Technology
	Lack of resources
	Underqualified teachers

*Table 4:
Consolidated themes and categories*

Themes	Categories
Curriculum change	Implementation of CAPS Workload Little time for teaching and learning
Learner performance	Quality of learners Skills needed Dropout rate Poor subject content Low standards and mark adjustments Underqualified teachers
Medium of instruction	Learners do not understand English Language influences all subjects
Overcrowded classrooms	Overcrowding as a contributing factor in learner performance Teacher-learner ratio
Discipline	Learners are not disciplined Learners lack commitment Learners have too many rights
Lack of resources	Need of resources for the curriculum to be implemented effectively Technology Access to internet Training for teachers and learners

Table 4 consolidates the themes and supporting categories identified from the data obtained from the interviews with the HODs and teachers, as indicated in Table 3. These challenges are of equal weight and importance and are intimately linked. The presentation and analysis of the empirical findings reflect the participants' experiences of the challenges confronting teachers in South African schools and is supported by verbatim quotations. The discussion of challenges identified by both groups of participants were combined.

Individual interviews with HODs

A main challenge that HODs mentioned was **curriculum change**. In their view, a few grey areas still need to be refined as the **Curriculum and Assessment Policy Statement (CAPS)** had not been thoroughly researched. Among their reservations was the **quality of the learners** CAPS was producing. They testified as follows:

We cannot cope wa [you] understand, these changes are coming too fast too quick and yet educators are not properly trained to handle such. (Social Science teacher, TS1HOD2)

The CAPS does not even prepare learners for university level hence [we have a] lot of [...] failures in the universities. We have a lot of learners [...] for them to be qualified for the courses that they do, they have to go for bridging course[s] first, that's the problem with the CAPS. (Creative Arts, Tourism and Consumer Studies teacher, TS3HOD1)

Focus group interviews with the teachers

The first challenge mentioned during the focus group interviews was **workload**. The participants commented that the CAPS content is dense, and the time allocated is insufficient to cover the workload:

The CAPS expect[s] a lot from kids, especially the Grade 12s, because if you check, within a term, they are supposed to have written about how many tests, for example in all learning areas [at] a time, is it seven excluding the SBAs (schools-based assessment), and all of us as Grade 12 educators we expect to see our work up to date, so there is a lot, really. Maybe we need to reduce the number of SBAs in Grade 12. (History teacher, FG6US3)

The topics are congested into [a] small [amount of] time. Let me say, in Maths I have to teach Grade 8 Maths and I have to teach algebraic equations, go na le (there is) 'expand' [...], factorisation [...], multiplication [...], addition [...], division, then they all fall under algebraic expression. What about [if] they break it down: for another grade they do this, and [i]n another grade they do this, maybe if they divide it in[to]: Grade 8 do this and Grade 9 is the continuation of algebraic equation on certain concepts. There are some content congestions, it's a policy that has content congestion. (Mathematics teacher, FG1TS1)

The teachers indicated that the DBE is more concerned with the number of learners passing than the **quality** of the passes and does everything in its power to make sure that more learners pass.

These learners are progressed until they reach Grade 12, then in Grade 12 there are no results because from the beginning they didn't understand the work of Grade 8. (isiZulu teacher, FG1TS1)

Another contributing factor [to the] high failure rate in Grade 12 is progressed learners. Learners are progressed, at the end of the day they blame the teachers, the HODs, whoever, but they are the one[s] who are causing all these problems. (Mathematics teacher, FG5US2)

From these comments, it is clear that progressed learners do not have the **subject content** foundation required to pass Grade 12.

Teachers also mentioned **poor subject content foundations**, complaining that learners did not acquire the requisite basics during the Foundation Phase, and could thus not perform well in Grade 12. They explained that CAPS mainly focuses on assessment, rather than teaching and learning. There is **little time for teaching and learning**, with too much time being allocated to assessment. Learners are often assessed without enough knowledge.

In Mathematics Grade 8 and 9, learners don't have the knowledge of what they are learning about. [...] you talk about fractions and you assume that the learners know what [a] fraction is, how to add or subtract fractions, only to find that they don't have any idea of what is happening there. They come from Grade 7, 6, 5 without any knowledge. (Mathematics teacher, TS3FG3)

The learners here must be prepared as early as Grade 1. We must groom them as early as Grade 1, so that even if our workload is equal in Grade 12 we don't feel the stress because we receive prepared learners. (Accounting teacher, FG5US2)

The teachers identified **low standards** as a concern, admitting that South Africa is known for very low educational standards. They indicated that CAPS produces learners who cannot attend university – although they passed, they only obtained 30%. They were also concerned about the **mark adjustments and condonation** of Mathematics learners who earned 20% and less. They suggested that, from Grade 10, the pass percentage should be 50%, as is evident from these comments:

The performance of Grade 12s in general is very low. You can find that the school may get [a] 98% pass rate, but the average mark is actually 30%. Its quantity not quality. And we can rectify this, maybe in Grade 10. If we can make sure that the learners who are going to Grade 11, pass with 50%. (Geography teacher, FG3TS3)

Then the concept of our pass mark, I think that one is a big challenge. I don't understand how developers develop a curriculum, make sure that the pass rate is 30% and [if] you go to university it is 50%. So, they are simply saying an African child is supposed to get a matric certificate and never go to university. So how, then, are we going to develop new engineers? (Physical Science teacher, FG4US1)

Furthermore, the participants indicated that they would do away with **technology**. They felt that it was useless for the government to issue learners with tablets, without providing the necessary accompanying resources. For example, learners could not use the tablets to do research, because there was no **access to the internet**. The tablets were intended to be used in conjunction with **smart boards**, but only a **few educators went for training on this technology**, and the rest could not use it. As this participant stated:

I would do away with the tablets, [the] smart board is okay, but the tablet? Remember, our children are coming from disadvantaged community[ies] and they become excited when they carry those tablets [...]. I find it not fair for us to give those children the tablets knowing very well that these children who were supposed to be carrying those tablets are not using those tablets at school. They are not carrying their tablets around, you see, they leave them at home, and use them at [in]appropriate time[s] [...], they misuse them most the time [...]. What I would say to that, [is] they must stop them because of the limited resources. (Economics teacher, FG3TS3)

Underqualified teachers present a challenge, with the participants indicating that new topics were regularly being added in certain subjects, while teachers are not equipped to teach those topics. Even new teachers coming from universities were not thoroughly trained, as these participants explained:

... in relation to the CAPS and the curriculum, we have new topics, like for example, there is a topic that carries ± 20 marks in Geography map work, [...] which most educators [...] are still learning also. It's a new topic, the GIS part, and it requires software to be included in schools, it requires practical work [...] we need practical equipment to educate learners using it, we only do the crash theoretical course. [...] I would try to implement, like let's say paper GIS to show how are layers implemented in

Geography when we do land survey. [...] for learners it becomes just a classroom experience, they never have enough time to go out and view it, it's only interested educators who will go through that, so most educators will just brush it off and say 'no, I'm not going to teach this because I was never trained for this'. (Social Sciences teacher, FG1TS1)

I think the training programme should be [implemented] at universities, the way they train teachers, so that these youngsters coming to the profession now are trained [...]. As my colleague said earlier, these kids who come from universities have no clue as to what is really happening, because whatever they are taught there and the method of teaching are totally different from reality. So, I suppose the idea is that this training programme must be [in place] in the universities first. (Tourism teacher, FG4US1)

Combined challenges identified from both individual interviews and focus group interviews

HODs referred to **learner performance** and the **implementation of the CAPS**, indicating that the strongest emphasis was on **learners acquiring skills** so that they could become productive members of society. Many learners were unable to cope at university and **dropped out** during their first year. As one of the participants commented:

These learners that we are producing, how many of them drop [out] during [their] first year at university level? [...] What is the reason? They are not prepared, we just throw them [in the deep end] like that, they are raw. (Mathematics teacher, US3HOD1)

The participating teachers also highlighted **poor learner performance** and mentioned that **learners lack commitment** to their school work. They rely on the DBE to push them from one grade to the next. They are lazy to read a paragraph so, to avoid failing, the teachers read with them and analyse texts word for word, explaining the meaning and breaking down words for them. Several participants voiced their opinions in this respect:

We are spoon-feeding these learners and [that] doesn't take them anywhere. Once you can leave these learners and say 'do these on your own', they won't do it. Even in Grade 12, you must teach them as if you are teaching Grade 8s, you know? (Business Studies teacher, FG4US2)

The teachers also complained that the CAPS learners are unable to cope at university and **drop out** during their first year:

Its quality versus quantity on my side, the CAPS or maybe the education of nowadays it focuses on quantity, quality is not important anymore, that's why we are going for low pass rate percentage[s], then [what] the learner knows, is not important. (English teacher, FG1TS1)

The CAPS does not prepare them for tertiary institutions. Our learners are struggling when they get to university. (Life Sciences teacher, FG4US2)

Another identified challenge was the **medium of instruction**. Township school HODs complained that **learners do not understand English** – a fact which affected other subjects as well and contributed to poor learner performance. Because of the widespread use of English in further education and in the job market, those learners whose language of instruction is not English will often select English as their first additional language. They commented that even learners who could read, **still do not understand the language**, and are unable to interpret or analyse questions on their own. In this regard, some participants commented:

I think one of the contributing factors can be that they are doing English as a First Additional language and they can't construct sentences, they can't read properly. With the CAPS we are still experiencing that learners are not reading with understanding [...], you know you could tell that language is a barrier and, if a learner experiences problems in terms of language and other subjects are being taught in English, [it] definitely is going to become [a] very serious problem. (English teacher, TS2HOD1)

... medium of instruction, which is English. Some learners cannot understand the language itself and another problem is writing and reading. You find a learner in Grade 12 can't even spell a simple word, [or do] sentence construction in Grade 12, those are the challenges that we have. Because of the language barrier, the content subjects also suffer. (Technology teacher, TS3HOD1)

The teachers likewise complained that learners do not understand English, which affected their other subjects and contributed to their poor performance. Here are some of the participants' opinions:

Educators are sometimes tempted to cross the line, to switch so that learners can understand, but you can imagine, they must first understand English and then they can deal with the syllabus. Maths literacy is purely English: first you must understand English then you must learn to do the calculations, so English is a big challenge. (Mathematics teacher, FG1TS1)

First of all, [there is a] language barrier, because our learners cannot express themselves in English and they lack some of...it's not that they do not have the content, or they cannot understand the question, it's just that the problem is the language, they cannot understand what is asked there. (Life Sciences teacher, FG6US3)

The next challenge mentioned by both groups was **overcrowded classes**. Only participants from township schools complained about **overcrowding as a contributing factor in Grade 12 learner performance**. Overcrowded classes make it difficult for teachers to give individual attention to learners. As three of the participants stated:

Our classes are overcrowded, if we were given [a] limited number of learners, I think the CAPS [would] be of [...] benefit to learners, even the results would be of a very high standard. But the challenges that we have in class, overcrowding, it's the one factor that is disturbing education in class. They can't perform to their ability. (English teacher, TS1HOD1).

Overcrowding is my biggest challenge. Mathematics is a subject that needs individual attention every now and then, therefore it is not possible. Overcrowding leads to [a] high failure rate and also causes disciplin[ary] problems. (Mathematics teacher, TS2HOD2)

The size of the classroom... in most cases you find that learners are overcrowded, it leads to poor performance because learners don't get individual attention. (Life Sciences teacher, FG1TS1)

Discipline was also identified as a challenge. Most participants complained that the **learners are not disciplined**. They intentionally do not do their work, because they know there will be no repercussions. They do not respect their teachers, who become demoralised. In this regard, the participants explained:

One other thing... it's not the CAPS related but it's a general thing, nobody seems to come out clearly in terms of discipline, what is [it] that that we need to do, to see to it that our challenges at schools are minimised, because giving tasks and learners not performing... it's because of the fact that they know there is no consequence for [their] action, and yet because this education is learner-centred, the child is never wrong. (Social Sciences teacher, TS1HOD2)

Challenge number one, you know what, our learners are not disciplined. They know that teachers cannot go beyond a certain limit, they know their rights. This thing of rights, the learner[s] practise those even in our classroom. If I send him out, it's also a problem, you know? It's against the law. They are getting out of hand and sometimes they kill the spirit of the teacher. (Life Sciences teacher, US1HOD1)

You see, the constitution does not allow us to use corporal punishment, not that we want to do it, but there are no [...] other effective methods to discipline these kids. They know they are protected even more than the teachers themselves, hence it compromises us on [the] delivery of our duties, especially on discipline. (Mathematics teacher, FG6US3)

A lack of resources was also mentioned, with the participants complaining that the **CAPS requires resources for the curriculum to be implemented effectively**:

Our schools are not resourced and they are not well equipped. Resources di batlega gagolo neh [are extremely important]. You know one other thing is that we need working libraries, and also computer labs. (Social Sciences teacher, TS1HOD2)

Our school does not have a laboratory, so we make use of a small class. As in when we need to do experiments, particularly in Physical Science, we do a show of experiments, learners are not engaged in doing that, because we don't have a lab. A teacher is actually standing in front of a learner, demonstrating, and the opposite is supposed to be true. (Physical Science teacher, US2HOD2)

What I see is the CAPS wasn't made for [...] South African conditions, especially [...] where a primary school in a rural area and urban area is not the same. It is not meant for under-resourced schools. (Afrikaans teacher, FG4US1)

In isiZulu [...] they have listening comprehension, at times we don't need to read for the learners, at times you can play a radio and they listen to what... we don't have all these things. (isiZulu teacher, FG3TS3)

DATA INTERPRETATION

An extended exposition of a theory would be premature, as the theory has to be verified first. Subsequently, a literature review was undertaken, to consider the extent to which established studies and theoretical insights either support or refute the researchers' grounded theory.

LITERATURE REVIEW

The literature review focuses on the seven core themes identified in the empirical investigation in the researcher's grounded theory (see Table 4).

Curriculum change in South Africa

Throughout the 1980s, South Africa was characterised by resistance to the injustices of apartheid, however, rapid transformation was generated by riots in 1976 (DoE, 2002). After the first democratic election in 1994, the National Education and Training Forum began the process of syllabus revision (DoE, 2002). Curriculum 2005 (C2005) was introduced in 1998 with an outcomes-based education (OBE) approach to redress the imbalances of the past (DoE, 2002). It was developed on a national level and teachers only became involved when receiving training (Arend, 2005). Despite the fact that teachers were excluded from participating in the curriculum development process, they had to implement it. There were many new

concepts for teachers and learners to digest, and teachers did not know exactly what was required of them, because the system required hours of administration on their part (Naidoo, 2011). As a result of numerous challenges, C2005 was modified and gave rise to the National Curriculum Statement (NCS). Reyneke, Meyer and Nel (2010) remark that inadequate teacher training led to poor understanding of the curriculum, most teachers lacked resources and support materials, standards and moderation were poor, and illiterate learners entered the system, thereby adding to teachers' already heavy workload. As a result of challenges experienced with NCS, the Curriculum and Assessment Policy Statement (CAPS) was introduced in 2012 in Grade 10.

CAPS-related workshops did not adequately prepare teachers for the challenges of the classroom, but only ensured that they understand the policy (Moodley, 2013). Teachers are not being properly trained to implement CAPS, nor are conditions favourable for implementation, due to insufficient resources, unqualified teachers and a lack of support from the DBE (Maharajh, Nkosi & Mkhize, 2016). Du Plessis and Marais (2015) note that there is a significant amount of work for teachers and learners to do, and the lack of resources has not been addressed, leading to a higher failure rate and poor performance in languages and Mathematics. Another challenge is the rapid pace of teaching required by the curriculum (Phasha, Bipath & Beckmann, 2016). CAPS is too heavy on content, and teachers struggle to cover the immense level of content in class, thus overburdening learners with homework (Goetze, 2016). Consequently, in 2018, there was another call for public comment after ongoing complaints from educational leaders about the content overload as well as the added burden of SBA (DBE, 2018).

As noted from the empirical data, criticism was raised on the topic of curriculum change. Essentially, the DBE has to react to complaints in terms of inadequate teacher training and poor understanding of the curriculum, supported by literature.

Learner performance

Education is considered extremely important throughout the world, but still no two countries approach it in the same way – some are better at it than others (*MBC Times*, 2013). In a comparison of academic performance in 57 countries, learners in Finland came out on top overall (Wilde, 2015) – and only the top ten per cent of college graduates in Finland are allowed to enter the teaching profession (US DoE, 2011). Moreover, teachers in Finland have assistants who have been trained to assist struggling learners (Hendrickson, 2015).

Conversely, 1% of teachers in England are Advanced Skills Teachers, meaning they produce excellent outcomes with learners, possess excellent subject knowledge and are able to advise on best practices; they can plan both operationally and strategically to ensure successful learning, are highly skilled at assessing and evaluating; and mentor and support other teachers, including coaching and training both in their own schools and in other settings (Brighouse & Woods, 2013). This means that 99% of teachers are not sufficiently equipped to produce skilled learners. Learners need knowledgeable and skilful teachers who are trained in effective strategies, to teach academic knowledge and skills aimed at improving performance (Maimuna, 2016). Ideally, teachers should make use of recent and relevant teaching materials in the teaching and learning process (Ige, 2016).

In addition, learners in the United Kingdom (UK) struggle to perform Mathematics tasks with higher cognitive demands, such as taking real-world situations and translating them into mathematical terms (OECD, 2012). Research reveals that better teachers lead to better learner performance, and better performance leads to higher learner motivation (British Council, 2015). Maarman and Lamont-Mbawuli (2017) concur that motivation is an important factor and that learners should display the willingness to participate in motivating exercises or programmes implemented either inside or outside the school. Most

learners in Scotland in primary schools achieve an average of 70% in numeracy, but in secondary schools only about 40% achieve high standards. However, in reading, both primary and secondary learners laudably perform at around 80% (OECD, 2015).

Zimbabwe has the highest literacy rate in Africa. From 2009 to 2016, learner performance dropped to 'low' and later 'unacceptable', ranging between 19 and 29% (Nyoni, Nyoni & Bonga, 2017). In that country, the ratio of qualified teachers to learners is 1:42 in primary schools and 1:31 in secondary schools (Higherlife Foundation, 2016).

Maemeko, Nkengbeza and Ntabi (2017) report that low academic achievement among Grade 12 learners in Namibia has become stressful and frustrating to all stakeholders.

As noted, South Africa is underperforming in terms of education (Jacobsohn, 2017; Du Plooy et al., 2014). According to Spaul (2017), most learners acquire learning deficits early on in primary school, and then carry these with them as they progress through the higher levels. Davis (2017) warns that, in 2016, the true Grade 12 pass rate would only be 40.2% (not 72.5%), if poor-performing learners who had been removed from the system, were accounted for. Business Tech (2017) concurs with those statistics, since the dropout rate was not taken into account. The official pass rate has since increased to 75.1% in 2017. Performance depends, to a large extent, on the number of teachers, their quality, their devotion to duty and their effectiveness on the job (Ahmad, 2016).

Empirical analysis shows that poor learner performance, a lack of skills, commitment and motivation are concerns for South African teachers. What is more is that learners are not equipped for tertiary training. The literature review confirms that learners need skilled teachers to teach academic knowledge and skills aimed at enhancing learner performance.

Overcrowded classrooms

Overcrowding, which is determined by the average number of learners per teacher, is one of the most serious problems confronting South Africa, especially in rural or township schools, because it affects curriculum delivery. Class size is strongly related to learner performance (Bakasa, 2011). Overcrowded classrooms negatively influence learners' academic performance (Fakude, 2012), as the teacher cannot pay full attention to every learner (Omwirhiren & Anderson, 2016).

Indeed, overcrowded classrooms are a problem world-wide. The learner-teacher ratio in Tanzania is at an average of 52:1 and as high as 72:1 in some regions (Nyandwi, 2014). In Pakistan, the average number of learners in most classes ranges from 70-120 (Khan & Mohammad, 2012). In contrast, Finland is a top-performing country academically, with small class sizes: its learner-teacher ratio is 15:1. Likewise, Curro Holdings, South Africa's largest private school operator, has a 15:1 ratio across its network of 110 schools, but the ratio in government schools exceeds 40:1 (Business Tech, 2016).

Unfortunately, there is no effective teaching and learning in large classes, and the classroom environment becomes unproductive (Business Tech, 2016). Thus, learners in larger classes display negative learning behaviours, such as not responding to the teacher's questions and expecting the teacher to provide the answers (Epri, 2016). Teachers in overcrowded classes cannot give learners individual attention and, as a result, some may fall behind (Marais, 2016). Besides, in schools that cannot afford more teachers or increase the number of classrooms, classes are sometimes overcrowded to the point where learners learn under trees, forcing teachers to spend more time on classroom management than on teaching, to the detriment of learner performance (Higherlife Foundation, 2016). Overcrowded classrooms undermine learner performance, effective teaching and discipline (Matshipi, Mulaudzi & Mashau, 2017; Van Zyl,

2016). Larger classes are noisier and more difficult to control (Marais, 2016), causing teachers to spend more time on disciplining learners than on teaching.

As noted by the participants, overcrowded classrooms are a reality and teachers have to make the best of the situation. A contributing factor is the progression of learners. Moreover, it creates discipline problems and has a negative influence on learner performance. This is confirmed by literature: overcrowded classes lead to unproductive teaching and discipline problems, depriving learners of individual attention.

Discipline

Modern-day scholars tend to focus on indiscipline among learners and its effects on learning outcomes and scholastic progress. Some suggest that disciplinary policies simply do not have the desired effect (Stanley, 2014; Schoonover, 2009), while others assert that even suspension does not prevent learners' future misbehaviour (Nichols, 2004). In fact, the Schools Act (Republic of South Africa [RSA], 1996a) makes it clear that corporal punishment may no longer be used in public and independent schools, which means that teachers should thus find creative means of disciplining learners. According to the constitution (RSA, 1996b), everyone has the right not to be treated or punished in a cruel, inhuman or degrading way.

Disruptive behaviour amongst learners is eliminated if there is good discipline at school. Hence, the implementation of effective disciplinary measures is key for any learner on the journey to adulthood (Stanley, 2014). Disruptive behaviour in South African schools has been reported widely, and is said to include learners arming themselves with dangerous weapons, learner-on-learner violence, learner-on-educator violence, vandalism, theft, and the possession of prohibited substances (e.g., drugs and alcohol) (Mestry & Khumalo 2012). Bad behaviour is often a form of attention-seeking. In most homes, especially in rural villages, many learners live with their grandparents, have working parents, head households themselves, or have to deal with domestic violence (Mestry & Khumalo, 2012). Indeed, schools should provide learners with the educational foundation to build successful, independent lives – at the most basic level, classroom disruptions interfere with learner achievement (Kelly, 2019).

Disciplinary codes provide learners with acknowledged consequences for misbehaviour. **Effective classroom management** should include the dissemination and use of a code of discipline (Kelly, 2019). Discipline in schools can include educators or administrators stopping fights before they begin, or dealing with hostile students in a classroom setting. However, effective discipline begins with the implementation of school-wide housekeeping policies that all teachers must follow.

The consensus among participants regarding discipline confirms that respect between teachers and learners is important. They were in agreement that learners know their rights. Our literature control verified that if a school is effectively disciplined, learners' and teachers' academic performance will be highly rated.

Medium of instruction

Howie (2013) found that learners' English proficiency was a strong predictor of performance. English is the medium of instruction in the majority of South African schools, while the majority of rural and township schools offer it as a second language – a fact that is not taken into consideration when setting national question papers. Most schools offer English First Language with second language learners, which impacts negatively on their performance in other subjects (News24, 2015).

A poor foundation in English creates a challenging learning environment (Gbayange, 2014). If learners are fluent in English from an early age, it improves their academic performance (Nyandwi, 2014), as does effective communication skills (Mushtaq & Khan, 2012). In fact, learners perform poorly because of their lack of English competence, which limits their chances of progressing to tertiary education (Nyandwi, 2014).

When learners learn in a language that is not their mother tongue, they are not always able to interpret a question correctly in the examination, thus diminishing their chances of providing the correct answer (Dhurumraj, 2013). Learners who interact using English tend to understand it better and do well in examinations (Reche et al., 2012). In rural and township schools, although the medium of instruction is English, learners mainly speak in the vernacular, with many opting not to participate in class, for fear of being unable to express themselves properly. Research conducted in Namibia also identified English as medium of instruction as a factor contributing to poor learner performance (Nkadi, 2015). Consequently, learners cannot perform well in other subjects if their command of English is poor (Arsad, Buniyamin & Manan, 2014). To perform well, they should have mastered reading, writing, speaking and listening (Moshia, 2014).

Empirical data revealed that language can be a barrier to learning. The relationship between teachers and learners with the same mother tongue also differs from that between teachers and learners where the teacher's cultural background and mother tongue differ from those of the learners. Cultivating from literature, the medium of instruction may have a negative influence on learners' academic performance.

Lack of resources

Rural schools generally have inferior and fewer resources than their urban counterparts (UN, 2013). The Eastern Cape remains the worst-performing province, with a 63.3% pass rate in 2016, which is attributed to poor school infrastructure, and a lack of materials and resources (Jacobsohn, 2017). A lack of resources affects the effectiveness of a teacher's lessons (Reche et al., 2012). Indeed, the resources available to enhance the learning process is a vital factor in determining learners' ability to learn (Department for International Development, 2011). By the time they are in Grade 3, learners in under-resourced schools tend to be years behind their peers (Equal Education, 2015).

Epri (2016) asserts that learners are handicapped (educationally speaking) if they attend schools with a paucity of learning materials. Teachers at those schools have low expectations of their learners and, when the learners realise that, they perform poorly (Ali et al., 2013). By contrast, adequate resources enhance academic performance (Jacobsohn, 2017: 1) or maintain it (Nyandwi, 2014). Most public schools in South Africa lack proper laboratory facilities, making learning difficult (Dhurumraj, 2013). Nyandwi (2014) adds that resources are needed to transfer knowledge and facts as well as to keep learners interested in a subject requiring laboratory work. Dhurumraj (2013) confirms that the success of theoretical and practical lessons depends on the availability of resources. However, even with qualified teachers in well-resourced schools, if insufficient time is allocated to complete the syllabus, learner performance will be sub-standard.

Empirical analysis shows that many schools are lacking the necessary resources. The challenge is to be creative with the resources that are available. It was confirmed by literature that adequate resources may enrich learner's academic performance.

RECOMMENDATIONS AND CONCLUSION

Every country needs a structure that promotes good teaching, and attracts and retains the best teachers, principals and management teams. These stakeholders need to perform their roles effectively to establish an environment that is conducive to learning. Subject knowledge alone is not enough to ensure effective teaching and learning, or to improve learner performance in the absence of resources. Textbooks, which are crucial if effective teaching and learning are to take place, should be informative and interesting. Learners should be encouraged to read more, to improve their language skills.

The researchers make the following recommendations (for each identified challenge), in light of the research on which this article is based:

- It is recommended that the DBE should slow down on curriculum change and should build from one curriculum to the next, taking the best elements of the earlier curriculum and building them into the new curriculum, rather than introducing an entirely new curriculum each time there is a change in the Minister of Education. The DBE's skilled facilitators should present more workshops. Crash courses do not prepare teachers sufficiently to be able to implement the curriculum successfully.
- Learners should be regularly motivated. Educated members of each community, artists, police, entrepreneurs and other professionals should visit schools to motivate learners once a month. If learners are motivated regularly, it will help them to make informed decisions about their career choices, and to be more knowledgeable about the options available to them. To ensure that teachers are competent to teach, there should be an assessment every three years for each phase.
- It is further recommended that the first 30 minutes of every day be an English reading period to enhance learners' reading skills. In examinations, all other subjects are assessed in English; improved English proficiency will thus better learner performance.
- Schools and teachers must create workable solutions to make the best of overcrowded classrooms, such as to establish clear rules and expectations and to take advantage of ability grouping.
- Teachers must communicate more with parents to report absenteeism, late coming, homework not done, disruptive behaviour and missing of classes on a daily basis.
- Better resources should be provided for all schools, especially disadvantaged ones. Each district should ensure that its schools have working libraries, and science/computer laboratories. The availability of resources is critical for the successful implementation of the curriculum.

The consensus among the study participants was that educators face common challenges in the classroom, of which the DBE should take note. The literature review served to conclusively verify the grounded theory used here.

The challenges identified at this point can be broadly categorised as contextual in nature and a number of practical and theoretical lessons can be drawn from the findings. These include suggestions which may be of value to the DBE, as indicated in the recommendations. The contribution which this article makes to theory is twofold: firstly, having been verified (against data and literature), the theory can be used by other researchers; and, secondly, the practical implication is that the DBE can use it to minimise the challenges facing local teachers. In the end, all stakeholders in education should work together to improve the performance of learners in South African schools.

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The development of noticing in primary school mathematics teachers¹

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ABSTRACT

The need to grow mathematics teacher practices and improve learning in classrooms is an important avenue for research. The aim of this article is to present results of a Lesson Study-based professional development programme that endeavoured to capture and understand the concept of teacher-noticing in two South African primary school mathematics teachers. Since teacher-noticing is a precursor to teacher decision-making, the question of how mathematics teacher-noticing develops was the focus of this study. A professional development programme set within teachers' own classrooms (where they played the role of noticers) was designed and implemented. Two Grade 6 mathematics teachers volunteered to take part in the study. The researcher and participant teachers collaboratively planned lessons that were taught by the researcher. Teachers took notes of their noticing during each of the four researcher-taught lessons to discuss during the reflective sessions after the lessons. These sessions were recorded and transcribed. The transcriptions were coded for emerging and developing themes in teacher-noticing using a teacher-noticing framework. It was found that teacher-noticing remained at lower levels during traditional direct instruction lessons while teachers developed extended noticing from lessons that were structured and planned along a problem-centred or modelling approach and that involved extensive pair work.

Keywords: mathematics teacher development, noticing, lesson study, primary school mathematics

INTRODUCTION

Mathematics teacher development has been a concern for a number of years (Simon & Schifter, 1991; Evan & Ball, 2009; Artzt et al., 2015). The need to grow teacher practices and improve teaching and learning in classrooms is an important avenue for research in mathematics education. Understanding how teachers make day-to-day decisions in their classrooms needs to be considered when planning teacher professional development (TPD) programmes. Since 'teachers' noticing is intimately tied to their orientations (including beliefs) and resources (including knowledge)' (Schoenfeld 2011: 231), it is a complex and integrated teaching competency. What teachers notice will influence their decisions, which in turn may affect their classroom practices. Roth McDuffe et al. (2018: 175) surmised that noticing 'involves teachers' attention to classroom actions and interactions, reflections, reasoning, decision and actions,' and further concluded that noticing includes what teachers see, how they make sense of what

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they see and their subsequent decisions. In other words, teachers see with their minds as much as with their eyes (Scheiner, 2016). However, teacher-noticing is not a means to its own end, but results in responsive teaching (Gibson & Ross, 2016).

LITERATURE OVERVIEW

On the surface, it may appear that we have no control over what we notice. We notice things that are more conspicuous than others. A loud noise, a bright sign or sudden movement. We are bombarded by a continual flow of cues from our environment. However, during teaching, noticing is not an incidental activity, but a professional one (Ball, 2011). Noticing in the domain of classrooms is more complex. To notice more or to develop the sensitivity to notice requires effort and is something we intentionally decide to do (Mason, 2002). Teacher-noticing is how teachers make sense of the vast amount of sensory data that a classroom brings with it and is therefore not a passive process (Sherin, Jacobs & Phillips, 2011). These authors also set out that since teachers are active in the classroom setting, teacher-noticing involves two processes: (i) attending to particular events in the setting (what does a teacher attend to?) and (ii) making sense of those events (abstracting these events).

Dreher and Kunste (2015) confirm Schoenfeld's (2011) view that teachers notice things based on their professional knowledge and views. It may therefore be conjectured that teachers who have deeper subject-matter knowledge and pedagogical-content knowledge (Hill, Ball & Schilling, 2008) may be better noticers. Star and Strickland (2008) point out that the ability to learn from teaching is dependent on the ability to notice. If this is the case, then teacher-noticing is a fundamental aspect of understanding teacher learning in TPD. It is anticipated that through a Lesson Study (LS) environment, teacher-noticing can be developed and honed so that meaningful teacher development can take place. LS is a TPD environment where a group of teachers and specialists or researchers plan lessons collaboratively. The lesson is then presented by one member of the group while the others are active observers, often looking for links between teaching and learning or how learners learn mathematics. The lesson is followed up by a reflection session to discuss the lesson and to refine planning for the next lesson.

Star and Strickland (2008) found in a study on pre-service teacher-noticing of video lessons that pre-service teachers scored high on noticing classroom management issues while their lowest score was on noticing the classroom environment and the mathematical content of the lesson. In a noticing-via-video analysis study by Mitchell and Marin (2015), a framework analysis was used to guide teacher-noticing through videos by focusing on important issues in a mathematics classroom. However, Mitchell and Marin considered their Mathematical Quality of Instruction framework limited in that it did not consider the substance of student engagement in a classroom and also did not reflect on the depth of student reasoning. Sherin and Van Es's (2005) study on teacher-noticing found that teachers changed what they noticed (from teacher pedagogy to student thinking) and the way in which they discussed what they had noticed (from evaluation to interpretation and increased use of evidence-based comments). These teachers took videos of their own classes to discuss at monthly meetings but were not given a specific framework to consider when noticing in classrooms because the researchers wanted to leave the noticing open to teachers. This idea is enacted in the study reported on in this article in order to keep noticing open and authentic.

Van Es (2011) points out that learning a new discourse is central to teacher-noticing and that a noticing discourse goes beyond describing or evaluating an event. Noticing requires an interpretive discourse. It is unlikely that teachers will produce this type of discourse on their own. This study proposes that the LS process can facilitate discourse changes when teachers reflect together on their noticing of a lesson in post-lesson interviews. Researchers (as part of the LS group) can extend the noticing of teacher participants by sharing what scholars in the field have found with the teachers.

How do various scholars gauge teacher-noticing? Table 1 integrates a number of frameworks that exist in the literature on teacher-noticing. For the purposes of this study, the researcher embedded various frameworks into one structure to harness the thinking of a number of scholars on teacher-noticing and to integrate what is already known about teacher-noticing frameworks. While scholars extended the thinking of previous scholars in terms of who is identified or what topic is discussed when teachers notice, this study focuses on the stance teachers take when noticing since the stance includes agents and topics. Van Es' (2011) levels (shaded in the table) are used when coding the data since it allows for coding across lessons and topics.

Table 1:
Integrated noticing frameworks

Overarching Framework (Van Es and Sherin (2006))		Extended framework(s)	
Agent (Who is identified)	<ul style="list-style-type: none"> • Teacher • Student • Other 	<ul style="list-style-type: none"> • Student-Student • Student-Teacher • Student-Materials • Verbal and non-verbal (Mason, 2002)	
Topic (What is discussed)	<ul style="list-style-type: none"> • Mathematical thinking • Pedagogy • Climate • Classroom management 	<ul style="list-style-type: none"> • Environment • Management • Tasks • Content • Communication (Star & Strickland, 2008)	<ul style="list-style-type: none"> • The mathematics • Cognitive demand • Equitable access to content • Agency, ownership and identity • Formative assessment (Schoenfeld, 2014)
Stance	<ul style="list-style-type: none"> • Description • Evaluation • Interpretation 	<ul style="list-style-type: none"> • Baseline (Level 1) Mostly descriptive statements • Mixed (Level 2) Descriptive with some evaluative statements • Focused (Level 3) Provides evaluative comments • Extended (Level 4) Makes connections between teaching and learning Van Es (2011)	
Focus	<ul style="list-style-type: none"> • One or more categories • Narrow or broad 		

Teachers must also be given the correct space and time *to notice*. Therefore, an LS TPD programme was designed so that teachers could notice in their own classes while the researcher taught the lesson. Since Mason (2011: 37) stipulates that noticing often happens retrospectively and not necessarily 'in the moment', the reflection phase of LS serves as a viable intervention design for a teacher-noticing TPD. It is in this reflection phase of LS that metacognitive self-observation may develop to enhance teachers' productive noticing while also enabling teachers to develop the inquiry stance needed to learn through LS (Choy, 2016). When teachers are allowed to spend time observing a lesson and then prompted to reflect on their observations, many metacognitive processes are promoted. It is through this reflective metacognition that enhanced teacher-noticing takes place (Leavy & Hourigan, 2016).

The study wanted teachers to be active observer-noticers in the lessons. The question of how to allow teachers to notice and capture this noticing needed consideration. In some studies on teacher-noticing, video clips of other teachers' lessons were used and the participants of these studies were asked what they noticed (Sherin, Russ & Colestock, 2011). Here, the participants had a common view and stance of someone else's lesson but this could differ from noticing in their own lessons. In other studies, teachers were asked to retrospectively recall noticing during their own lessons in either individual interviews or group sessions (Sherin & van Es, 2005). Another study involving new technologies, such as micro cameras, were used (Sherin, Russ et al., 2011) and teachers were asked to record something interesting that happened during their lessons to share and reflect upon. The idea of 'interesting' was left purposely vague by the researchers so that teacher-noticing was not specifically directed to any aspect. This was decided so that the researcher did not give teachers any particular 'examples' that they may consider to be correct. It would also enable the teachers to be more active observers rather than passive onlookers (Sherin & Star, 2011).

This study, however, adapts typical LS approaches (such as collaborative lesson planning and observing of lessons by teachers followed by collaborative reflection sessions), in that the researcher will teach the lessons while the participating teachers will observe and notice during the lessons. A researcher-taught lesson is congruent with what Clarke et al. (2013) and Bruce et al. (2009) termed a 'demonstration lesson'. This is a deliberate decision on behalf of the researcher to provide teachers with the space and time 'to notice' during the lessons. The lessons will take place in the participating teachers' own classrooms in order to bridge the divide that can form when professional development takes place away from teachers' classrooms. Teachers will also be involved in the planning of the lessons so that their lessons match their curriculum and classroom needs. This design, therefore, answered the following research question:

How does teacher-noticing develop through a lesson study approach where teachers act as observer-noticers during mathematics lessons taught by the researcher?

The study aims to meet Sherin and Star's (2011) call to develop a more comprehensive model of teacher noticing by giving teachers an opportunity to notice and to reflect on their noticing without being hampered by presenting the lesson while being involved in the planning of the lesson. Furthermore, the lessons will be conducted in their own classrooms with their own learners which may allow for more meaningful noticing.

MATERIALS AND METHODS

The research can be considered part of the interpretivist qualitative paradigms. The strategy is that of LS's reflective collaborative post-lesson focus groups. The researcher-as-teacher in this study meets a number of needs. On the one hand, teachers are usually reluctant to 'be observed' while it is also difficult to learn how to 'notice' while teaching. The lessons were co-prepared with the participating teachers about a week before the lesson presentation took place. The two teachers informed the researcher of the topic and at what level it should be taught. They shared their previous lesson ideas and the textbook with the researcher. The first lesson was taught to specific teacher instruction (and included a specific method that the teachers wanted taught). In the second and third lessons, the researcher was given some guidelines, while in the fourth lesson, the researcher was given carte blanche on what and how to teach since the teachers had completed most of their curriculum and were doing revision.

Two Grade 6 teachers who taught mathematics at one school were purposely selected to take part in the study. Their willingness to take part was a major role-player in their selection as was the convenient proximity of the school to the researcher. Both teachers were experienced (over 10 years of mathematics teaching) and both were teaching at a well-resourced school. These teachers had interactive boards and laptops in their classrooms. The learners had their own textbooks and many resources were available in

the classes (posters, equipment, games, etc.). The classes (of approximately 33 learners) were of mixed race, gender and ability.

During the four research lessons, both teachers acted as noticers. After the lessons, the teachers and the researcher held a reflective session. The teachers were given notebooks to jot down their noticing during the lesson and they referred to these notebooks during the discussions. The reflective discussions would allow teachers to take part in 'thinking aloud' (Swennen, Lunenberg & Korthagen, 2008). The reflective discussion with the researcher was audio recorded and transcribed. During these reflective discussions, the researcher started with 'What did you notice in the lesson?' Each teacher was given an opportunity to read her written notes. Towards the end of the discussion, the researcher also asked 'If you had to teach this lesson again, what would you do differently?' and 'What/How will you teach in the next lesson?' to prompt further noticing discussion.

During the first lesson, the researcher taught the lessons as specified by the teachers. Both the content, level and method for long division was given by the teachers and an idea of how they usually taught the lesson. For the second research lesson on capacity, the researcher designed a practical lesson. After a preliminary warm-up activity where pairs of learners had to match pictures of certain containers with a corresponding number capacity card (card-matching), learners worked in groups of four, where they measured the capacity of six different (unmarked) containers. The learners first had to look at all six containers and estimate the capacity before being given measuring jugs and buckets of water to measure the actual capacity of these containers. The lesson was designed so that participating teachers could notice learner thinking about capacity and measurement.

The third lesson was on number patterns and translating between flow diagrams, table patterns and algebraic rules. Learners worked in pairs on card-matching activities as in Figure 1.

Figure 1:
Lesson 3 card sorting and matching

Input	1	2	3	4	23		
Output	3	5	7	9		$\times 2 + 1$	47
Input	1	2	3	4	18		
Output	1	4	7	10		$\times 3 - 2$	52
Input	1	2	3	4	21		
Output	8	13	18	23		$\times 5 + 3$	108
Input	1	2	3	4	30		
Output	5	13	21	29		$\times 8 - 3$	237
Input	1	2	3	4	50		
Output	10	16	22	28		$\times 6 + 4$	304
Input	1	2	3	4	201		
Output	4	6	8	10		$\times 2 + 2$	404
Input	1	2	3	4	50		
Output	3	7	11	15		$\times 4 - 1$	199

Input	1	2	3	4	30	x 7 - 3	207
Output	4	11	18	25			
Input	1	2	3	4	40	x 10 - 9	391
Output	1	11	21	31			
Input	1	2	3	4	70	x 5 - 5	345
Output	0	5	10	15			

For the fourth lesson, the researcher presented a model-eliciting problem (Lesh & Doerr, 2003) to the class. This type of problem requires that learners produce a model of how they solved the problem. The groups were given a list of 15 names and the best performance of each person in a 100m race, an 800m race and a long jump. Their task was to create three groups of five learners so that any group stood a chance to win an upcoming athletics event. Part of the mathematical work of the task involved converting metres to centimetres, ordering decimal numbers as well as realising that for a 100m race, the smaller number indicates a better (faster) learner and that for long jump the larger number indicates the better (further) jump. Learners were not given any other instructions.

Ethics clearance was issued by the researcher's institution for the study, while permission from the overseeing provincial department of education and school principal was also secured. Parents and learners signed consent/assent letters before the study started. Teachers were assured of confidentiality and that they were taking part voluntarily and could withdraw at any time.

In terms of research trustworthiness, the following is relevant. Credibility is enhanced by the addition of verbatim teacher words from the transcripts. Transferability and dependability are also increased since enough detail of the TPD and the context of the participants are provided so that they can be adapted and used in another setting. Using an existing framework to code the data allowed for less researcher bias in trying to address the confirmability of the study.

FINDINGS

Before the findings are presented, the Van Es (2011) framework from Table 1 is briefly presented and further detail is provided.

Levels of Teacher Noticing

- Baseline (Level 1)**
 Mostly descriptive statements. These are statements where the teacher presents what he/she sees or hears (sensory information).
- Mixed (Level 2)**
 Descriptive with some evaluative statements. In these statements the teacher, will present something he/she sees/hears and then give a determining evaluation, judgement, opinion or summing up.
- Focused (Level 3)**
 Provides evaluative comments. The teacher will make mostly evaluative comments regarding what and how mathematics is taught or learnt. The teacher may provide some interpretative statements in terms of generalising mathematics teaching and learning.
- Extended (Level 4)**
 Makes connections between teaching and learning. The teacher will provide links between teacher actions and learner actions. The teacher may see cause and effect in what he/she notices in the

classroom. The teacher will interpret what they see in terms of mathematics learning and be able to propose alternatives in teaching.

In the first lesson (where teachers suggested the format and specified a method), teacher-noticing was mostly descriptive with evaluative statements added to most of the descriptive statements such as in the following example:

Teacher 2: The actual example of the Lotto [descriptive] was good [evaluative]. The weaker kids, though, when you said divide 120 million into 4 [descriptive] they just switched off completely because the number was so big [evaluative].

In this lesson, the teachers specified the long division method to be taught (divide, multiply, subtract, bring down or DMSB). This method was taught in the previous grades and teachers felt that it led to fewer calculation errors once students knew it and remembered it. The researcher taught the method and then allocated cards with worked-out examples to pairs of students. The pairs had to find the errors in the calculations after which a whole-class discussion was held.

The instances of interpretative statements all revolved around the pedagogy of the teacher (the researcher) as in this instance:

Teacher 1: Well, for one thing, pair work does work because it gives the other child confidence and I think sometimes peers teach them better. What I found very interesting is with the pair work – it was the first time one of the weakest kids put up his hand.

The transcriptions showed mostly general impressions – so, Level 1 from the Van Es framework is relevant to their noticing. This is consistent with Sherin and Star's (2011: 68) suggestion that noticing can be rare or non-existent in 'highly routinized' teaching that may describe this lesson. What was evident in the transcripts was that other than two references to the 'method' to be used by learners, the teachers made no statements regarding learners' understanding or thinking about division. There were many statements regarding a sub-group of learners; namely, what teachers called 'weak' learners. Also evident from teachers' noticing that pair work 'does work' is the belief that it is not a successful method or it is not a method that they use often.

In the discussion after the second lesson, the teachers also focused strongly on the sub-group of weaker learners. Teachers made many descriptive and evaluative comments while a few interpretative comments were evident.

Teacher 2: Pairing a strong and a weak learner does make a difference [evaluating].

Teacher 1: But this time the weak ones chatted a bit more and were more involved in this [interpreting].

The teachers also noticed the difference that visual representations made in this lesson:

Teacher 1: It wasn't a sum that they had to do, they had a picture and had to see what fits with the picture that made a difference [evaluating and interpreting].

Teachers also noticed that the traditionally faster learners were reacting differently to this lesson:

Teacher 2: They were looking around, they started completely doubting what they had done and removed it and 'maybe not' and that was interesting to see [describing and evaluating].

Teacher 1 made a comment regarding the practical work that reflected something that surprised her:

Teacher 1: I realised just how badly they know capacity [evaluating].

The teachers also noticed that learners had problems with actual measuring activity in terms of the error or parallax (which learners were alerted to during the lesson), understanding the gradations on the measuring cylinder and general inaccurate measurements. The researcher asked if it is because they generally do much more written than practical work during mathematics lessons.

Teacher 2: Definitely, that is part of the problem.

Researcher: Are they weak in the actual skill of measuring and reading or do you think they do not understand capacity?

Teacher 2: No, I do not think they actually understand capacity. I do not think they understand how tiny something is, say 5ml, while 5l is huge. I think they are just looking at the number and they are forgetting what the actual ml and l mean [interpreting].

Teacher 2: I don't think they have done enough visual work [evaluating] in the earlier grades to see the difference between ml and l [interpreting].

When discussing how they would re-teach the lesson or how they would teach the next lesson, teachers suggested that they would do practical measurement but help learners interpret the interval lines on the measuring cylinders. This is seen as a statement where the teacher makes connections between learner thinking and teaching strategies.

Teacher 1: And actually show them it's a number line [the measuring cylinder].

For this second lesson, teachers were still mostly on Level 1 noticing, but there were instances of Level 2 (mixed) and Level 3 noticing at times. This can possibly be attributed to the different instructional style of the lesson and the use of practical work that allowed teachers to notice more than when learners simply followed correct methods. The nature of the topic can also lead to different levels of noticing: as Teacher 2 noticed above, it was not the numbers that caused problems but visualising the difference between *m* and *l*.

During the post-lesson discussion of the third lesson, many more interpreting and connecting (Level 3 and Level 4) statements are evident. Improved noticing may have come about as a result from the lesson activities, teachers' MKT or their beliefs about mathematics, since noticing is 'intimately tied' to teacher beliefs and knowledge (Schoenfeld, 2011: 231). In addition, the underlying drivers of teacher noticing are intertwined.

Teacher 1 explained the link between her proposed teaching strategy and learning:

Teacher 1: I would also give them a flow diagram to show them why. The difference is plus 4 [on the flow diagram] but it doesn't show plus 4 [in the rule], it is times by 4. They have to see the link that the flow diagram rule is exactly the same – it's the part you don't see in a table. You want them to see that and write the rule below [connecting].

Teacher 2: Going further, it will be good to give the table [with input numbers] 1,2,3,4,10,15,20 and give them the rule and see, because some of them will still just go plus 4, plus 4, plus 4 all the way [connecting].

The teachers also started thinking about a more learner-centred pedagogy and how they could enact this in their classes:

Teacher 1: You could have done that without teaching them because then maybe they would have picked it up. If you pair flow diagrams with different tables, that would have been interesting. [interpreting and connecting].

Teacher 2: It's a difficult balance – how much they can figure out on their own.

Although the Van Es (2011) framework is useful for analysing teacher-noticing about student learning, it does not make provision for teachers noticing their own thinking and orientations. In this case, the teacher was commenting on what Tyminski (2010: 295) termed 'teacher lust'.

Teacher 1: I didn't have to help one person today, with the previous lesson, I had to help... I couldn't help myself (laughs) it's difficult not to help! That was interesting for me.

In this example, the teacher is aware of her own orientation towards teaching mathematics: that she must help students when they struggle. Noticing frameworks need to be more comprehensive and include teacher-noticing of their own beliefs and orientations towards teaching mathematics, since their beliefs affect what they notice (Van Es, 2011).

For the fourth lesson, where a model-eliciting problem was used (these problems were new to the teachers), both teachers started the post-lesson discussion by indicating that the learners were not used to these problems and were confused:

Teacher 2: In the beginning they were all a bit... you could see, they didn't know where to start, where to go, what to do, some of them not a hundred percent sure if they understood what they were supposed to be doing, then some of them just started [describing, evaluating].

Once again, teachers started the discussion sessions by describing and evaluating. In the absence of specific teaching activities, the teachers focused on the task instead; they were not yet sufficiently focusing on learners and their mathematical learning so their noticing does not reach the depth of Level 4. Teacher 1 suggested simplifying the problem, showing that she was interpreting the early challenges learners experienced with the problem and connected this to a possible change needed in the task itself.

Teacher 1: Maybe start with two events only. One term do a 2-event problem and next term a 3-event problem to see if they learnt some strategy. Perhaps have shot put and not two running events [interpreting and connecting].

She continued by suggesting that the problem was too difficult for the weaker learners. She suggested giving weaker learners a list with only five names and results instead of 15. Her comments in this case relate to the task and not to the teacher or the learner. Additionally, the teacher's beliefs about how mathematics should be taught is evident. Her idea is that the task should be broken into smaller, more manageable tasks. Teacher beliefs are a strong influencer of teacher decision-making and teacher-noticing (Schoenfeld, 2011). In understanding teacher-noticing as an active process, their focus on weak learners

and on the task provides information regarding *where* the teacher is actively looking for information (the properties of the environment that the teacher focuses on) to guide their noticing (Jazby, 2016).

Teachers experienced another feature of modelling problems: it is not always the typically mathematically strong learner that does well (Lesh, Zawojewski & Carmona, 2003; Biccard, 2017).

Teacher 1: For example, Sam (pseudonym) said this is the fastest runner and the other [learner] said it is this one. Then you could see that he thought the other learner was right because he is the cleverer kid.

Teacher 2: And yet it was surprising that he [more able learner] did not pick up a strategy immediately. Yes, he battled [describing and evaluating].

One learner in the class used an intuitive standard deviation, which the teachers noticed as unusual but did not recognise:

Teacher 2: In one group, one boy started adding them together and got an average? And then, he added a few at a time to get the same answer as the average that he had... it's the weirdest thing I have ever seen [describing and evaluating].

Learners are known to use their own informal methods and self-developed tools to solve the problem (Hamilton, 2007). The implication is that teachers' mathematical knowledge for teaching (Hill, Ball & Schilling, 2008) which includes PCK and SMK need to be more extensive when open problems are given to learners. PCK and SMK directly affect teacher noticing (Dick, 2017).

The teachers still focused on sub-groups (weaker learners or more able learners) in their discussion:

Teacher 1: What they [weaker learners] really enjoyed about the problem is that there wasn't a right answer. The weak kids were really excited that they weren't going to get something wrong [describing, evaluating and interpreting].

Researcher: They were relieved that they could use a calculator.

Teacher 2: And then none of them used a calculator (laughter).

The transcripts show that describing and evaluating were the dominant forms of noticing, but also that when teachers did move towards interpreting and connecting (Levels 3 and 4), it arose from Level 1 and 2 discussions. The descriptive context appears to be a necessary condition for Levels 3 and 4 noticing. It is unlikely that teachers (even at higher levels of noticing experience and proficiency) will start with a Level 3 or 4 noticing statement without first embedding it in the context (Levels 1 and 2). What is important is that teachers need to be supported to move beyond Levels 1 or 2 noticing. Gibson and Ross (2016) suggest that deep content knowledge leads to expert noticing in teachers; this was evident in teachers not identifying an intuitive standard deviation. Although teachers may have considerable teaching experience, developing their content knowledge alongside their noticing competencies may be necessary.

Table 2 summarises the main elements of teacher-noticing through the development programme. The third column provides an instance of 'researcher noticing' which implies that the research follows a three-tiered research design (Koellner-Clark & Lesh, 2003): where students notice things in their mathematical activities (tier 1), teachers notice student thinking (tier 2) and researchers notice teacher-noticing (tier 3).

Table 2:
Summary of noticing development

	Agents identified	Main topic of teacher-noticing	Stance	Other Features
Lesson 1	Teacher and Learners (subgroup)	Weaker learners Cause and effect of teacher actions	Describing Evaluating Interpreting – limited [Level 2]	No discussion on learning of concepts of the lesson, e.g. division (Teacher PCK needs to be developed to enable deeper noticing) Teachers saw pair work as a viable instructional strategy No noticing related to the task/method specifically due to routine teaching
Lesson 2	Learners	Basic concepts of capacity are not well developed and understood (Content) Noticing that practical work is necessary in previous grades	Describing Evaluating Interpreting – improving [Level 2]	Teachers see practical work as a missing element of learner conceptual understanding
Lesson 3	Teacher Learners Task	Link between flow diagrams and table patterns Noticing pedagogical value that linking different representations builds conceptual understanding	Describing Evaluating Interpreting [Level 3]	Teachers could not fully explain how going up in fours results in a multiplicative pattern (Teacher SMK needs to be developed to enable deeper noticing)
Lesson 4	Task Learners (subgroup)	Different solution strategies used by to solve the problem Learner developed strategies Change task to accommodate weaker learners	Describing Evaluating Interpreting Connecting – emerging [Level 3-4]	Varied learner solutions for modelling problem led to deeper teacher-noticing Teachers wanting to simplify and reduce the cognitive load of the task.

The lesson design allowed for teacher-noticing of their own environment and for the complex and dynamic interactions between teachers' cognitive and contextual resources and their noticing (Scheiner, 2016) to become evident. Traditional direct instruction lesson (where a method is presented) did not result in in-depth teacher-noticing, while a model-eliciting lesson produced noticing that included connections between teaching and learning. However, teachers may have become more proficient at noticing by the fourth lesson. In lessons 3 and 4, teachers also noticed specific task features, but still only in terms of how that affected sub-groups of learners.

When teachers were questioned later about their focus on the weaker learners, they responded:

Teacher 1: [as teachers] we pick up on mistakes quicker and we look at what they are doing wrong rather than what they are doing right. Mistakes give us information and help us teach.

Teacher 2: We focused on the weaker learner because we found that the stronger and middle group seemed to be able to work quite independently, but the weaker learners didn't seem to cope as much. But with some of the topics, we were shocked at how well they did cope. It was good to see that they could do something that was presented differently.

Teachers were therefore noticing both what they anticipated (weaker learners not coping or getting incorrect answers) and what was surprising.

CONCLUSION

This study looked at emerging teaching-noticing. It was limited to two Grade 6 mathematics teachers who focused on noticing during four research lessons across different topics. Noticing progressed from Levels 1 and 2 in the first lesson, through to Levels 1 to 4 in the last two lessons. For the lesson context to be fully integrated into the noticing discussion, noticing needs to progress from Levels 1 to 4 during each lesson. Supporting teachers to move beyond Levels 1 and 2 noticing is an important consideration in professional development.

The study is significant on a number of levels. Firstly, it is one of a few studies on teacher-noticing in South Africa and provides the qualitative detail needed in the field of teaching-noticing (Scheiner, 2016). Secondly, the design of the lesson study is novel in that the researcher took on the teaching role so that the teachers could focus their attention on 'noticing'. It is also through the design (including practical work and modelling problem) that teachers noticed the value of both in developing conceptual understanding. The design was therefore beneficial to advancing the discourse on noticing but also for teachers' own development. Thirdly, the results indicate that the teachers in this study focused their noticing primarily on sub-groups of learners (that is, weak learners) which indicates where the teachers are actively looking for their information and how this guides their decisions. Further research is necessary to determine why this was used as a filter and what other filters teachers prioritise.

It may be necessary to *teach* teachers specifically how to notice. Both these teachers commented that the given time to observe and notice was very valuable to their understanding of mathematics teaching and learning. It is, however, recommended that these lessons are held more frequently and across one topic for an extended time in keeping with the lesson study idea that a series of lessons is planned, presented and reflected on. Teachers need more development on how mathematical learning takes place within curriculum topics (e.g. division, decimals, etc.) to engage in deeper noticing. Teachers know what 'markers' to look out for to show that learners have reached a certain level of procedural competency but not necessarily how learners move between competencies or how they reach conceptual competency. Teachers' mathematical knowledge for teaching (both PCK and SMK) as well as their own beliefs and orientations about mathematics affect their noticing stance, and what they notice (or do not notice). Teaching teachers specifically about noticing or guiding them to specifically notice learners' thinking (and not teachers' actions) during the lesson may also have resulted in deeper noticing. Leaving 'noticing' intentionally vague may not be advancing teachers' noticing discourses. However, to ascertain what teachers notice (without preconceived researcher notions) as a baseline study provides a footing for further studies. It would be valuable to repeat the research and provide teachers with more explicit noticing frameworks before they observe their first lesson. It is also recommended that teachers focus on and track a small group of learners, and not an entire class, especially in studies that involve more than one lesson. This will enable the teacher to concentrate noticing on fewer learners and may result in deeper noticing. It is important that we understand how teachers make sense of classroom activities and interactions when we decide how to support teachers. This raises the issue of how the nature of the content and the topic taught and teachers' own content knowledge affects noticing, resulting in the need for further research.

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Teaching science through information and communication technologies: 'enablers' and 'constraints'¹

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ABSTRACT

The ability of information and communication technologies (ICTs) to improve teaching and learning explains its inclusion in policy prerogatives in countries around the world. Efforts to realise ICT's potential in the teaching of science across the world are ongoing. In this qualitative study, we purposively sampled six beginning teachers with up to two years' teaching experience to unpack the enablers and constraints they encounter when using ICTs to teach science in South African schools. The participants responded to semi-structured interviews, wherein they narrated their experiences on the teaching of science using ICTs. We used a thematic mode of analysis. Findings indicate a range of enablers and constraints that influence beginning teachers' abilities to teach science using ICT tools. Despite exposure and competence, beginning teachers are unable to integrate ICTs effectively in teaching as indicated in the country's education policies due to certain constraints. The paper recommends, among others, that the Department of Basic Education (DBE) should activate its monitoring and evaluation mechanisms that would assist in identifying context-specific challenges. In addition, it is recommended that the government relook its budget allocation to schools in the domain of technology to enhance school capacity to purchase internet data on a regular basis and to repair broken computers timeously. These findings call for more interdisciplinary studies to provide additional information relating to the use of ICTs by beginning teachers to teach science across a variety of classroom contexts.

Keywords: Information and Communication Technologies (ICTs), science education, beginning teachers, enablers and constraints

INTRODUCTION

Over the years, researchers in South Africa and elsewhere have continued to present evidence of low levels of learner achievement and underperformance, especially in science and mathematics subjects (Ndlovu, 2011; Venkat & Mathews, 2019). These low levels of learner achievement are associated with the poor quality of teaching, which has not changed over a number of decades (Mlachila & Moeletsi,

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2019; Spaul, 2013). This phenomenon exists despite the integration of information and communication technologies (ICTs) in teaching and learning (Dixon, 2020; Tachie, 2019). The instability and inconsistency of teaching practices in classrooms are not unique to South Africa but have been observed (for decades) in other countries also (Garegae, 2016; Mikeska et al., 2019).

Consequently, there has been an upsurge in efforts, locally and internationally, which prioritize the search for strategies to improve the teaching of science subjects (among other subjects) in schools (Arends, Winnar & Mosimege, 2017; Jimoyiannis, 2010; Michos & Hernández-Leo, 2020). It is against this background that ICTs, due to their potential, have come to be a contender to improve the quality of teaching in science classrooms across the globe, including those in South Africa (Amuko, Miheso & Ndeuthi, 2015; Gui, Parma & Comi, 2018; Kaur & Singh, 2020; Umugiraneza, Bansilal & North, 2018). However, Daya and Laher (2020) note that what takes place in individual schools indicate that the ICT integration agenda in South Africa is yet to achieve satisfactory results holistically. Therefore, this paper seeks to understand the 'enablers' and 'constraints' beginning teachers face in teaching science subjects with ICT tools.

Science is one of those subjects in the school curriculum in which the potential for ICT usage is high, especially in practical laboratory work. However, many researchers describe the ability of technology to enhance the teaching and learning of science and mathematics as being below expectations for varied reasons (De Freitas & Spangenberg, 2019; Masango, Van Ryneveld & Graham, 2019; Mlambo, Rambe & Schlebusch, 2020). The present study contributes to this discourse by examining beginning teachers' narratives of using ICTs in teaching science subjects in South African schools, specifically in the context of potential enablers and constraints. The improvement of quality teaching using ICTs is urgent as South Africa seeks to improve performance in science subjects, where traditional methods of teaching have not produced the desired results across subjects (Department of Basic Education [DBE], 2014; Ndlovu, 2011). As such, efforts are ongoing to ensure an improvement in performance for all learners (Venkat & Mathews, 2019).

There are ongoing efforts to integrate ICTs into teaching due to its potential to introduce varied opportunities (Meyer & Gent, 2016; RSA. Department of Telecommunications and Postal Services, 2016; Wilson-Strydom, Thomson & Hodgkinson-Williams, 2005). However, it is not clear how beginning teachers are able to deal with such opportunities or engage potential challenges in their individual school contexts for teaching science. We therefore ask the following question:

- What are the 'enablers' and 'constraints' beginning teachers face in teaching science subjects with ICT tools?

LITERATURE REVIEW

The use of ICTs in teaching has advantages for both teachers and learners (Chisango et al., 2019; Daya & Laher, 2020; Steiner & Mendelovitch, 2017), hence the need to accelerate its integration in schools. For example, ICTs provide room for teacher-learner interaction and expose learners to a variety of knowledge types and task activities (Kamal & Diksha, 2019). Despite having some challenges, though, Cloete (2017) argues that technology is an integral part of living in the 21st century.

The use of ICTs in the teaching of science directly and indirectly affects learner achievement since it meets learners' varied learning styles. Apart from motivating and engaging learners in the learning process, ICTs also facilitate learner understanding of science concepts when integrated into teaching (Hilton, 2018; Yang & Baldwin, 2020). For example, technologies such as smartphones have the potential to assist learners with learning difficulties in the science classroom (Sormunen, Lavonen & Juuti, 2019). Additionally, Ekici

and Pekmezci (2015: 173) argue that '[e]ffective and sustainable science education is enriched by the use of visuals, auditory, and tactile experiences'. In this regard, Tomljenović and Zovko (2016) demonstrate how the use of technology to teach mathematics to 7th grade primary school learners in Croatia led to a significant increase in performance. Since technology is part of teaching in many classrooms across the globe, it is appropriate to pause and explore the enablers and constraints involved. This paper therefore focuses on exploring enablers and constraints beginning teachers face in teaching science subjects with ICT tools in South African secondary schools.

The use of ICTs in the teaching of varied subjects, including science, has been explored in various contexts over the years (Ameen, Adeniji & Abdullahi, 2019; Amuko et al., 2015; Genlott & Grönlund, 2016; Sudha, 2019), although not so much with beginning science teachers in South African schools. Numerous teacher education programmes have made extensive efforts to ensure meaningful use of technology during the training of pre-service teachers. However, there is limited information about the experiences of beginning teachers in teaching science-related disciplines using ICTs (Beisel, 2017; Zakaria & Khalid, 2016). Therefore, a comprehensive evaluation of the experiences of beginning teachers is a necessary step in understanding what happens in individual school contexts in terms of ICT integration in the classroom. These experiences, including enablers and constraints, can help to guide both researchers in exploring context-specific research on ICT integration and curriculum developers on the realities of policy implementation, especially concerning what to consider when outlining policy expectations. They could also guide school management, district officials and Ministry of Education officials in developing countries such as South Africa on how to ensure that policies related to ICT integration are successful.

Reconceptualising the teaching of science using information and communication technology

Irrespective of the relevance of ICTs in the teaching of science, its availability in schools and associated benefits, its effective utilisation and its degree of impact depend largely on existing enablers and constraints. Teachers have a crucial role to play in terms of evaluating and recommending the relevant kinds of technologies and figuring out how best to use them to improve classroom teaching and learner performance. As such, teacher knowledge concerning ICT usage in the classroom is critical (De Freitas & Spangenberg, 2019). Although beginning teachers may be competent and confident to teach using technology, various factors that act as enablers and constraints could stifle effective implementation. These include the necessary skills required to use ICT resources, understand the nature of resources, and access these resources in diverse school contexts (Ottenbreit-Leftwich et al., 2018).

Having explored ICT integration in South African schools, Padayachee (2017) posits that pedagogical challenges also obstruct the process of integrating ICTs in teaching, a view shared by Olika, Moses and Sibongile (2019). Other researchers attribute this challenge to inadequate training in the use of technology in the classroom by pre-service teachers (De Freitas & Spangenberg, 2019; Nkadimeng & Thaba-Nkagimene, 2019; Ojo & Adu, 2018). The lack of knowledge to use ICT resources in the classroom contributes to technological resources being underutilised or unused in some school contexts in South Africa (De Freitas & Spangenberg, 2019; Dixon, 2020; Masango et al., 2019; Mlambo et al., 2020; Ojo & Adu, 2018). In this regard, Dlamini (2018) proposes the need for effective ongoing professional development for teachers on the use of ICTs in the classroom.

Furthermore, research indicates that limited access to ICT resources by teachers impedes the integration process – in some cases, resources are available but locked up in computer laboratories (Tachie, 2019), thus inhibiting usage (Aikins & Arthur-Nyarko, 2019; Ojo & Adu, 2018). Furthermore, Bester (2016) argues that electricity challenges exacerbate the limited access to the internet in some schools, thus restricting the use of multimedia during lessons. In other schools, unstable internet connections (De Freitas & Spangenberg, 2019) and frequent computer breakdowns are to blame (Munje & Maarman, 2017).

Additionally, overcrowding puts pressure on the limited ICT resources in some schools, thus impeding smooth integration (Ojo & Adu, 2018). According to Masango et al. (2019), some schools have technological resources that are not proportionate to the number of learners. The surge in discourses such as these aligns with Dixon's (2020) assertion that there is an increasing digital divide in South Africa, which threatens efforts aimed at ensuring equity and quality education for all through ICT integration.

Worthy of noting is that the Department of Education in 2003 advocated for the provision of technology in all schools by the year 2013 (RSA. Department of Education, 2003). However, ongoing discourses reveal a skewed and fragmented ICT-integration process slowed by limited capacity (Dlamini, 2018; Meyer & Gent, 2016; Wilson-Strydom et al., 2005). Hence, Olika et al. (2019) note that strategies put in place to achieve the stated objectives of ICT integration are not sufficient. That being an indication of eminent challenges regarding ICT integration in South Africa, this paper looks at enablers and constraints that influence beginning teachers' ability to teach science with the use of ICTs.

METHODOLOGY

This qualitative case study aims to explore the enablers and constraints that beginning teachers encounter in their endeavours to teach science using ICTs. To achieve this, we involved beginning teachers, aged between 23 and 32 years, who graduated from an initial teacher education programme from Thuto University (pseudonym). Thuto University is a formerly white and advantaged university that embraces science education and uses ICTs in its teaching and learning. Participants attended Thuto University while it was still a dual-medium (English and Afrikaans) institution, and were working at English-medium schools, except for one white male participant, who was teaching at an Afrikaans-medium urban school. All participants, including the Afrikaans speaking male participant, were comfortable being interviewed in English. This longitudinal case study involved beginning teachers (with up to two years' teaching experience) who teach science to learners in grades 8 to 12 in secondary schools. Table 1 displays the frequency counts on six demographic variables of the participants. These variables are (i) gender, (ii) age range, (iii) teaching qualification, (iv) school type, (v) teaching experience, and (vi) number of schools taught at since commencing teaching as a career.

Table 1:
Frequency counts for demographic variables of participants (n=6)*

Variable	Category	n	(%)
Gender	Female	3	50
	Male	3	50
Age range (years)	23-26	4	67
	27-32	2	33
Teaching qualification	Bachelor of Education (B.Ed.)	2	33
	Postgraduate Certificate in Education (PGCE)	4	67
School type	Urban (Quintile 5)	1	17
	Rural (Quintile 1)	1	17
	Township (Quintile 3)	2	33
	Farm school (Quintile 1)	1	17
	Informal settlement (Quintile 1)	1	17

Variable	Category	n	(%)
Teaching experience	0 years (less than a year)	1	17
	1 year	1	17
	2 years and a few months	4	67
Number of schools taught at since commencing teaching	1 or less than a year	2	33
	More than 2 schools	4	67

*The percentages have been rounded off.

The frequencies of the variables in Table 1 reflect data of the beginning teachers in selected South African schools purposefully selected as participants based on proximity and distance. The data show that most of the selected participants (67%) have a one-year teaching qualification, PGCE, while the rest (33%) have a four-year B.Ed. degree. It is interesting to note that within their first two years in the field, 67% of participants had already changed schools more than once, due to lack of stability in employment in the South African economy.

The collection of data took place from April 2017 to August 2018, with participants engaging in 15-20-minute individual semi-structured interviews. The interviews created space for participants to express their views and experiences concerning factors that enhance or inhibit the use of ICTs in the teaching of science.

The interviews were audio-recorded and complemented by note taking. After transcribing the interviews, we analysed, described and organised the data into relevant themes (Alhojailan, 2012). Through this process, inferences were drawn from the data to make sense of what the participants discussed in relation to the research question posed. In the process, major themes emerged that answered the set research question, which focused on understanding enablers and constraints beginning teachers encounter when using ICTs to teach science.

In terms of ethics considerations, respect for the privacy of the participants and research sites was paramount (McLain & Kim, 2018). Ethics approval was obtained from the ethics committee of the selected university and from the provincial department of education under which the schools are located. In addition, participants signed consent forms to make their acceptance to participate official. At the beginning of each interview, participants' rights to confidentiality, to take part in recorded interviews, and to opt out at any time were explained to them.

RESULTS AND DISCUSSIONS

After comparative analysis of all interview data against each other had been done for cross-case analysis, the data were categorised into the two main themes informed by the research question guiding the study – 'enablers' and 'constraints' beginning teachers face in teaching science subjects with ICT tools. The main categories for each main theme as drawn from the data are displayed in Table 2.

*Table 2:
Summary of findings*

Enablers	Constraints
Teaching practice experience	School contexts – unsupportive environments

Enablers	Constraints
Teacher-teacher interactions – inspiration from colleagues	Lack of resources and/or lack of access to ICT tools
Availability of resources	Unstable internet connection
Access to ICT resources	Lack of computer skills and/or interest by colleagues
Mentor teachers as positive role models	Security – theft and vandalism

Enablers for teaching science using information and communication technologies

The study aimed to determine factors aiding teachers in their efforts to use ICT tools in teaching science. Participants responded to the following question during the interviews: ‘Can you tell me about what or who has motivated you to teach science using ICTs?’ The summary of ideas shared across the six semi-structured interviews on enablers were captured in five major categories, as depicted in Table 3 below.

Table 3:
‘Enablers’ for ICT usage during first years of teaching

‘Enablers’ category	P1	P2	P3	P4	P5	P6
Teaching practice experience	X	X		X		
Other teachers/colleagues		X	X			
Teacher educator						X
Access to ICTs				X		
High school teacher/ Apprenticeship					X	

The categories emerging from the theme ‘enablers’ relate to what motivated the participants to use ICTs to support the effective teaching of science content. It is interesting to note that ‘teaching practice experiences’ was the category mentioned most frequently by participants in motivating them to teach science using ICT tools. Teaching practice experiences during the teacher education programme enhanced their competencies in teaching science using ICTs. Some participants explained as follows:

P1: I will refer to when I was doing teaching practice. The teacher at St. Maria’s [pseudonym] always used ICTs, which motivated me.

P2: My mentor teachers during teaching practice always used technology. I’ve found that learners are able to learn more, recall whatever was taught when using ICT.

P4: During our teaching practice, we used the smartboard and computers in those small classes (micro classes) and I used it in a school where I did teaching practice.

Such experiences in teaching practice seem to have increased participants’ determination to teach science with the use of ICTs, considering that learner motivation, concentration and understanding could contribute to improving performance. Evidently, mentor teachers’ beliefs and practices directly influence what beginning teachers do during field practice, including teaching with technology (Buatip, Chaivisuthangkura & Khumwong, 2019; Compton & Jordan, 2019; Nelson & Hawk, 2020).

The second category that stood out is that of 'other teachers as colleagues', with these other teachers using ICTs to teach science having impacted on participants. In this regard, P2 and P3 recounted encounters whereby colleagues had inspired them to use ICTs in teaching science:

P2: There was this other teacher... He is so technological, quite young as well. He created something like a game for learners... he used his cell phone and laptop. Even marking, he does it with apps.

P3: A teacher by the name of Mr Mayisa at VV School [pseudonyms] where I started as a teacher motivated me to use ICT. He also teaches physical science.

Adnan and Tondeur (2018) corroborate the views of P2 and P3 by saying that where there are positive emotions and collaboration through role modelling, there is likely to be an improvement in using technology to teach, with positive implications for learners.

The availability of infrastructure and ICT-related resources in schools where pre-service teachers do their teaching practice further boost their experiences (Batane & Ngwako, 2017). This is because exposure to technological resources enhances teachers' competence to teach effectively when using ICTs in the classroom (Nelson, Voithofer & Cheng, 2019). When asked to comment on the impact of available ICT tools in the context of teaching, P2 narrated the positive effects of readily available ICT resources in a school:

... during teaching practice, ICT was available in the school. They had all the necessary resources available that assisted me with the preparation for my lessons... they had overhead projectors, I could present the work in PowerPoint documents, show the learners videos and play games related to sciences using the computer.

Participants overwhelmingly indicated their exposure to ICT resources either during teaching practice or during the first two years in the teaching profession. Despite this exposure and competence, many beginning teachers are unable to integrate ICTs into teaching, as indicated in the country's education policies, due to varied constraints.

Constraints beginning teachers encounter in using ICTs to teach science

In addition to determining enablers for beginning teachers in using ICTs for science teaching, the study aimed to determine factors that inhibit beginning teachers' efforts to teach science with ICT tools. The aim was to obtain answers to the stated research question: 'What are the 'enablers' and 'constraints' beginning teachers face in teaching science subjects with ICT tools?' Participants were asked to state the challenges experienced when using ICTs in the teaching of science.

The participants had an opportunity to express themselves in their own words, and to share insights on their practical experiences during their first two years of teaching science. Data analysis reveals constraints such as school contexts, lack of access to ICT tools, lack of a supportive environment and security concerns (also see De Freitas & Spangenberg, 2019; Dixon, 2020; Masango et al., 2019; Mlambo et al., 2020). In some schools, entire computer laboratories are stolen, leading to a total stagnation of the ICT integration process (Munje & Maarman, 2017). The categories of constraints and their frequencies are presented in Table 4.

Table 4:
'Constraints' for ICT usage during first years of teaching

'Constraints' category	P1	P2	P3	P4	P5	P6
Access to ICT tools	X	X	X			X
School context	X					X
Unsupportive environment	X		X			
Security	X					X

Table 4 shows the category of 'access to ICT tools' as the category mentioned most by participants in hindering them from using ICT tools to teach science. In the view of participants, ICT resources need to be readily available in schools to encourage and motivate passionate teachers to use them to teach science. P1, P2, P3 and P6 explained the effects the lack of access to ICT resources have on the teaching of science:

P1: ... there was a time when we were doing the body structure and because they don't have the required resources, it becomes difficult to teach learners because we have to draw just for them to remember; they also have to always draw and label so that they are able to remember the model you taught. This is such a waste of time.

P2: ... the grade 9 classes don't have access to ICTs and, as a result, they get bored [and] are not interested in studying sciences because they think it is hard.

P3: Internet access is a problem, I think, if you teach almost seven classes a day like me. I only get access to two classes, then the rest do not get to use 'plickers' [a free interactive technological tool that uses printable 'paper clickers'] because of, maybe, the data depleting. In addition, I think computers are a problem because we do not have enough computers at the school and those which are available are there for a subject called CAT [Computer Application Technology].

P6: We don't even have a computer in the staff room, so anyone that wants to use a computer will have to bring their own laptop at home. But, it is not safe to bring the laptop to school, so I rather do it at home, save whatever documents I need to print on a memory stick...

The excerpts above highlight the limitations participants encountered in their efforts to teach science using ICT tools. These concerns align with the findings of researchers such as Tachie (2019). Ottenbreit-Leftwich et al. (2018) corroborate that passionate teachers' ability to integrate ICTs in the classroom are perhaps hindered by the availability of resources or the school contexts in which they find themselves.

Some schools allegedly restrict teacher access to ICT facilities deliberately, or unknowingly, based on the assumption that teachers may exploit these resources for their personal benefit (see Ghavifekr, Kunjappan, Ramasamy & Anthony, 2016; Tachie, 2019). P1, P5 and P6 explained that despite their competence and passion to teach science with the use of ICTs, access was restricted at their schools:

P1: It is safe to say that the situation at the school was demotivating because there was not even a way to book the computer lab.

P5: My biggest challenge is having access to ICTs or the room where ICT tools are available... so access and expenses. The school tends to want to save money and refusing us to use the school's Wi-Fi for the benefit of the learners because they think we are going to use [it] for own personal gain...

P6: ... But now that I work in a township school... it's unfortunate that classroom environment there are not suitable for ICTs lessons; all you can do is teach verbally. Although there is a science lab... it [is] not always accessible because you'll find that the senior teacher, responsible for grade 12 classes, uses it as his own.

Munje and Maarman (2017) and Overaa (2014) agree with Fairchild, Meiners and Violette (2016) that the lack of regular access to internet services for teachers deprives learners of opportunities to learn. When access to the internet is restricted, teacher abilities to present a variety of examples to learners or to demonstrate what they teach are restricted (Ghavifekr et al., 2016). Such constraints have negative repercussions for learners (Fairchild et al., 2016; Pholotho & Mtsweni, 2016). Although some teachers in schools with irregular connectivity may resort to using their personal resources to ensure that learners have access to the internet by creating Wi-Fi hotspots, there are bound to be limitations as they may give up when overstretched financially.

The participating beginning teachers lamented that ICT facilities were available in the schools but were not in use. Teachers at these schools were either not interested to integrate ICTs into teaching or did not have the skills to do so, a thought supported by Mailizar and Fan (2020). Like Mlambo et al. (2020), Dlamini (2018) suggests that the lack of interest by some South African teachers to use technology in the classroom probably results from the less aggressive approach towards digital empowerment of pre-service teachers at teacher training institutions. Up to 72% of teachers involved in Dlamini's (2018: 5) study were not comfortable engaging with various forms of technology in their classrooms. The participants in this study who are in alignment with such discourses recounted some not-so-positive experiences:

P1: Currently, I haven't seen my colleagues that are part of science doing that, using technology to teach.

P3: Teachers... in this school [second school] don't use ICTs at all... they are not interested to use it. So even if you are trying to ask them what you know... the ICTs tools are just closed in a storeroom, they are not used at all.

Incidences where ICT resources are available but not put to use are neither new nor unique to specific contexts, thus aligning with the findings of De Freitas and Spangenberg (2019), Mlambo et al. (2020) and Tachie (2019). In a Kenyan study, Amuko et al. (2015) also highlighted lack of interest, inadequate technological knowledge to integrate ICTs in the teaching of mathematics and lack of confidence as common challenges in varied contexts.

Another constraint brought up by participants is the lack of security at schools, which creates spaces for vandalism and theft of school property in some school neighbourhoods, preventing the integration of ICTs in the classroom. Arguably, the lack of ICT resources in some schools in South Africa is not because of the lack of provision on the part of the government, but sometimes due to theft. P2 explained:

[In] the first school, the class was vandalised around January and April when learners did not have a teacher. Wires were cut; I could not even dream to even bring my own devices for safety...

Theft and vandalism seem to be an ongoing challenge constraining the integration of ICTs in developing countries such as South Africa (see Masitsa, 2011). The South African government has to date incurred losses of more than R17 million through the theft of technological equipment in schools (Ramorola, 2018). As such, there is an urgent need for both government and schools to develop policies for responsible internet usage, with strict guidelines for all teachers.

CONCLUSION AND RECOMMENDATIONS

The paper aimed at understanding the enablers and constraints that influence beginning teachers' ability to use ICTs in teaching science. Participants overwhelmingly indicated that learners become motivated and more engaged, with the likelihood to perform better, when taught using technology. Although the participants possessed the competence and passion to use technology in teaching science, they were restricted due to existing challenges. These challenges include lack of ICT resources, access to ICT tools, the school context, unsupportive environments and security concerns. The paper thus highlights enablers and constraints that influence beginning teachers' ability to use ICTs in teaching science. The findings indicate that for South Africa's ICT-integration plan to succeed as intended, it is important to consider the dynamics of implementation in individual school contexts. This therefore calls for the provision of ICT resources in schools and the enactment of policies that can ensure practical use of ICTs in teaching by beginning teachers in subjects such as science and mathematics. The paper recommends a robust approach in the capacitation of teachers in the use of ICTs in the classroom by providing ongoing professional development opportunities. Considering that constraints related to ICT usage are diverse, it is important for the DBE to activate its monitoring and evaluation mechanisms that would assist in identifying context-specific challenges. In addition, the DBE should provide the necessary solutions to enhance the integration process. Furthermore, it might be recommended for the government to relook its budget allocation to schools in the domain of technology to enhance school capacity to purchase internet data on a regular basis and to repair broken computers timeously. Considering that this research focused on a particular province, similar research in other contexts in South Africa is essential to provide a rational picture of the state of ICT integration to holistically inform policy makers on the way forward.

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A framework for the development and improvement of computational thinking for high school learners using a programming language and learner management system¹

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ABSTRACT

Many educational departments are losing the battle against inefficient mathematics education. The Annual National Assessments (ANA) and World Economic Forum reports tell a story that performance is declining annually among learners in South Africa. The study was conducted among Grade 9 learners at a private high school in the Western Cape to establish a framework for computational thinking. The problem statement reads that it is not clear how high school learners' computational thinking (CT) may be enhanced or improved at a cognitive level of formal operations. The research question posed is, 'How can CT be enhanced, among high school learners, using a PL aligned to Action-Process-Object-Schema (APOS) theory?' The research methodology was based on an interpretivist philosophy. The ontological underpinning of the study is subjective and the epistemological stance accepts opinions of learners through written, spoken and visual attributed meanings. The axiology of the researcher is that of a practising educator in programming, a teaching and learning expert and a certified Java-Alice-Greenfoot instructor through Oracle. The research strategy was based on educational design research as a validation study through interventions. Findings show that CT at a cognitive level of formal operations can be enhanced among learners through Greenfoot PL with APOS theory as lens. The support and recognition of the headmaster or line manager towards those involved in programming language (PL) and learning management system (LMS) education, determine the success of the roll-out.

Keywords: APOS Theory, cognitive level of formal operations, computational thinking (CT), embodied cognition, learner management system (LMS), programming languages (PL)

1. INTRODUCTION

The underperformance of learners² in especially mathematics at high schools in South Africa (RSA) remains a challenge for government, policymakers and educators (Spaull, 2013; Reddy, 2014; Reddy et al., 2015; Voogt et al., 2015). Reddy et al. (2015) argue that a magnitude of challenges exists at all

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2 The statistics showed the decline in the overall grades of Grade 9 learners (Spaull, 2013; HSRC, 2014; DBE, 2015). According to Spaull (2013) and Reddy et al. (2015), the Literacy and Numeracy Assessment (LaNA) rolled out by the Trends in International Mathematics and Science Study (TIMSS) indicates that South African learners are underperforming and hold the last position out of a total of 143 countries (Reddy, 2014).

levels of the pedagogical space when attempting to provide an ideal learning environment for all learners. The authors further posit that poor discipline, violence and bullying at schools have a negative effect on learners' mathematics and science performance. According to Reddy et al. (2012), poor and middle-class learners in Grade 8 are a barometer to predict who will pass in Grade 12. Many mathematics teachers serve middle-class learners, as categorised by Reddy et al. (2012), through Mathematical Powerhouses (MPHs). MPHs change the landscape of pass rates at any school. This is true where the costs of these services are covered for learners who are fortunate enough to be accepted by these MPHs.

Teaching towards mathematical problem solving (MPS) stays a challenge according to Chirinda and Barmby (2018). This challenge exists due to many factors within South African society, such as large or overcrowded classes and learner mathematical beliefs (Moscucci, 2007). According to Chirinda and Barmby (2018: 122), mathematics is 'inexplicable and beyond understanding for the majority of learners' in the RSA.

The RSA Department of Basic Education (DBE) has embarked on a National Development Programme with a five-year strategic plan (2015 to 2020), but implementation remains complex. Successful implementation of MPS is a challenge, as highlighted by Voogt et al. (2015), Denning (2017) and Lockwood and Mooney (2017). Systemic tests in RSA were introduced in 2018 as an upgrade of existing testing instruments such as the original Annual National Assessments (ANAs) (Schäfer, 2018). Reflective abstraction and algorithms form an important basis for the MPS approach (Aho, 2012; Cetin & Dubinsky, 2017; Denning, 2017; Chirinda & Barmby, 2018). The Action-Process-Object-Schema (APOS) theory is well researched on how mathematics learning takes place (Arnon et al., 2014) and has a strong connection with CT embedded in reflective abstraction (Cetin & Dubinsky, 2017). According to Selby and Woollard (2014), CT points to an abstract methodology and mathematical thinking to abstract structures. This study explores the effect of a programming language (PL) and the APOS theory on promoting CT skills among learners at Piaget's (1965) cognitive level of formal operations.

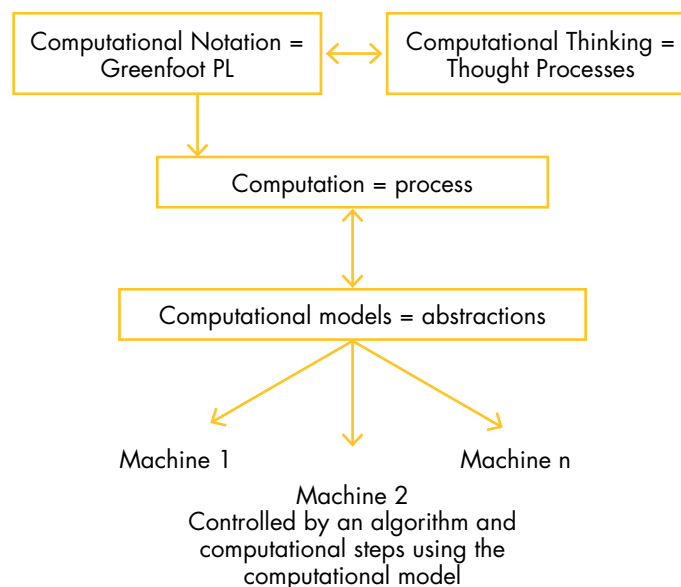
RSA educational departments made drastic changes to the current curriculum, which resulted in confusion among educationists as well as learners and parents (McCarthy & Oliphant, 2013). In an attempt to remedy the situation, the DBE provided textbook top-ups, mathematics and science kits as well as digital resources to be loaded onto notebooks to allow for a possible improvement in results in Grade 12 (Grant, 2012). According to Howie (1997, 2001, 2004, 2013), Howie and Plomp (2006), Maree et al. (2006), Reddy et al. (2006) and Reddy et al. (2015), these continuous curriculum changes post-1994 within the DBE seem to be an influential factor towards the status quo of mathematics and science results of learners.

The lack in CT may contribute to these negative trends as the curriculum does not provide adequate support for the development of CT at a cognitive level of formal operations. Interventions such as technology investments in schools without the implementation of CT as part of the rollout are a waste of resources and money (Pearson, 2008). The aims and work done by the DBE are commended and supported. This must be done against the background that the underlying problem is the underdevelopment of CT at the cognitive level of formal operations (Papert, 1980). Sharpening abstraction skills among Grade 9 learners may improve mathematical standards. The lack of CT among Grade 9 learners starts with the absence of abstraction skills. It becomes a challenge for educators to instil CT in learners. A possible solution can be found in the APOS theory which proposes the existence of mental structures when practising reflective abstraction (Arnon et al., 2014). APOS theory is a well-researched theory on mathematics learning (Dubinsky & Lewin, 1986; Dubinsky, 1991, 2000; Dubinsky & McDonald, 2001; Arnon et al., 2014). The discussion is highlighted in the following literature study section.

2. LITERATURE STUDY

Reflective abstraction is used in context of CT (Cetin & Dubinsky, 2017). Denning (2017) underlines Aho's definition (2012) of CT as the thought processes necessary to formulate problems. The solutions to these problems can be represented as computational steps and algorithms as depicted in Figure 1. Denning (2017) further argues that computation is a process consisting of a computational model together with computational thinking. An algorithm is a way to control any machine that uses the model. These computational models are abstractions at the core of computation and CT. Selby and Woollard (2014) researched the term 'CT' and found that three aspects are always found in the definition: (i) thought processes, (ii) the concept of 'abstraction' and (iii) the concept of 'decomposition'. They further argue that the terms 'problem solving' and 'logical thinking' are too broad and focus on skills development. Aho (2012) states that algorithms are implemented using a computational notation such as a PL.

Figure 1:
CT in motion (Compiled interpretation taken from Denning (2017) and Aho (2012))



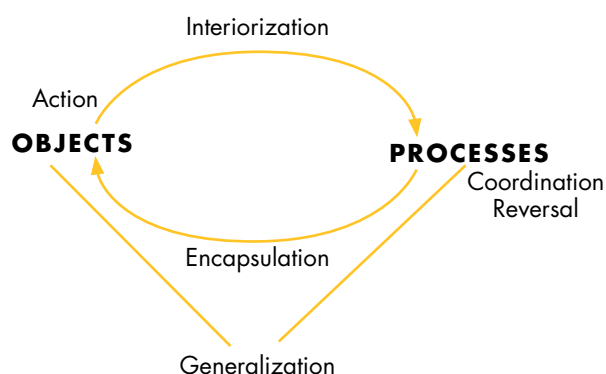
Abstraction and automation are the 'mental and metal tools' of CT (Wing, 2006, 2008: 3718). Words and phrases from 'thinking at multiple levels of abstraction', 'decomposition', 'heuristic reasoning to discover a solution', 'prefetching and caching in anticipation of future use', 'recursive thinking', and 'algorithm and precondition' describe some of the skills needed to think like a computer scientist (Wing, 2006: 33). Learners who master CT are able to understand a relationship among subjects and activities within and outside of school (Philbin et al., 2013).

Denning (2017) posits that following any sequence of steps or algorithm does not necessarily make you a computational thinker. Aho (2012: 2-3) states that CT is about finding appropriate models of computation to derive a solution for a formulated problem. Researchers such as Hayakawa (1949), Truran (1992), Wilensky (1991), Dubinsky (1991), Hazzan (1999, 2003), Devlin (2003), Kramer (2007), Perrenet (2009) and Meyer (2010) state subtle differences when arguing the concept of abstraction. Wilensky (1991: 4) states 'concreteness, then, is that property which measures the degree of our relatedness to the object, (the richness of our presentations, interactions, connections with the object), how close we are to it, if you will the quality of our relationship with the object'.

The APOS theory originated from Dubinsky's (1991) interpretation of Piaget's (1973) concept of reflective abstraction. Piaget sees the properties of objects not in the objects itself, but embedded in the actions

that learners take when using these objects (Arnon et al., 2014). Each mental construction (**A**ctions **P**rocesses **O**bjects **S**chemas depicted in Figure 2) or conception uses mental mechanisms (interiorisation, coordination, reversal, encapsulation and thematisation) to move through the APOS (mental structures) cycle. Reflective abstraction is a description of what goes on in the minds of individuals when engaged in creating knowledge. It is hypothetical as nobody can see what goes on inside another's mind (Dubinsky, 1991, 2000).

Figure 2:
Schemas and their construction (Dubinsky, 1991: 106)



There are many possible ways to solve a mathematical problem, which may confuse the learners' actions. This often leads to lower levels of abstraction, which complicates their understanding (Hazzan, 1999; Kramer, 2007). Researchers describe this state a learner is in as 'abstraction anxiety' (Sfard, 1991; Wilensky, 1991; Meyer, 2010), which forms an important component of mathematical anxiety. Papert (1980) uses the term 'mathophobia' and Tall (2004) refers to this phenomenon as 'dyscalculia'. Meyer (2010) states that educators should not only classify subjects as being abstract, but also deal with this anxiety associated with abstraction.

Many studies (Dubinsky, 1999, 2000; Hazzan, 1999; Wilensky, 1991; Dubinsky & McDonald, 2001; Kramer, 2007; Perrenet, 2009; Meyer, 2010; Maharaj, 2013; Brijlall & Maharaj, 2014) have been conducted on the concept of abstraction as a prerequisite for subjects such as Mathematics and Programming. However, many of these studies were conducted at university level where students had already acquired the skill of abstraction within certain disciplines. Instruments for assessing certain characteristics associated with abstraction skills are then devised or used to measure abstraction (Hill et al., 2008; Perrenet, 2009). Unfortunately, only a few studies have been conducted to date at school level from Grade 8 to Grade 12.

3. EDUCATIONAL DESIGN RESEARCH (EDR) METHODOLOGY

The EDR approach was followed with the emphasis on exploring and understanding CT at the cognitive level of formal operations. This was accomplished through teaching, learning and training Grade 9 learners (Bannan, 2013). A genetic decomposition (GD) through activities, classroom discussions and exercises (ACE) were used (Arnon et al., 2014). The GD is used as a model within the EDR framework, known as the Integrated Learning Design Framework (ILDF), proposed by Bannan (2013).

Plomp (2013) highlights three preliminary stages of EDR, influenced by many researchers. The stages are (i) preliminary research phase, (ii) prototyping phase and (iii) assessment phase. The interventions stated in Plomp's study were defined using the recommendations as output. This resulted in an iterative process

leading up to a possible solution, or in the context of this research, an educational practice to remedy the mathematical dilemma.

The Design for Intervention principle and the Greenfoot PL were used to enhance CT in Grade 9 learners using APOS theory as lens. Based on Van den Akker's (1999) questioning structures, research questions were revisited and combined to describe the technological educational intervention brought about by formative evaluation design principles. The research questions were adapted to fit the EDR methodology (Plomp, 2013) by asking the following question: What teaching and learning strategies can empower learners to master computational thinking skills in order to cope with the challenges in subjects such as Mathematics and Science?

4. THE DEVELOPMENT OF THE CT FRAMEWORK INCORPORATING PL AND LMS

For the development of the CT framework, formative evaluation is considered to be essential in ensuring high-quality interventions for this complex educational problem (Nieveen, 2013). The research focused on the following three phases, as identified by Nieveen (2013): (i) problem identification, (ii) orientation and positioning and (iii) implementation. All three stages are subject to formative evaluation.

4.1 *The problem identification phase*

This phase requires preliminary research that entails a literature review, conceptual framework and the identification of a target group, which are all discussed in the following sections.

4.1.1 *Needs and context analysis*

Learner performance in mathematics is deteriorating in South Africa, as has been pointed out in the introduction. Although there is a collective calling from the DBE, MPHs are making money from this mathematical dilemma South Africa is facing. The DBE attempts to enhance mathematical performance during a learner's final year of study at school, which raises questions such as, 'What was done in the former years of these learners towards their final year at school', and 'What is being done at this stage'?

The literature review of the study focuses on the typical mathematical approach, the discovery of CT, and the importance of understanding what is meant by abstraction and automation encompassing CT. The CT research conducted in this study concentrated on aligning the learner's understanding of APOS theory and how APOS can be embedded in a learner's mind without necessarily focusing on mathematics. Previous APOS research focused on university-level students. Inadequate APOS approaches among students have been pointed out in these studies, but only in conjunction with specific mathematical concepts and without real action taken other than an indication that students are not at a desired level of APOS (Maharaj, 2013). The poor Grade 12 results and the actual guidance for teachers and learners on how to intervene and salvage their mathematics approach or similar CT subjects form the foundation of this EDR.

4.1.2 *Literature review*

CT is a driving force for any learner when studying mathematics (Wing, 2008). Complex thoughts in the logic of individuals take place at a cognitive level of formal operations, but vary in complexity levels within the mind of the learner (Piaget, 1965).

Learners and teachers are not knowledgeable about the APOS theory as it is not included in the mathematics and science curricula of Grade 12 learners. The general approach to improve the high failure rate is to make use of concept images, but the images selected contribute to misconceptions instead of a better understanding of mathematical concepts. The objects and schemas used are disjointed and inevitably lead to poor results in mathematics (South African Mathematics Foundation, 2018).

4.1.3 Theory development

A theory, a framework and a model are needed to implement a practical approach with CT as outcome. The way learners interact with mathematics is a concern as it does not deliver positive outcomes (Spaull, 2013). The outcome of the literature review shows that the mathematical approach in schools is governed by working through papers and examples, which may strengthen a concept-image approach outcome (Reddy et al., 2012; Spaull, 2013; CDE, 2014; Reddy et al., 2015). The approach may also reiterate incorrect understanding of mathematical concepts because, according to Higgins and Wiest (2006), practice does not necessarily make perfect. Higgins and Wiest (2006) conclude that the learner may, by practising a relative or warped solution, create a conceptual image of a mathematical concept through a relative epistemological approach. Using a constructivist approach might force the learner to explore the mathematical problem without a guided or blended approach giving rise to a warped or relative idea of any mathematical solution. This may impact the epistemological views on mathematical education. It is argued that worked examples are important to minimise time spent on concepts. A worked example (Clark et al., 2010, 2012; McPhail, 2016) usually originates from the professional who has the right answer; it is not based on a relative viewpoint of the truth from a learner's perspective. Mathematical solutions to a mathematical problem may seem correct until the answer proves differently and is thus relative when seen from the learner's frame of mind. Solving a problem using a PL such as Greenfoot offers a trusted solution, which is underpinned by the APOS theory and immediately visible to the student. The LMS may provide a guided approach towards CT when solving a problem.

4.1.4 Target group

The majority of Grade 9 learners are faced with subject choices for Grade 10 that will affect their future. In Grade 9, external influences such as teachers and parents bring a more adult approach into the classroom. The learner has also grown one year in personality and attitude, and it is difficult to isolate one specific criterion affecting his/her viewpoint about learning. The complex multitude of factors (personality, attitude, etc.) that may play a role are ignored, as pointed out by Cegielski and Hall (2006). Grade 9 learners were therefore a logical choice as unit of analysis for this study.

4.2 The orientation and positioning phase

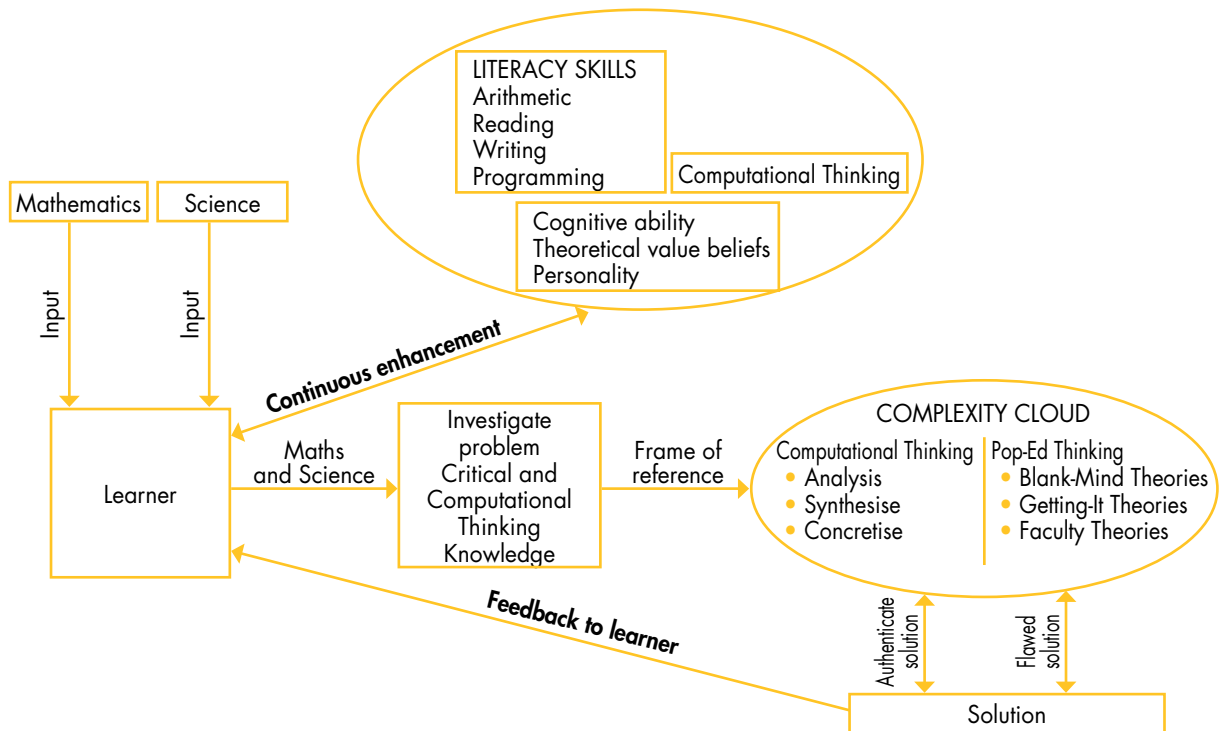
The orientation and positioning phase is the identification of the intervention and support of such interventions. According to Wademan, (2005), this is accomplished by adding tentative products and design principles to the intervention through formative evaluation. The next section deals with the conceptual framework and presentation mode.

4.2.1 Conceptual framework

Enactment, according to Bannan (2013), involves learning targets, innovation, choosing design principles, identifying and operationalising cognitive and performance processes in design, and how the design covers the theoretical model. Nieveen (2013) views the conceptual framework as the foundation of the intervention, based on the consideration of the curricular spider web by van den Akker (2003). The APOS framework was studied as the foundation of mathematics learning. Greenfoot PL houses many educational principles enhancing all of the APOS mental structures using mental mechanisms for each mental structure. The aim of a conceptual framework, designed by the authors and depicted in Figures 3, 4 and 5, may enhance CT among learners. This is achieved by transferring APOS mental structures to learners via the Greenfoot PL.

A basic theoretical conceptual framework was developed for the improvement of CT skills of learners (Figure 3). The interaction of learners and CT subjects such as Mathematics and Science are shown in Figure 3.

Figure 3:
The theoretical conceptual framework for the improvement of CT among learners in Grade 9



The learner investigates the problem from within his/her knowledge base by means of knowledge as well as CT. The frame of reference lies within what is called the 'complexity cloud'. The complexity cloud is based on research conducted by Bachelard (1938) who argued that existing cognitive beliefs may impact the progress of science, applied by Moscucci (2007) with her Mathematical Belief System Activity (MBSA). Papert (2005) also argues that thinking processes and beliefs may become obstacles for understanding mathematical concepts. Brousseau (1983) argues that certain existing knowledge may prevent the acquisition of new knowledge, also known as an epistemological obstacle. McGowen and Tall (2010) use the term 'met-before' which may impede further learning. This also holds true for the didactical situation (Brousseau, 2002) in class at the sample school. A number of aspects are hidden, and therefore not visible to the teacher, within the complexity cloud, such as the culture of Pop-Ed thinking (Papert, 1980) and CT (Perrenet, 2009). According to Papert (1980), Pop-Ed thinking consists of *blank-mind* theories, *getting-it* theories and *faculty* theories when learners are conditioned to believe that they are inferior and not able to solve problems or participate with other learners academically (Papert, 1980: 355).

This can give rise to a flawed solution (Jankvist & Niss, 2018) to the problem under investigation, as a learner is governed by theories that prevent him/her from developing a mathematical understanding of mathematical concepts as per definition. A typical example, depicted in Figure 4, was found among some of the learners within the study. They did not know the sum of the inner angles of a triangle. This could have been solved through an Action (first phase of APOS) given to learners: instructing them to cut off the corners of the triangle and place them adjacent to a ruler to illustrate 180 degrees.

Figure 4:

A learner's answer illustrating the lack of achieving the Action (first) phase within APOS theory

- f. Draw a triangle as perfect as can be.



- g. What is the sum of that triangle's angles in degrees?

unknown at this stage.

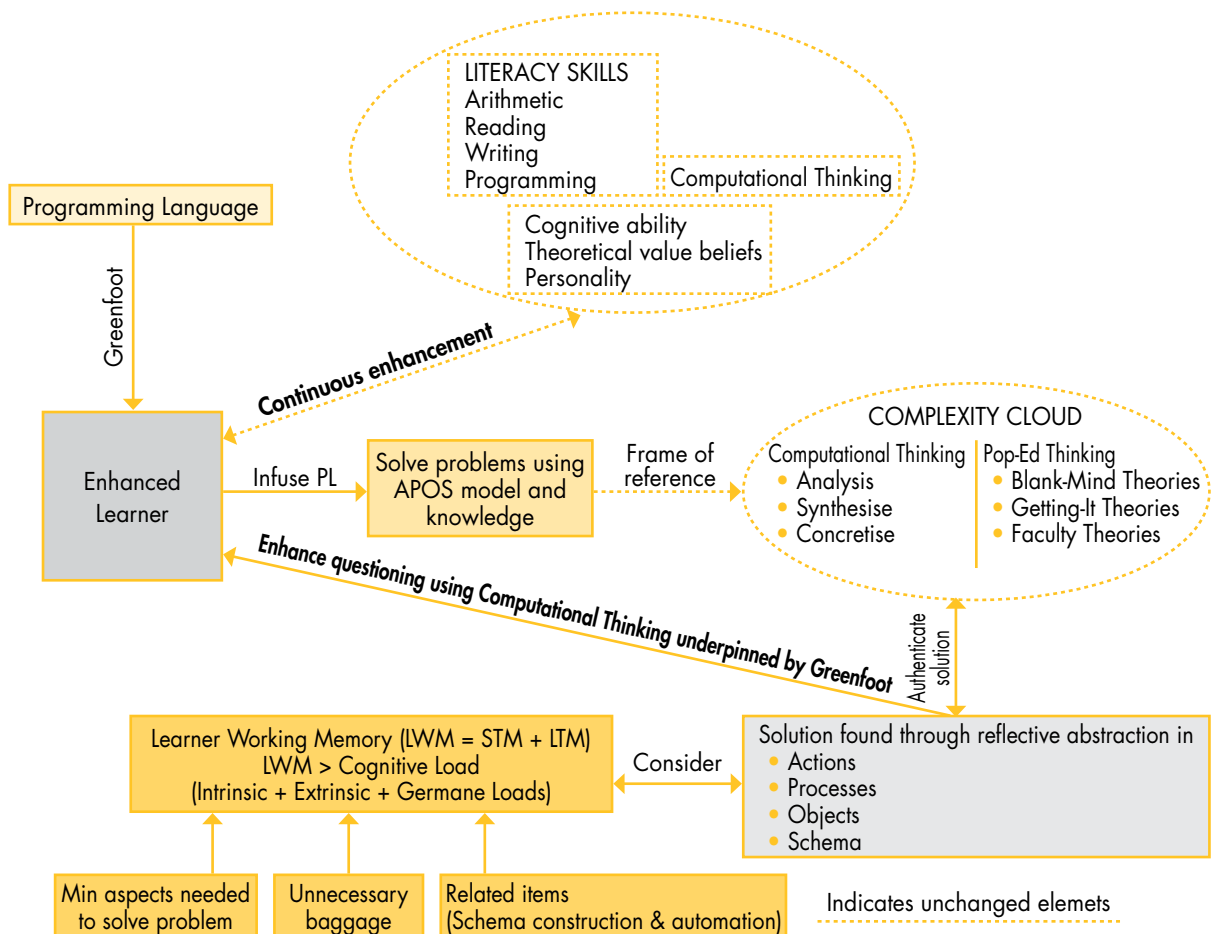
Not being at the Action phase prohibits the learner from advancing to the Process phase. According to Jankvist and Niss (2018) and Moscucci (2007), it is all about the learners' mathematical beliefs. These mathematical beliefs are made up of emotions, attitudes and cognition, also influenced by teachers unfortunately.

CT, on the other hand, consists of the analysis, synthesis and concretisation of mathematical concepts, which seems to be suppressed by the culture of Pop-Ed thinking, as has been found among learners in the sample group. The probability of a correct result of the CT component interaction is likely to be an authentic solution to the problem or striving towards an authentic solution. The solution, whether flawed or authentic, goes back to the learner. The learner uses the flawed or authentic solution in scaffolding new mathematical concepts, building towards a schema.

The continuous enhancement needed for the development of the learner is supported by the factors of literacy as put forward by Prensky (2008). CT is suggested by Wing (2008) as an additional factor to be literate at a cognitive level of formal operations (Figure 5), governed by theoretical value beliefs and personality (Cegielski & Hall, 2006). When investigative skills within CT are required, the learner enters a complexity cloud filled with either positive or negative thoughts that may sidetrack CT as pointed out previously.

Considering the basic framework (Figure 3), an intervention was designed using Greenfoot as PL installed on all personal lab computers (PCs). The facilitation of Java made it easier for system operators to use the existing Java JDK, also necessary for a Greenfoot installation. The learners then received an electronic folder containing the scenarios of the Greenfoot PL. The intervention was done by adding a PL as shown in Figure 5. Instead of having a situation where the problem was investigated by the learner only, the problem was solved using APOS structures through Greenfoot.

Figure 5:
An improved theoretical conceptual framework for enhancing CT among learners in Grade 9



The basic framework was revised to broaden the authentic solution through the use of reflective abstraction (Dubinsky, 1991) including Actions, Processes, Objects and Schemas or APOS framework. Learner Working Memory (LWM), which consists of short term (ST) and long term (LT) memory, is optimally used to streamline learning. Kranch (2010) states that $(LWM=STM+LTM)$ increases the cognitive load consisting of intrinsic, extrinsic and germane loads (Figure 5). The intrinsic load refers to the minimum aspects needed to solve a problem. Contrary to this, extrinsic load refers to unnecessary baggage carried by any learner. The use of cell phone interaction by learners is a typical distraction. Germane loads refer to related items, including schema construction and automation for the purpose of learning. Schema construction involves equilibration, which is part of Piaget's theory of cognitive development. Equilibration is a dynamic process that learners undergo during assimilation or accommodation of schema construction, called cognitive adaptation (Bormanaki & Khoshkal, 2017). The learner can now be classified as an 'enhanced' learner.

4.2.2 Presentation mode

The presentation mode (Nieveen, 2013) of the intervention to accomplish computational thinking was built around infusing the Greenfoot PL. Formative evaluation led to the introduction of an LMS to enhance the quality of the learning experience as guided, not as haphazard constructivist approaches. Moodle was used to house most definitions on APOS and provide learner-teacher interaction beyond the notion of the curriculum. Furthermore, flipped-classroom techniques as well as YouTube videos were stored on an in-house-developed and password-protected Moodle website, <http://wrru.co.za/moodle>. Explanations of abstraction and other related concepts were structured in Moodle as a guided CT approach. During an

information meeting with teachers at another public school, it was found that they were not at all familiar with an LMS or the rollout of e-Learning in general. A formative evaluation approach was taken for the private school by structuring Moodle with a storyboard approach (Nieveen, 2013). This made Moodle more interactive in terms of teaching and learning strategies. The static presentation of most LMSs acts as a repository. This poses a problem at many educational institutions, with no embedded CT guidance of subject matter. Figure 6 illustrates the format of the intervention which includes more theories (Imenda 2014). This makes the theoretical framework a conceptual framework.

Figure 6:
Conceptual framework for improving CT using APOS, PL and LMS

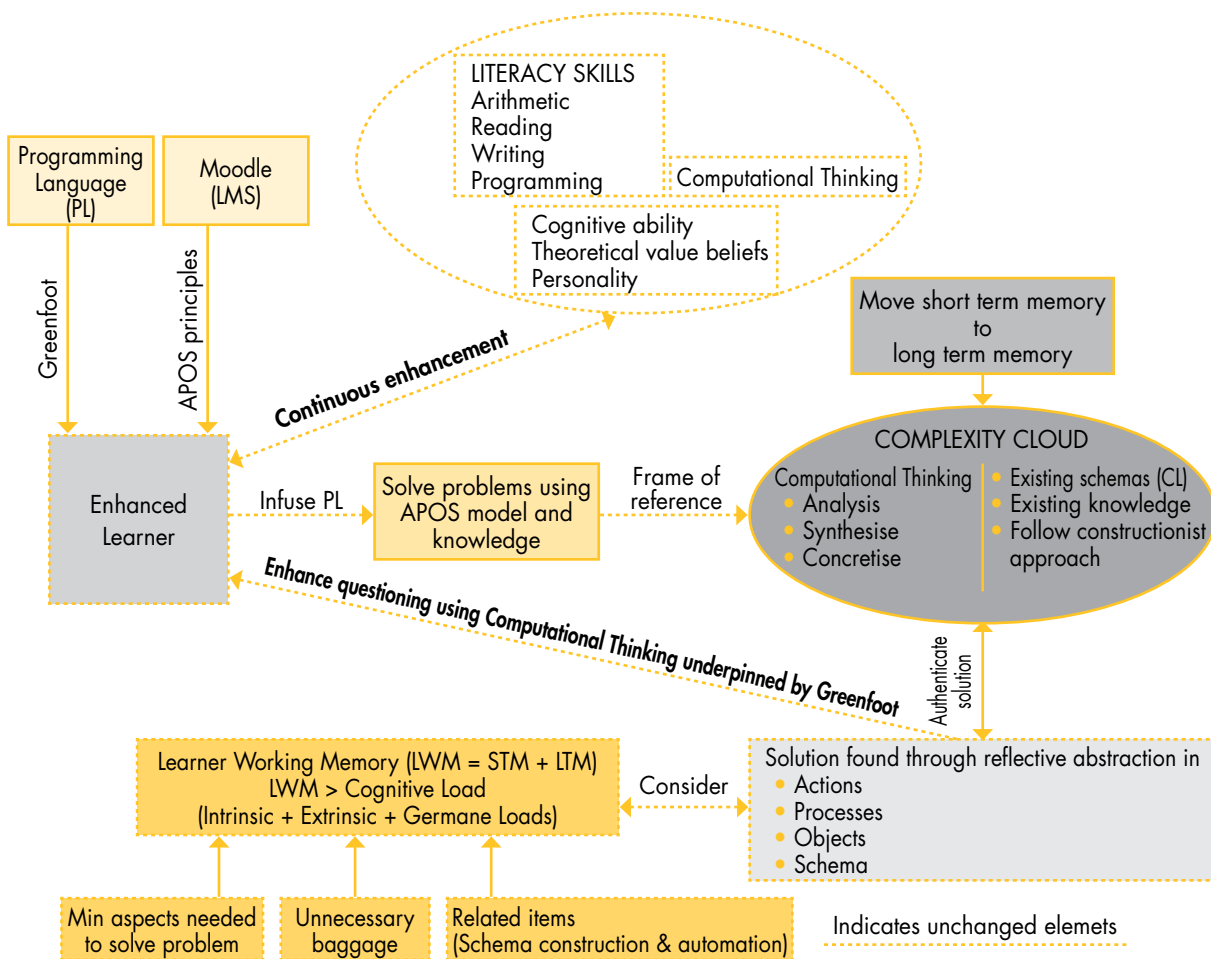
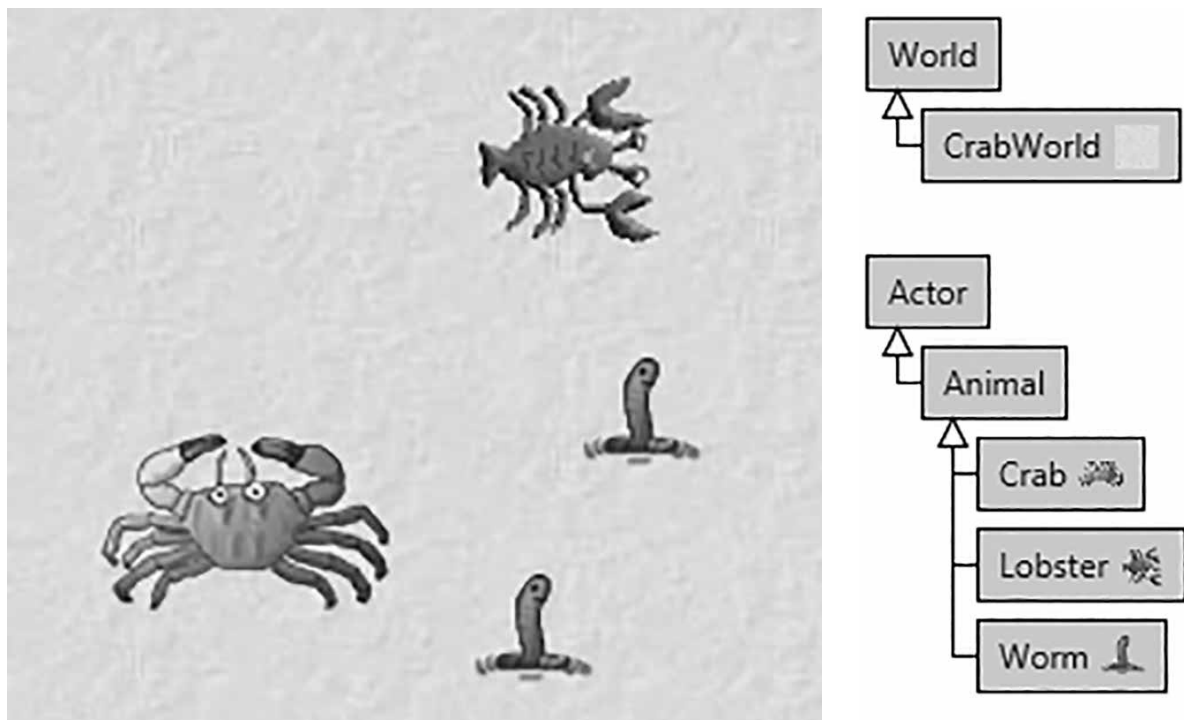


Figure 5 shows the introduction of a PL as the intervention. Using a PL created a challenge, as learners had to either rely on the internet or on the researcher’s explanations in class regarding usage of the environment or editor and aspects around many other syntax-related issues of a PL. Many learners were nervous when put on the spot to write a program due to insecure knowledge of fundamental aspects of a PL. Others were wary of peer pressure and therefore not able to complete a task. The intervention was therefore refined, as indicated in Figure 6, introducing an online LMS assistance, thereby enabling the learner to study programming language concepts using a guided approach. Moodle was made accessible to all learners in a ubiquitous manner, acting as a medium for constructivist learning in a controlled or guided fashion. The learner is guided with a correct epistemological approach (worked example). Initially, the learner had to construct his/her own knowledge based on a relative epistemological foundation (Figures 3 and 5).

The interactivity allows for performance measuring on certain exercises. Most important is the availability of a large collection of flipped-classroom examples referring to certain levels of programming in Greenfoot. Any learner may pre-study a 'worked example(s)' to enhance his/her learning, thereby not having to feel intellectually inferior. Within the complexity cloud of thought, pre-set ideas are replaced with a solid understanding of how CT should take place, as depicted in Figure 6. The 'enhanced' learner uses the PL and the LMS to solve problems intuitively by means of APOS mental structures using mental mechanisms. Furthermore, continuous enhancement is still happening and the questioning ability of the learner (CT inspired by the PL) is enhanced in order to solve problems using an APOS approach. For example, the learner creates a scenario in Greenfoot consisting of a world (CrabWorld) and the actors (Crab, Lobster, Worm), as depicted in Figure 7 below. Many scenarios such as this one can be downloaded by teachers from www.greenfoot.org/download if they need guidance on how to accomplish certain algorithms. During the research, we developed our own algorithms, but this scenario was used explicitly to help the reader to follow the explanations through trivial inspection. Many instances can be created for each object and they can be 'brought to life' to interact with one another within the CrabWorld depicted in Figure 7.

Figure 7:
Lobster, Crab, Worm Scenario (Source code: Kölling, 2010)



The learner is submerged (embodied) into this CrabWorld and faced by many of the following unsolved questions that need a solution or an algorithm:

- i. How can one ensure natural movement by utilising more than one image of a crab to simulate leg movement? This is not always picked up by every learner, but learners' attention to detail is sharpened through looking at other scenarios within the LMS and applying a solution to this formulated problem. In this instance, the teacher needs to formulate the problem to make the task more digestible. Figure 8 illustrates the coding of two images that represents one crab:

Figure 8:
Greenfoot coding of Crab movement



(Source code: Kölling, 2010)

- ii. What would the CrabWorld look like within the virtual world of the Greenfoot class? This requires the learner to understand the dimensions of the x and y axis and calculate the relative position of the animal considering the width and height of the Greenfoot world. Embodied cognition is required by the learner as the animal continuously moves and turns away from the edges. Although this implies intense mathematical thinking, the aim is on forcing the user to produce a solution to the formulated problem in the form of an algorithm and computational steps that will comply with the properties of the computational model.

- iii. How can we ensure that each animal will abide by its eating habits, i.e. that the lobster will eat the crab and that the crab may eat worms, and so on? Here, CT is enforced by considering the specific computational model, which is an object-messaging model. The learner abstracted/encapsulated the code into a method `lookForWorm()` in Figure 8. The detail is hidden within `lookForWorm()` method. The instances of these animals can be created and each instance will act independently through messaging.
- iv. Which methods are common to all the animals that should be housed in an `Animal` class as depicted in Figure 7? This forms a super class (generalisation) from which all animals inherit certain common methods, i.e. methods used by all the creatures or animals. All animals must move and sense the edge of the world. Once again, the detailed code to accomplish this will be embedded in methods that will perform these actions. The learners identify such methods through mental mechanisms in APOS mental structures. The concept of generalisation is a mental mechanism within reflective abstraction and forms part of CT. It can be seen as decomposing the classes of animals and identifying those generalised methods that link directly with CT (Selby & Woollard, 2014). Not only is this aligned with APOS mental mechanisms within reflective abstraction such as encapsulation and de-encapsulation, but it also forms part of CT. These common methods are created using the Greenfoot Language computational notation.
- How do the animals behave when they invade one another's space?
 - What sounds do they make if one animal devours the other?
 - What happens to the object that is devoured?

The learners are submerged in CT to find solutions for these formulated problems and translate the problems into code.

- v. The learner needs to understand the questions and asks for help if he/she does not understand. Group work was used to brainstorm the questions. Each learner was given the opportunity to create an algorithm for the task at hand. The beauty of Greenfoot is that the outcome explains the understanding of the learner, since the scenario can be run as a whole or one step at a time and is visible to both learner and teacher. Based on the outcome, the learner can then decompose or reverse the computations. Techniques such as refactoring of code, encapsulation of code into methods, and creating classes and objects to solve the problem are investigated and 'drilled in'. Drilling is a term used during language learning that coincides with the APOS term process where the learner moves on from simply taking Actions to memorising these actions as a Process to form part of a schema. It can be described as scaffolding where learners develop more schemas as they apply CT and reflective abstraction. Positive results were noticed with larger projects and fewer teacher interventions. Learners formulated their own problems and each arrived at solutions, different in code, but with similar outcomes.

5. FINDINGS

The findings were accomplished through the following iterative interventions:

Intervention 1: Abstraction

Abstraction as a pillar of computational thinking was investigated by learners through videos, lectures and assessments. The APOS framework was then introduced through Greenfoot PL as a new technology and approach or PL belief.

Intervention 2: Actions and processes through two steps

Step 1: Moodle and Greenfoot

Alignment and investigation of actions and processes using a PL and LMS were accomplished through lectures, videos and assessments.

Step 2: Coding

Code within Greenfoot was composed with the help of lectures, videos and Moodle, and assessed as small projects or assignments.

Intervention 3: Encapsulation of code

Code was rolled out through lectures and videos, and assessed by means of practical class tests. The technical skills on encapsulation through the refactoring of code spearheaded an object and schema creation within APOS. The rollout was then tested through the implementation of small programs and assessments.

Intervention 4: Object and schema

Code was rolled out through lectures and videos, and assessed by means of practical class tests. Using encapsulation within Greenfoot, the concept of objects and schemas could be rendered within the thinking processes of the learner, which illustrated the last stages of APOS. The technical skills, objects and schemas were then tested through implementation of a project.

These interventions were always linked to a mathematics problem so the learners can identify the connection of APOS theory across domains.

5.1 Basic findings derived from these interventions include:

- i. It is difficult, if not impossible, to change learners' viewpoint on mathematics through mathematics itself due to mathematical beliefs.
- ii. A PL such as Greenfoot does fit the APOS model.
- iii. The learners' approach to mathematical thinking through the APOS framework can be aligned using a programming language to enforce mathematical thinking.
- iv. The involvement of the headmaster or line manager is paramount in the rollout of the research.

6. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The low pass rates of learners taking mathematics and science at high-school level are of great concern. This paper proposes a conceptual framework that can be used to improve the CT of learners using a PL and LMS in applying APOS theory. It is well established that the APOS theory positively contributes to the success rates of learners in mathematics (Arnon et al., 2014).

This paper does not focus on specific subjects *per se*, but rather encourages the development and improvement of CT among all learners. The learner's mind should not be occupied by mathematics and science. The pre-set idea that only 'clever or mathematics inclined learners' are able to take programming, was removed, as pointed out by Papert (2005) with his Pop-Ed theories.

In many cases, learners are exposed to the monotonous process of working through existing mathematics papers. This activity takes the learner down the road of storing image snapshots of a mathematical concept, which is called rote learning. Learners should build schemas on mathematical concepts. Students

accepted by universities, based on the assurance of being logical thinkers, built on snapshot techniques of mathematical concepts, may not cope where a higher cognitive level of formal operations is expected.

After using the proposed framework, interviews were conducted, where a learner (X) mentioned that during group work some so-called 'superior' mathematical learners struggled in coming up with solutions on formulated problems. Learner (X) suggested that she should do better in mathematics than the so-called 'superior' learners. Such special moments may motivate those to reflect on their performance.

In conclusion, APOS theory supported by a PL and LMS enhances the learner's CT ability. By applying this framework, learners will be able to find solutions through reflective abstraction in actions, processes, objects and schemas, which support the arguments and findings of Dubinsky (1991) and Arnon et al. (2014) in mathematics.

7. FURTHER RESEARCH

Further research needs to be done on the adoption of the innovation when conducting local and broad-impact evaluations as discussed by Bannan (2013). This requires a positivist approach within a developmentalist paradigm (Weber, 2010). Acceptability will then occur outside the interpretivist approach. It is still unclear what role the teacher plays in terms of understanding the APOS theory, PL and LMSs due to APOS being unfamiliar to the majority of mathematics teachers in RSA.

As this study only focused on one private school, it is recommended that more schools, including state schools, get involved. Preferably a larger number of learners starting in Grade 8 should be researched using a PL and APOS theory as lens.

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Strategies used by peer-led groups in the provision of Psychosocial Social Support in schools¹

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ABSTRACT

The study sought to find the strategies used by peer-led groups in the provision of Psychosocial Social Support (PSS) to vulnerable children in secondary schools in Amathole West Education District, Eastern Cape, South Africa. The Psychosocial Support interactive model of 1982 by Merriam and Darkenwald informed this study. A qualitative approach with a case study research design was used as a method of inquiry and was underpinned and framed by the interpretive paradigm that guided the researchers as they generated the data. The target population was all the schools in Amathole West Education District. Four secondary schools were chosen as multiple case studies because they had functional peer-led groups. A sample of 41 participants made up of four peer leaders, four learner support agents, four principals, four Life Orientation (LO) teachers, one district official and 24 learners in focus groups was purposively selected because they were directly involved with the peer-led groups. A thematic text analysis was used and the study revealed that peer-led groups employed four strategies: counselling, referrals, partnerships and circles of friends. The study concluded that vulnerable learners who were identified could not be effectively assisted due to a shortage of resources such as counselling rooms and transport as well as lack of training of the peer leaders. The study recommends that peer-led programmes should be part of the large school curriculum with a specific budget to meet the requirements of such programmes.

Keywords: psychology, psychosocial social support, emotions, stress, abuse, poverty

INTRODUCTION

Globally, schools operate in settings characterised by acute forms of social disruptions: disasters, illness, the HIV and AIDS pandemic, poverty, and social injustice (such as abuse, class interruptions, bullying and rape), which all impact on the psychosocial wellbeing of learners (Nordveit, 2010). Capo et al. (2019) further states that children experience psychosocial problems more than adults do because of sociocultural, socioeconomic and sociopolitical circumstances. These are on the increase the world over, and have affected the wellbeing of most vulnerable children, especially secondary school learners who have an ever-growing ego of identity (Suárez-Orozco et al., 2011). These problems have detrimental effects on intelligent quotients (IQs), school achievement and socio-emotional functioning of the vulnerable children (McLloyd, 2008). The link between socioeconomic disadvantage and children's socio-emotional

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functioning is influenced by harsh, unreliable child-care practices from the community, parents, peers and teachers, all of which impact negatively on the self (Mutenheri, 2014). More so, socioeconomic disadvantages expose children to serious and long-lasting stressors which render them vulnerable (Mwoma & Pillay, 2015).

Ernest (2014) defines vulnerability as an expected welfare loss above a socially accepted norm. Moreover, the DoE (2011) further defined a vulnerable child as a person who is under the age of 18 years and at high risk of lacking adequate care and protection. It should be noted that children going through social and emotional problems are likely to display a variety of emotions which can affect their schooling or life in general (UNICEF, 2007). For instance, they can suffer from anxiety, anger, feelings of helplessness and hopelessness, guilt, shame, sleeping disorders, and depression, hence the need for psychosocial social support (PSS) (Fritzsche et al., 2020). Heath (2014) further states that 153 million children worldwide are orphans. In South Africa, more than 400 000 to 500 000 children are abused every year (Statistics South Africa, 2011). As a result, schools have come up with a number of groups offering PSS such as social workers, psychologists, teachers and learners (Birkett & Espelage, 2015). Psychological issues include emotions and cognitive development and may affect children's capacity to learn, perceive and remember. The term 'psychosocial' is a combination of the concepts of the individual 'psyche' and the social community in which the person lives and interacts (UNESCO, 2006). Social factors are concerned with the capacity to form relationships with other people and may influence vulnerable children to learn and follow culturally appropriate social codes (Zhou et al., 2019). Therefore, children with psychosocial challenges need supportive actions such as love and affirmation, and ensure that the children's basic rights are realised through, sensitively listening and responding to them in times of difficulties (Department of Social Development, 2012). Such programmes assist vulnerable children to adjust and cope with their challenges.

Coping is the ability to find an appropriate reaction to the challenges one is facing (Kennedy & Farley, 2018). It is further defined as a cognitive and behavioural effort responding to specific stresses that exceed the usual capabilities or resources of a person (Department of Social Development, 2012). Vulnerable children may cope with vulnerabilities if they are resilient or resistant to problems.

Resilience is the human capacity to face, overcome and be strengthened by the hardships of life, and to bounce back after stressful and potentially painful events (Horn, 2013). It is also important to note that one can only bounce back if one has the capacity to cope with adversities (Brown, Ecclestone & Emmel, 2017). The capacity for academic resilience varies from one student to another, and can grow or decline over time based on the presence or absence of multiple protective factors (that is, individual and environmental assets) that mitigate the academic risks posed by economic hardship (Borman & Overman, 2004). In order to achieve this, vulnerable children need PSS to develop self-confidence and the willingness to accept responsibility and adapt to the challenges (Hellman, Worley & Munoz, 2018). In order to fully understand how children can best achieve resilience, it is best to hear from the children themselves what challenges are affecting them in using the strategies. This study thus used children as the primary participants of the research since previous studies on the strategies used by peer-led groups lacked the exclusive use of self-report measures, that is, no research has been written so far from the perspectives of children on the provision of PSS to vulnerable learners in Amathole West Education District.

Moreover, good family relationships and the environment beyond the family foster resilience in children (Department of Social Development, 2012), and hence the need for collaboration by all stakeholders. These include support or counselling from peers, teachers and the availability of community organisations and services (Marsh et al., 2017). Although previous studies have identified predictors of and variables associated with academic resilience, more research was needed to determine how such support is

provided to vulnerable children by their peers. Thus, this study sought to fill the gap by investigating the strategies used by peer-led groups in the provision of PSS to vulnerable children in secondary schools.

Orientation/Contextualisation

In recent years, the Southern African Development Community (SADC) has been instrumental in supporting children's academic resilience through the initiation of the Care and Support for Teaching and Learning (CSTL) programme to develop and mainstream schools as 'sites of integrated and comprehensive care and support' (DoE, 2011: 11). CSTL has long been recognised as essential elements of an education system that seeks both to ensure inclusion of all children of schoolgoing age and to enable children to reach their full potential (DBE, 2012b). Following this, numerous policies and programmes targeting children have been established in South Africa to address the devastating impact of HIV and AIDS, poverty, and historical inequalities (Tucker et al., 2016). The Department of Education's HIV and AIDS and Social Planning Directorate implements interventions through the CSTL programme aimed at enabling and protecting access to education for children in greatest need by using a wide range of stakeholders (DoE, 2011). The ultimate objective of developing CSTL by the DoE South Africa was to achieve a situation whereby most children were participating in enhancing their welfare and claim their legal rights (DoE, 2011).

Despite the existence of such pro-child policy shifts, inequality in education remains a massive challenge worldwide (DoE, 2011). Not surprisingly, in South Africa, children from 'disadvantaged' backgrounds (that is, limited economic resources, lower levels of parental education or who have lost one or both parents) are less likely to enroll in school and are more prone to dropping out or to progressing more slowly than their more advantaged peers (DoE, 2011).

While South Africa has made good progress with learner enrolment rates for children aged 6 to 14 years since 1994, analyses of attendance by age shows a significant drop in learner retention amongst children older than 14 years (DoE, 2011). Moreover, the Eastern Cape has the highest proportion of poverty, with 76% of children living in poverty (DoE, 2011). In addition, the 2010 ECDoE EMIS statistics indicates that 76.1% of children between the ages of six and 19 years are in school and 23.9% of the children in the same age category are out of school. It should, however, be noted that extensive research has been done on these fragile communities and households together with the role of peers as counsellors, mentors and role models (Tucker et al., 2016), and the results indicated that peer-led groups may have direct impact on core education outcomes; namely, improved access, retention and achievement outcomes (DoE, 2011). This therefore builds a substantial case for intensifying research on the strategies used by peer-led groups in the provision of PSS to vulnerable children in secondary schools.

It is against this background that the Department of Basic Education (DBE) stepped up efforts to address barriers to education for vulnerable children through mainstreaming CSTL. The framework is intended to provide guidance to all role players within and outside of the DBE who support learners and educators in and through schools. The role of the DBE is to deliver and expand appropriate care and support services in and through schools, and to create an enabling environment within the education system for other stakeholders to support learners (DoE, 2011). In South Africa, the CSTL conceptual framework is based on children as participants in their well-being. The Department of Education has pioneered the placement of a Learner Support Agent in every school and has established a Health Advisory Committee (HAC) to extend care and support to vulnerable children. Often receiving a small stipend from the Department of Education, the Learner Support Agent is usually a member of the local community and is responsible for assisting peer leaders to identify the vulnerable children within the school and local community, assessing their needs and helping them to access appropriate treatment, care, support and social protection using different strategies (DoE, 2011).

Objective

The main objective of this study was to investigate the strategies established by peer-led groups in the provision of PSS to vulnerable children in schools in Amathole West Education District, South Africa. The paper also aimed at explaining the factors affecting the effectiveness of the strategies used by peer-led groups in the provision of psychosocial support to vulnerable learners.

The research questions which guided this study were:

1. What strategies do peer-led groups use to provide PSS to vulnerable children?
2. Explain the factors affecting the effectiveness of the strategies used by peer-led groups in the provision of PSS to vulnerable children.

LITERATURE REVIEW

The Psychosocial Support Interactive Model

The Psychosocial Support Interactive Model of 1982 by Merriam and Darkenwald informed this study (Merriam & Darkenwald, 1982). PSS needs are considered within four main categories which are organisations of care, sense of control, validation of experience, and invalidation. Organisation of care maximises the use of different systems in offering support, i.e. identifying or diagnosing the problem of the child and then planning a course of action or providing steps to follow towards assisting him/her. Thus, depending on the severity of the disorder, schools use different strategies to address children's vulnerabilities (Stormont et al., 2003).

Furthermore, a sense of control of a stressful situation lessens the feeling of threat (Dutton, 2006). Therefore, if one is in control, one will be in a better position to take charge or control of a situation. The theory also states that PSS works well when stakeholders use validation; that is, the recognition and acceptance of another person's internal experience as being valid (Greenberg et al., 2017). It may not necessarily mean that one agrees with or supports the feelings or thoughts of that particular person, but that one acknowledges what the person is going through.

In addition, vulnerable children may have experiences of invalidation. Invalidation is when emotions are rejected, avoided, disregarded or negatively evaluated (Dutton, 2006). When a vulnerable child is invalidated, it creates frustration, anger and many other negative emotional experiences for that child, who ends up resorting to inappropriate behaviour to obtain recognition, despite the fact that this recognition is often negative (Brown & Harris, 2012). Invalidation can range from being ignored and unacknowledged to being physically and emotionally abused. Since invalidation carries its own form of pain and suffering, it is imperative that peer-led groups should use strategies which do not promote such. The strategies are highlighted in the literature below.

International perspectives of strategies used by peer-led groups in the provision of PSS to vulnerable children

Research on strategies used by peer-led groups in the provision of PSS has been limited to studies abroad yet the provision of accessible PSS services and protective intervention strategies is of critical importance to all children (de Villiers & van den Berg, 2012). This is particularly true in South Africa where the exposure to violence, poverty and ongoing socioeconomic transformation leads to high levels of stress. Children growing up under stressful circumstances tend to display high levels of stress-related symptoms, impaired cognitive development, poor academic performance, and behavioural and antisocial disorders (DoE, 2011).

The concern for children's well-being as well as the lack of services, programmes and policies that focus on the development of protective factors and the prevention of negative outcomes have resulted in an appeal for the development of youth development programmes (de Villiers & van den Berg, 2012). In this study, peer-led groups used peer counselling, peer partnerships and circles of friends to provide psychosocial support to their peers. Each of these approaches involved children working with other children to bring a positive change in their lives as well as in the lives of their families.

Peer counselling

Literature reveals that one of the strategies used by peer-led groups was peer counselling. In England, Cowie & Sharp (2017) found out that in peer-counselling services, quality control is a very difficult issue when it comes to peer counselling by learners. Vulnerable children need to re-discover their natural ability by getting attention from their peers who should support them by listening to their challenges and providing them with psychosocial support (Cartwright, 2017). Hence, peer counsellors are expected to have basic counselling skills obtained through training. Cartwright further stated that peer counsellors would be learners while they may have occasional training during lunchtimes, after school or during weekends. More so, Perryman & Bowers (2018) highlighted that a day has a limited number of hours to allow effective peer counselling services. In order for peer counselling to thrive, Perryman & Bowers added that adults in the school should create a supportive and proactive environment which values constructive social relationships amongst peers. In a study done by Macfarlane (1997), parents and teachers were accused of consistently underreporting levels of distress and the emotional problems of children in schools thereby making it difficult for schools to identify those that were vulnerable. In Macfarlane's study, learners' vulnerabilities led to deviations in behaviour with some learners dropping out of school. These problems were addressed through essential tonics in healing and caring processes such as justice, integrity and love to those affected.

Peer partnerships

The other strategy that peer-led groups use is peer partnerships. In his study in England, Demetriades (2017) highlighted that peer partnership gives equal weighting to the peer and the partner. This means that the peer leaders and the vulnerable children have a lot to share. Peer partnership is for all students from different districts in the province, and each should be given the opportunity to develop the potential he or she possesses. In addition, de Villiers and van der Berg (2012) in their study on the implementation and evaluation of a resiliency programme for children highlighted that these interpersonal skills buffer the impact of a variety of stressors, and children who consider their interpersonal skills adequate are more likely to build relationships with others. Additionally, Hart (2013) avers that these relationships, provide children with an additional resource during challenging times. Hart (2013) concluded that children's interpersonal skills may improve as a direct result of the maturity and the content of the peer partnership programmes. Peer partnerships have been highly commended because of their ability to allow peer groups to practise interpersonal skills in small-group settings, where participants are able to experiment with skills, receive feedback and imitate effective behaviour modelled by the group leader and other group members through their interaction with others (de Villiers & van der Berg, 2012). The ability to control and regulate emotions effectively is an important component of successful coping, which can be learnt from peer partnerships if peer-led groups and vulnerable children could only find the time to meet freely, share their experiences and practice the skills (de Villiers & van der Berg, 2012). Prior research has examined how age, gender and ethnicity affect the strategies used by peer-led groups, but findings have been inconsistent and are mostly based on studies of children elsewhere, such as in the USA and other developed countries, and not in South Africa (Peek, 2017). This research will fill the gap by using children as the primary participants in this study.

In support, Epstein et al. (2018) state that schools must encourage student cooperation and peer partnership so that the healthy development of children and ultimately society may be fostered. Moreover, partnerships

are of necessity in the world full of ever-increasing insecurities and fears (Boyce, 2016). Thus all stakeholders have a mandate to support peer-led groups so that they can be viable. Among the shortcomings of this strategy were that parents and teachers were less included in these partnership programmes for their long-term success (Sandler et al., 2006). Additionally, Peek (2017) avers that children with the help of adults like teachers and parents can play a big role in reducing personal and community vulnerability and to implement more effective strategies with which to change children's situations.

Circles of friends

Peer-led groups also use circles of friends as a strategy for the provision of PSS to vulnerable children. The approach emphasises the fact that people's behaviour should not always be taken at face value (Taylor, 2017). Sometimes, the most aggressive people are the most frightened or sad; therefore, the circles' meetings should allow the vulnerable children to express their thoughts and feelings. Taylor further stipulates that creating circles of friends for children who are experiencing difficulties with school life is a powerful and exciting process. Furthermore, the climate within the circle of friends should be non-judgmental and should be a climate that gives a vulnerable child hope that he/she is more accepted and liked by others (Taylor, 2017). All these considerations can only be possible if peer-led groups are well managed by skilled adults. Compared to the literature on children's vulnerability, much less has been published regarding children's capacities and contributions, yet more researchers and practitioners are beginning to recognise the potential of children as active agents in traumatic situations (Tisdall, 2017). Thus, this study will add more knowledge on strategies used by peer-led groups by asking children about their experiences with strategies used in the provision of PSS to vulnerable children.

Referrals

The referral system is another strategy used by peer-led groups. Dryfoos & Maguire, (2019) stipulate that the creation of a strong referral system is essential in the provision of PSS to vulnerable children. This is because some children experience problems that cannot be managed by peer-led groups or existing PSS networks in schools (Hanko, 2016). Problems emanating from family disputes or violence, and drug or alcohol abuse may need PSS from professionals (Lee & Ham, 2018). Peer-led groups have only a limited capacity to constitute a professional referral group because the peer-group members have limited training to provide PSS services to their peers (Dryfoos & Maguire, 2019). Furthermore, health centres, police and social development play an important role in establishing referral systems and should provide culturally appropriate assistance in screening and referring vulnerable children (Nkosi et al., 2019). In addition, resilience starts with the community; therefore, a resilient community is one that provides its people with resources for the formation of resilience (Noltemeyer & Bush 2013). In essence, vulnerable children's resilience is well narrated by adults in several studies to both their individual personalities that seek to help them rise above their poverty and vulnerability, and their support structures, in the form of the community, culture and their social relationships with peers and the school (Motsa & Morojele, 2017). Peek (2008) concluded that in order to fully understand the nature and scope of children's vulnerability, there is a need to learn more about the perspectives of children themselves. In addition, Elder and Fingerson (2002) in Peek (2008) highlighted that most previous research on support of children in schools relied on closed-ended questionnaires which may not have concepts and situations that are important when seeking strategies. To fill this gap, this study used open-ended questions. This research therefore followed the ideas of researchers like Boyden (2003) who suggest that researchers should develop participatory, child-centred research methods and approaches which offer children the opportunity to give voice to their own thoughts and interpretations of events.

RESEARCH METHODOLOGY

This study adopted the interpretive paradigm with the intention of understanding the world of human experience (Kurdziel, Flores & Macfie, 2018). The paradigm is based on the concept that reality is

socially constructed (Mertens, 2016). Hence, the interpretive paradigm was suitable for this study as it allowed the researcher to interact with participants, relying upon the participants' views and narratives on the effectiveness of strategies used by peer-led groups in the provision of PSS to vulnerable children.

Research design

The researchers adopted a case study research design because it allowed them to gather large amounts of data. A case study also allowed the researchers to go into greater depth and gain more insight into the strategies used by peer-led groups. In addition, a case study allowed the researchers to use a number of instruments of data collection such as document analysis and interviews which allowed the researchers to study the participants in their natural settings.

Sample and sampling techniques

The participants were purposively selected and the sample included four Life Orientation (LO) teachers, four principals, four peer leaders, four learner support agents, one district official and 24 learners who were selected because they worked with peer-led groups. Purposive selection of the schools was justified in this study because the researchers were interested in schools which were accessible and had peer-led groups that were established and functional.

Research instruments

The researchers employed three research instruments: semi-structured face-to-face interviews, focus groups, and document analysis. Below is a description of the instruments employed in the study.

Semi-structured face-to-face interviews were preferred to other forms of interviews in this study because they offered a platform for conversation with the intention that the researchers explored with learner support agents, peer leaders, learners who are peer-group members, district officials and teacher coordinators. Their views, ideas, beliefs, attitudes and challenges were useful in understanding the strategies used by peer-led groups in the provision of PSS to vulnerable children (Maree, 2007). The study also used four focus groups – one from each school. One group was made up of six learners. Focus groups were employed because it was a quick and convenient way to collect data from the learners simultaneously. The researchers took turns to ask questions to the participants in focus groups. All the participants were given the chance to respond to the different questions. Focus group interactions widened the range of responses and also activated forgotten details of experience that may have discouraged participants from disclosing information. To triangulate the data, learner support agents' monthly reports, peer leaders' minute books, diaries, policy documents or circulars, and the Screening Identification Assessment and Support (SIAS) tool kit were used. The reports indicated the strategies used by peer-led groups as well as the evaluations of the events carried out. The evaluations indicated if the activities were carried out or not. Peer leaders' minute books indicated all the events which they planned as well as whether they achieved the goals for the week or not. The SIAS tool kit was analysed in order to see if the strategies used by peer-led groups matched the strategies mentioned in the SIAS tool kit.

Data analysis

The first step in data analysis was reading and re-reading the transcripts so that we are familiar with our entire body of data (i.e. all the face-to-face and focus group interviews and documents) before we went any further. At this stage, the researchers made notes and jotted down early impressions about the data by noting the verbatim utterances included in the result section. Themes were generated when similar issues and ideas expressed by participants within the data were brought together by the researchers into single categories or clusters (Braun & Clarke, 2006). To achieve this, the researchers read through the transcribed data so as to see the emerging themes and patterns. It was also important that the researchers identified the repetitive thoughts or languages and patterns that linked the participants and their setting

together when analysing the data (Koivu & Damman, 2015). Coding for patterns was done by looking at words or phrases which captured action, or were used by two or more participants during interviews. The coding was both natural and deliberate – natural because there were mostly repetitive patterns of action and consistencies of what the participants said during discussions, and deliberate because one of the researchers' goals was to find these repetitive patterns of action and consistencies in participants' responses as documented in the results section. In the analysed data, participants repeatedly mentioned information which researchers identified and classified as the different strategies used by peer-led groups in the provision of PSS to vulnerable children. The analysis of results clearly indicated that peer-led groups used counselling, partnerships, circles of friends and referrals to provide PSS to vulnerable children. However, there were challenges in implementing these strategies. In order to triangulate the data, peer leaders' diaries, learner support agents' monthly reports, peer leaders' minute books, policy documents or circulars and the Screening Identification Assessment and Support (SIAS) tool kit were analysed in order to see if the peer-led groups utilised the strategies suggested in the SIAS tool kit. Peer leaders' minute books also indicated all the events which they planned as well as whether they managed to perform the events or not. Furthermore, the documents were analysed in order to triangulate the data from the interviews so as to verify what the participants were saying during interviews.

Data quality and integrity

In this study, all ethical considerations were observed by obtaining ethical clearance from the University of Fort Hare (reference number REM271SCH101). Permission was sought from Amathole West Department of Education and a permission letter was issued for us to take to the schools where the principals also allowed us to collect data by appointment with the participants (negotiation of entry). In addition, informed consent, voluntary participation, anonymity and confidentiality were also observed. Participants in this study were all encouraged to participate voluntarily; that is, out of their own free will. Participants' anonymity was not possible since interviews and focus groups were used in the schools. However, anonymity in this paper was maintained and guaranteed by using codes instead of the names of the people interviewed. Issues of trustworthiness and credibility were obtained through use of multiple data collection instruments (triangulation), that is, the use of interviews as well as document analysis. Member checking was also done by taking the information collected back to the respondents for verification and confirmation of the responses.

RESULTS

This section presents and discusses the themes that emerged from the findings. The participants were coded as follows: LOT1-LOT4, which stands for LO teachers from school 1 to school 4 who work with the peer-led groups; PL1-PL4, which stands for peer leaders from school 1 to school 4; P1-P4, which stands for principals from school 1 to school 4; FG1 (L1-L6) FG4 (L1-L6), which stands for focus group 1 learner 1 to learner 6 since there were six learners in each group; LSA1-LSA4, which stands for Learner support agent 1 based in school 1 to Learner support agent 4 based in school 4; and finally, DO, which represented the district official. The themes that emerged from the data were presented and discussed under the following headings: peer counselling, partnerships, circles of friends and referrals. The results presented below were responses captured from the participants as well as from the documents which were analysed.

Peer leaders, teachers, learner support agents, principals and district officials indicated that they used counselling, partnerships, circles of friends as well as referrals. However, participants indicated that there were several challenges in the implementation of these strategies. These included but were not limited to a lack of meeting time, training in PSS on the part of peer leaders and their teachers, and financial and material resources.

Strategies used by peer-led groups

The first group to be interviewed on the strategies used by peer-led groups were the learners (peer leaders) and the focus groups. Most of the peer leaders and the learners working with peer groups agreed that although they used different strategies to identify and provide PSS to their peers who had psychosocial problems, they faced a plethora of challenges. The general themes which emerged included peer counselling, peer partnerships, circles of friends and referrals.

Peer counselling

One of the strategies used by peer-led groups was peer counselling. Despite the challenges faced by peer-led groups, peer leaders indicated that their counselling services had a strong influence on many aspects of their school life including orientation, social self-concept, interpersonal skills, moral development and religious values. Peer leaders agreed that their peers benefit from their interaction with peer leaders as resource agents because fellow students are usually the first to discover issues demonstrated through behaviours or attitude. This was confirmed by PL1,

We have the opportunity to be role models for the students whose lifestyle or outlooks are unhealthy or in danger. Some are orphans.

PL2 also added,

We talk to a number of our peers who use drugs about the disadvantages for using drugs.

LSA1 also confirmed,

Peer leaders can assist students in finding their 'fit' on campus and can encourage them to take risks and experience something new in their learning environments.

LOT4 explained,

I must however admit that the peer leaders are trying their best to counsel their peers because they are [the] ones in the best position to make early assessment and intervention for students who are at risk. They sometimes bring them to us or the learner support agents (LSAs) if the issues are very serious.

P1 further explained,

Learner support agents work with peer leaders and they assist them to conduct presentations on wellness behaviours to their peers so as to affect changes in their behaviour.

DO also confirmed,

The programme was started with the aim to use learners to support their peers by talking to them if they are having a crisis. As a result of peer support, students may be more confident to pursue their interests, discover community within the campus environment and become more accountable for their actions thereby leading to their retention.

The peer leaders' diaries indicated that they do a lot of informal counselling to their peers. The Screening Identification Assessment and Support (SIAS) tool kit were also analysed and it emerged that the tool kit encourages schools to establish programmes which help all children learn because teachers who understand each child's needs, including the needs of their own children, can better help them learn. The tool kit also emphasises that the identification of vulnerable learners should be coupled with targeted follow-up since this is essential to promoting quality education for all. When the school log book and minutes of previous meetings were also analysed the District Support Teams had not visited the schools by the time the research was conducted. This is despite the fact they were supposed to visit the schools at least once per term to see what was going on and assist where possible.

Referrals

Peer leaders indicated that they also act as a very useful resource and referral agent not just because of their relevant knowledge, specialised training and general accessibility but also because of their proximity to the student experience. Peer leaders revealed that they were in a position to give timely and effective referrals to fellow learners, which can result in a better experience overall.

PL1 disclosed,

Sometimes we counsel them if we can but some of the issues which they raise are beyond our capacity so we refer them to our teachers who will in turn find other social services or psychologists who can further assist them.

PL2 revealed,

We refer those having serious cases to the learner support agent or our teachers since they are the ones who know what kind of assistance one might require.

PL3 also explained,

We tell our teachers that our colleagues have challenges. If the cases require further referrals, they call the police if its drugs and social workers if its rape.

PL4 also added,

These referrals are done by our teachers and we are just there to assist them in identifying learners who have challenges.

When LOTs were asked about the referrals that they make, they all agreed that they receive cases from peer leaders. They confirmed that they need this input from the learners when they are doing a needs assessment because this gives them more accurate and relevant information. They further explained that by giving learners an opportunity to assist them in the identification of vulnerable learners, they actually gave them opportunities to practise leadership skills, model prosocial behaviour, engage in community service and experience their abilities to be change agents in their schools and communities.

LOT1 summed it up and said,

We call the police and social workers to talk to raped children. Some learners told us last semester that a learner had been raped by the groundsman here in the toilets. We called the police and the groundsman was taken by the police. The social workers also assisted the child to move out of the emotional trauma that she had.

The district officer also confirmed the referral strategy. The DO explained that peer-led groups received more help from their peers and their teachers in the school than they did from their parents or people in their communities. This is because parents and community members have in most cases been highlighted as the perpetrators of the cases under discussion. The DO further noted that peer leaders work to intervene in incidents of name calling or bullying in their schools and with strong support from the teachers. No documents were available to show any evidence of presentations of awareness programmes by the peer leaders to their communities or the school at large.

The other strategy used by peer-led groups was befriending. They also explained that they first became friends to vulnerable learners so that they can open up to them.

PL1 stated,

We get close to our peers and we come to learn that they have problems when we are playing with them, we help them to get the help that best suits them.

FG2L2 also highlighted,

We befriend both boys and girls who use drugs and sometimes we find out that they use drugs in our presence. We therefore get an opportunity to talk to them about stopping to use the drugs. We also alert our teachers about it.

Participants were asked if they did partnerships with other peer groups in the communities where they lived. Most of the participants indicated that they were not able to do partnerships because they did not have the opportunities to go out nor to invite others to come to the schools.

FG1L1 had this to say,

I am a peer group member. When we suspect that there is something wrong at home, we make home visits. We are known by the parents too. When the problems are big, we refer the students to our teachers and learner support agents who in turn tell the social workers.

When the LO teachers were asked to comment about strategies used by peer-led groups, they also responded differently.

LOT1 noted,

When we get information about the vulnerable learners from their friends, we sit down with them as a SBST [School based support team]. If we think there is need, we refer them to the department of social work.

LOT3 revealed,

Peer leaders refer different cases to teachers who are the first ones to provide psychosocial support. Sometimes we get sponsorship to assist students with school uniforms, especially those students that come from poor social backgrounds. We also work with the police and the parents.

P1 revealed,

We work with church organisations. We have a group of women's union from a local Methodist Church in our neighbourhood who brought sanitary pads to our school. They also gave us some clothes last year and we sent the clothes to their homes.

P2 also added,

We have seen the LO teachers taking the peer-led groups to other schools where they have gatherings. They do drama, poems and choir. They do fundraising with the assistance from their parents and teachers. The money raised is then taken to charity organisations. This teaches these learners that they are supposed to support their needy peers in their communities.

LO3 summed it up when he said,

We try by all means to work with other groups of people in the communities. The youth groups in the churches around support us a lot but our challenge is the time to visit them regularly and ask for donations or just to have the meetings.

DO further explained,

The peer-led groups do a variety of activities. They do not only do the fundraising activities but they also visit their friends during times of bereavement. They are at high school so they now understand that there is death and that they need to support one another.

Factors affecting the effectiveness of the strategies used by peer-led groups

One of the themes which emerged from the data was the effectiveness of the strategies used by peer-led groups. Participants indicated that, generally, the strategies were not effective because of several factors which set the programme back.

Shortage of infrastructure

Peer leaders, peer-group members and the learner support agents all agreed that the strategies were not so effective because there was a shortage of counselling rooms. This was also confirmed by the teachers, principals and the district officials.

PL1 also highlighted,

For this strategy to be successful there must be space, to use as counselling rooms away from other buildings so that no one will see them going into the room for counselling.

PL2 highlighted,

We do not have rooms to operate in. We go out and sit in the playground, talking to the vulnerable learners. Sometimes the learners will be crying, so we find it hard to counsel them in the open because they end up not telling us their problems because they are shy of other people around us.

FG1L3 also added,

We do not have counselling rooms. We discuss such issues in the playground.

LSA1 further stipulated,

We do not have counselling rooms. I use the library because it is one of the places which is quiet and few people use it. The library is sometimes occupied by children and teachers so when I have a learner to assist it is very difficult to discuss anything sensitive.

LOT2 had this to say,

I am not happy with what the peer leaders are experiencing. Some are willing to come to peer leaders for assistance but they can't because there is no privacy.

LOT2 also reiterated,

There are no counselling rooms. They sit in the school grounds and under the shades of trees.

P1 also added,

I am aware that there is a group of learners assisting other learners and we are making an effort to find space for them. The learner support agent is working from a room behind the classroom blocks which used to be a Grade R classroom.

P2 also added,

Our space here is limited. We do not have enough classrooms. It therefore means that our programme is not effective at all. We will do everything possible to build a secretive place for the learner support agent.

DO also added,

There are no resources in schools. Our programme is greatly affected due to lack of counselling rooms, money as well as teachers skilled to work with the vulnerable children in the schools. As a result peer leaders are failing to identify the vulnerable learners but a lot of these learners are dropping out of school. They need counselling rooms, as well as funds to take them around their communities so that they do some campaigns and be known in their communities.

The researchers noted that there were inadequate infrastructure facilities such as counselling rooms in all the schools and this denied the optimisation of the roles played by peer-led groups in the provision of counselling services. The monthly reports submitted to the district official indicated that there were cases where vulnerable children were referred to the learner support agent in the schools and teachers by peer leaders for further counselling and vetting services but some were not attended to due to lack of time. The peer leader from school 3's diary indicated that they had challenges with working space and that they failed to do some of the counselling sessions because there were no rooms to use as discussion rooms.

Lack of training

Participants indicated that their services were also not effective because they were not well trained and, as a result, they were not able to identify and assist their vulnerable peers.

PL1 also highlighted,

We were trained for three days. We were not trained much in the identification. It is not easy to identify and assist these learners who are having challenges in coping with vulnerabilities.

PL 2 indicated,

Training is attended by only one teacher who is our LO teacher. When he is not there then we have a big problem. We have no one to report the cases to.

PL3 highlighted,

We hardly get enough training time because we are trained during weekend from Friday to Sunday.

PL4 also added,

When we got to the training camp we find out that there are too many activities that we were doing and we failed to finish the activities.

LOT1 highlighted,

Learner support agents are trained to do counselling sessions alongside peer leaders on simple issues. At the training workshops they meet psychologists who sometimes train them on different emotional issues. They go there for a very short period of time usually three days. The peer leaders are often advised to refer cases that are beyond their capacity to professionals such as social workers and psychologists.

In support, one educator further stated that this strategy, although common and widely used, had some challenges.

LOT2 had this to say,

We are trained for only three days. We were given cases to study and we were asked how we could help the people in those cases.

LOT3 reiterated,

When going for training, the peer leaders miss out school for three days and we go out and camp in some places as a district. We mainly rely on nongovernmental organisations for training so they schedule these sessions as they wish. For me it's a waste of time because our learners are too burdened to do such an important job with that minimal training.

P1 also confirmed,

I have never attended workshops myself because they limit the number of those who attend and they specify that they want one teacher and 10 learners per school, so the LO teacher goes with them.

P2 further explained,

For me 10 learners per school is not enough. They must call for more numbers because our society is full of troubled children, so 10 learners per school is not enough to cater for schools with big numbers.

LSA 3 concurred,

We need training in identifying the vulnerable children. We discuss about the learners' psychological problems at their homes. When the problem needs professional help, we refer the learners to social workers. But all this needs a lot of skill and support to do it.

In support, the DO elaborated,

We take 10 learners per school for training on the identification and referral procedures once per year because there are no funds and time is also a problem.

The above findings indicate that there is a positive relationship between school-based interventions and other community-based support groups like the police and social workers. However, strategies were limited in their success since peer-led groups were limited in outreach visits due to lack of time, lack of funds and lack of training. In addition, one of the peer leaders' diaries indicated that peer leaders had visited several homesteads the previous month. In the second diary, the peer leader indicated that they walked for eight kilometres to the homes they visited because they did not have transport.

DISCUSSION

Key findings emerging from the study match those of Hart (2013) who concluded that children's interpersonal skills may improve as a direct result of the maturity and the content of the peer-partnership programmes. This study found that assertions that partnerships promote inclusive, learner-centered PSS activities between the school and the community depend upon the community and home backgrounds of the children involved in the peer-led groups. Partnerships may make it easy for schools to identify children facing challenges at home if peers have the opportunity to meet even after school in the communities where they live. In addition, Bhagwan (2017) proposes that outreach programmes such as partnerships can therefore be mobilised as key strategies for a range of psychosocial support interventions for vulnerable children. The major shortfall which kept on emerging from the participants was lack of training in coordinating the partnerships. This is in line with Bhagwan (2017) who also found that there is need for training of peer volunteers so as to promote the effectiveness of the partnerships as partnership outreach programmes. Thus, the idea of partnerships supports the idea of using a whole-school approach by incorporating flexible, individualised family interventions into the peer-led groups as suggested by the psychosocial support interactive process model which guided this research.

This research also matches previous research by the Harvard Family Research Project (2010) which showed that partnerships can serve to strengthen, support and even transform individual partners, resulting in improved programme quality, more efficient use of resources, and better alignment of goals and curricula.

The findings on circles of friends hint that this method of peer relationship had challenges especially on identifying vulnerable learners in the schools. The study agrees with Taylor (2017) who stated that although the circle-of-friends approach provides a rich opportunity for seeing people's challenges through the way they behave, their behaviour should not always be taken at face value. This is an important finding on the reasons why it is not easy to identify vulnerable children through a circle of friends. On the same note, ideas of Winnicott (2018) have been noted: sometimes the most aggressive people are the most frightened or sad. Thus, under any circumstance, it can be argued that vulnerable learners should not be judged by their behaviour before one comes to know the reason for it. Moreover, these results go beyond previous reports, showing that there was limited training for the peer-group members so it was

not easy for them to identify the vulnerable children. In the same vein, Cowie and Sharp (2017) also recommend that the circle's meetings should allow affected children to express their thoughts and feelings about their problems and to seek support in a safe environment. Thus, there is need for conducive meeting space for the circles of friends.

Cowie and Sharp (2017) found that successful circles of friends were those provided with effective formal training. On the contrary, this study found that peer-led groups go on an annual three-day training workshop which is hardly enough for the task at hand. In addition, Duxbury and Jones (2017) aver that the climate within the circle should be a non-judgmental, hopeful one that enables a child who has previously been at odds with others to feel more accepted and liked. From the results, it is also clear that it is the power of a peer group which mobilises this force to encourage the child to cope with his or her vulnerabilities in more socially acceptable ways within the school and the community.

There was an outcry over the shortage of resources, including infrastructure such as counselling rooms. The notion is supported by Yuca, Ahmad and Ardi (2017) who highlighted that counselling services in schools cannot be separated from the influence of infrastructure facilities needed by counsellors. The results lead to similar conclusions that lack of confidentiality is embedded in peer counselling services when it emerged that peer-led groups used libraries as counselling venues. This result is the same as the results currently accepted from Yuca et al. (2017) who argue that no matter how great the mastery of science and technology of a counsellor, without the support of adequate infrastructure facilities, the expected results cannot be achieved maximally. Yuca et al. (2017) further state that improvement in the infrastructural conditions is also influenced by various factors, including the role of the principal.

In addition, our results indicated that a lack of training of peer leaders is one of the factors affecting the effectiveness of the peer-led groups. This result ties in well with a previous study by Menéndez-Santurio and Fernandez-Río (2016) who concluded that personal social needs and the actualisation of these needs depended largely on the professional skill possessed by the counsellor and availability of counselling facilities. In addition, Abutu (2016) asserts that counselling is the 'life wire' of a school, and that where this is not provided for effectively, there is bound to be the problem of career frustration, academic imbalance and unhealthy relationships among students and teachers in the school.

This study delivers significantly better results on referrals as an important component of peer-led groups. This is consistent with what had been found by Cowie and Sharp (2017) who concluded that in order for peer-led groups to thrive and to be effective, education centres should play an important role in establishing referral systems and should provide culturally appropriate assistance in screening and referring the vulnerable learners to the responsible service providers. Overall, these findings are in accordance with Cowie and Sharp (2017) who agreed that it is best to use whole-school approaches, incorporating flexible, individualised family interventions in all the activities that peer-led groups intend to engage in.

CONCLUSIONS

The paper found that strategies employed by peer-led groups enabled the peer-led groups to access vulnerable children that needed psychosocial support. The peer-led groups used strategies such as partnership, counselling, befriending and referrals which appealed to a wider range of learners with diverse challenges. However, while strategies used by peer-led groups had better chances to appeal to the needs of all kinds of learner vulnerabilities, there were challenges in their implementation which ranged from a lack of resources, a lack of training and a shortage of time, among others. Thus, this study concluded that a whole-school approach would be best for peer-led groups to be effective in every school.

Recommendations

Following the results above, this study recommends that the DBE is to ensure that there is connectivity between home and school by making sure that there are parent and police components in the Health Advisory Committees (HAC). It is the duty of schools, especially the school administrators, not to be syllabus driven; they should promote opportunities for learners to develop emotional competence and problem-solving skills. An important intervention to address compatibility of policy to the school environment and promote connectivity is the formation of school liaison groups. These structures allow feedback from the role players about how consistent policies and practices are with the values, habits, experiences and needs of those whom they are targeting.

Areas for further research

District based support teams (DBSTs) are central to the implementation, monitoring and evaluation of Care and Support for teaching and learning. They provide a coordinated professional support service that draws on expertise in further and higher education as well as in local communities. Thus, this study recommends further study on the role of DBSTs in the implementation of peer-led group programmes in secondary schools.

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Creative art education: A tool for rehabilitation of adult females incarcerated in a correctional centre in South Africa¹

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ABSTRACT

In countries worldwide, creative art education for incarcerated adult females has been greatly improved and is recognised as making a valuable contribution to rehabilitation. Despite this recognition, some countries refuse to recognise such an art programme. Very few qualitative studies have explored creative art education for adult female offenders in correctional centres. This study explored how a creative art education programme can play an important role in helping female offenders escape emotions and bad experiences in confinement. The participants for this study were four incarcerated adult females. The data collection was generated from a Medium-C correctional centre in East London, Province of Eastern Cape, South Africa. Adult female offenders were organised by the correctional centre management. A thematic analysis was performed to explore the aspects of creative art education as expression that influenced the correctional centre to support and recognise the art programme for rehabilitation of adult female offenders by allowing them to develop their skills of creative independence. The findings included that the creative artworks of adult female offenders were seized as punishment. Creative art education programmes are perceived as a harmless advantage for offenders in terms of discipline, self-expression and personal transformation. Data gathered from offenders resulted in greater understanding of their lifestyle and expression through their creative artworks. The use of observation, interviews and a focus group was an excellent qualitative approach that provided meaning to data collected. This study suggested that the Department of Correctional Services should attract qualified creative art education professionals to reduce boredom, conflicts, recidivism, and to promote self-expression and opportunities among female offenders.

Keywords: rehabilitation, creative art, correctional centre, adult female recidivism

INTRODUCTION

In November 2018, interviews and observations were conducted with adult female offenders. In South Africa, the Department of Correctional Services (DCS) has an expectation that incarcerated adult female offenders will quickly change their lives because of confinement. Most of the adult females were very sad that creative arts education was taken away from the holding cells, not recognised and not supported as a component of Adult Basic Education and Training (ABET) within correctional centres. This research aimed to understand the reasons for the lack of support for creative art education programmes for incarcerated

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adult females. A creative art education programme can contribute to personal skills development, personal change or transformation, self-expression, and the positive self-worth of adult female offenders. The sample of this study was purposively selected. The participants, that is, adult female offenders, were selected based on their creative art portfolios, which consist of drawing, crafts and paintings. The Criminal Justice System (CJS), Department of Education (DoE), Department of Arts and Culture (DAC) and Department of Social Development are the institutions that have the authority to mandate creative art education for the benefit of incarcerated adult female offenders and the power to implement such a programme.

Problem statement

The problem statement of this study is to increase understanding regarding the lack of support for self-directed creative art education of incarcerated adult female offenders. Potelwa (2019: 242-243) showed Figure 1.1, which is an acknowledgement letter, which translated and transcribed as the mother tongue of the participant is Afrikaans. The letter is without language tense change and it is not edited. It serves as evidence of the adult female offender who used her manual to write the letter with a pencil to acknowledge the study conducted in the female correctional centre. The study encouraged adult female offenders to be responsible for their creative artworks as tools for self-fulfilment, self-esteem and self-worth.

Figure 1.1

Acknowledgement Letter of creative art education study in correctional centre²

Thank you for taking the time to read my letter, I sincerely hope that it will help you with your study. Thank you once more for the opportunity to assist you with your research as I told you that I am dedicated tutoring art. Originally I stated during recording interview that I started tutoring 5 students and I am blessed to inform you that, after your visit and interaction with us today I am proud to tell say that there are 19 students now in my class and them willing to learn creative arts. I am do not have words to thank you and describe the situation now. Every day they cannot wait for creative art class and for home work to keep themselves busy at night. They feel disappointed on the day when we do not have a class. To be honest, I never expected such a positive response for art class because we were discouraged not even giving moral support by the officials. Now that they get to learn something new they always wanted to learn but never had opportunity because creative art is something that is restricted to them. Officials fail to know that creative arts give them a chance to express themselves their feeling and emotions. My first class were consist of drawings from still photos from the magazines with children images in landscape to establish the symbolic system of loving mothers that to me teaches some of us a method of therapy because we used visual art to keep our depression into paper and control our temper. During the class I will experience one of us in class crying while drawing and I would encourage her to share with us what is she experiencing? During my drawing landscape even myself I would feeling sadness and frustrated because it remind me of my husband abuse time we were hunting. First time I introduced art class with 5 inmates were teased by other inmates that our drawing are ugly, after you came and they hear that we were interacting with a professional artist they started to be interest, hence the number in class drastic increased to 19. I believed the reason for this was motivated by lack of support and bad comment by officials who destroyed our artwork during visit in our cells. Today, after your visit we draw freely and student in class draw without instructions purely because they enjoy art than other learning subject. I am very optimistic about art been a form of therapy for all of students incarceration and I just wanted to share my experiences with other inmates with the hope that this will inspires them to change life for the better. Take care sir, and my God bless you on this road you travelling. Finally we are free to draw even in the cell. Kind regards Participant 4 in you research.

² This letter was transcribed from a note handwritten in pencil.

One participant (P1) believed that through creative art education, she regained control of her life. In the United Kingdom, the House of Commons Justice Select Committee (JSC, 2018: 3)

Found that it is well recognised that adult women incarceration faced very different hurdles unlike adult men offenders in their journey towards a law-abiding life, that appropriately and effectively to the problems that faced adult women bring into the Criminal Justice System (CJS) that required a distinct approach.

To deal with expression of the feelings and emotions of adult female offenders as raised by the JSC (2014), the United Kingdom Ministry of Justice (2018) advocated in their Female Offender Strategy (FOS) that a range of services must be made available to females at their correctional centres. The Ministry stresses that this type creative art education programme has financial constraints, but also points out that such a programme can play a significant role in developing the self-worth of offenders. House of Commons Justice Select Committee review (2018: 4) stated:

While the nature of the needs of women offenders has been recognised, there has been a weakness in the organisational capability and capacity to commission services which meet them. We think the most effective means of commissioning services for women offenders requires more than the sincere intention, well-crafted specifications of services, and rigorously monitored objectives; it requires organisational change.

As stated by House of Commons Justice Select Committee review (2018), there needs to be organisational change in female correctional centres so that the needs of incarcerated adult female offenders are prioritised as with the needs of incarcerated male offenders. The current literature reveals that there are many barriers for female offenders, such as not receiving art materials and not being supported in their self-organisation to create artworks, which then limits their voices.

In China, 'art has been historically marginalised' (Li, 2013: 35), and, usually, only adult male learners have access to art in the Chinese prison education system. In the USA, Brewster (2014) found that through art education, incarcerated females develop positive attitudes and creative skills that prepare them for re-entry into their communities. Esman (2010) and Grayling (2012) showed that, in terms of the rehabilitation process, creative art classes encourage adult offenders to change their life. In the African context, creative art education has been greatly reduced from correctional institutions because the programme demands a high budget from the government.

Historically in England, art for women in correctional services was seen by Criminal Justice officials as an unnecessary programme because there was conflict about the purpose of creative art in correctional centres (Gilbert, 2019). Gilbert (2019) states that art adds unique development and benefits to each individual offender. Gilbert (2019: 2) points out that the history of creative art is about the history of humankind building knowledge that is 'important, as each of these issues results in significant emotional contexts to address when considering the process of making positive change: of enhancing confidence and self-worth'. Gilbert (2019), Gussak (2013a) and Johnson (2015) advocate the programme of creative art as a mirror of the individual's thinking at the time.

Gilbert (2019) and Gussak (2013a) showed that females in correctional centres have produced many works of art as a way of making their voices heard in the course of their rehabilitation. Original creative artwork is defined by Gussak (2013b) as being powerful, unskilled, creative artworks in the media of painting, sculpture, drawing, music, creative writing, theatre, and any art and crafts, provided that each work is a spontaneous expression. Creative art education for adult female offenders can be helpful for the treatment of self-worth and self-expression of offenders and support of creative skills of art can encompass

their rehabilitation (Efland, 2017; Gilbert, 2019; Gussak, 2013b; Johnson, 2015). Creative art education provides an opportunity for offenders to explore their thoughts, feelings, emotions or ideas in their own ways. Doing creative art involves technical skills, crafts person-ship and self-expression, with educational as well as therapeutic benefits (Gussak, 2013b). Gilbert (2019) observes that creative art education for female offenders can enable deep reflection, personal healing and lasting change for them.

Creative art education programmes in the United Kingdom have been experienced by adult females as beneficial, providing new knowledge and creative skills (Behan, 2014). Clement (2004) states that creative art education is a suitable tool for rehabilitation because it introduces new ways of thinking, an intrinsic component of creative art making. Johnson (2015: 15) observes that 'prison is intended to strip power and deliver pain; art empowers and delivers happiness'. Thus, art making can be a 'creative process that expresses and heals' (Johnson, 2015: 108). Art therapist Gussak (2013b) has found through his work with prisoners that creative art is a therapy that provides many benefits to participants, such as reduction and suppression of negative feelings and unnecessary emotions arising from conflicts in their cells, and generation of insights and self-development.

This background shows that creative art education programmes can benefit incarcerated adult women because they are recreational, enjoyable and rehabilitative (Djurichkovic, 2011; Johnson, 2015). Furthermore, offenders' participation in creative art education programmes can help them to maintain and improve relationships with DCS officials, other offenders and their families. An additional benefit is that the selling of creative artworks of offenders gives the chance for future self-employment and provides an opportunity to engage in 'productive exchanges with the community before and after release' from correctional centres which is important from a rehabilitation point of view (Johnson, 2015: 107).

Sathekge (2018), the curator for art exhibitions at Constitutional Hill, Johannesburg (on the site of the apartheid-era Old Fort and the Women's Jail prisons), has curated a permanent exhibition of the political activist Fatima Meer's diaries from her time as a prisoner. The exhibition includes sketches and paintings she secretly made and had smuggled out while in prison in 1976. Sathekge pointed out that the artworks were illegal; if they were found in the cell all inmates in that cell would have been punished, and the images would have been destroyed. In recent South African experience under democracy, creative art is a voluntary programme for female offenders. The programme is not supported by the school curriculum as a formal education programme in female correctional centres. Potelwa (2019) conducted research which showed that incarcerated female offenders are not free to express themselves through their artwork: artworks are often confiscated because some officials see artwork as unnecessary and that all it does is make cells dirty.

Research questions

- What do adult female offenders make to escape boredom and confinement stress?
- How do adult female offenders in correctional centres present their emotions, feelings and personal transformation?
- What are the reasons for correctional centres limiting the creative skills of incarcerated adult female offenders?

Objectives of this study

- To determine if creative art education is a tool that can help incarcerated adult female escape boredom, conflict and confinement stress;
- To determine how adult female offenders in correctional centres present their emotions, feelings and personal transformation; and

- To determine the reasons for correctional centres limiting the creative skills of incarcerated adult female offenders.

Aim of the study

The aim of this study was to show the DCS that creative art education programme interventions can help incarcerated adult female offenders to express and explore their feeling and emotions through creative art skills on paper, canvas and craft. This study investigated the reasons why correctional centres refuse to allow and support incarcerated adult female offenders when they want to engage in creative art education programmes.

Significance of the study

This study has developed new and original perspectives on how creative art education programmes for incarcerated adult females can build self-esteem and self-worth, and contribute to their rehabilitation. This information can be used to mobilise the transformation of the academic learning curriculum in correctional centres to recognise creative art education. The rationale for this study was to equip incarcerated adult female offenders with knowledge and skills to reshape their thinking, change their past experience and life experience, and eliminate inequality. This study sought to examine the role creative art education can play in addressing and giving voice to the self-expression of offenders in correctional centres that do not seem to fit within the current categories of education and psychology in those centres. The findings of this study contribute to the literature of correctional centres and the role of creative art education in adult learning programmes in such institutions. The findings and recommendations can contribute to relevant policy considerations in the Criminal Justice System (CJS), the Department of Arts and Culture (DAC), and the practice of Adult Basic Education and Training (ABET), and counselling in general.

LITERATURE REVIEW

Participation in creative art education for expression

Kasworm, Rose and Rose (2019: 209) state that 'empowerment of adult women incarceration has become a popular term in adult education practise, research, and adult learner become empowered by developing self-esteem'. Knowles (1980: 88) defined adult educational needs as 'something people ought to learn for their own good, for the good of an organisation or for the good of society'. The Department of Correctional Service White Paper (2005) advocates that adult education should empower adult learners by motivating them and helping them acquire creative skills and be productive. Kasworm et al. (2010: 210), citing Stromquist (1995), present the following model regarding the areas to be covered in an adult female offenders' empowerment programme:

- Cognitive (understanding causes of gender oppression and developing a new perspective of gender relations) between correctional officials and adult female offenders;
- Psychological (building self-esteem and self-worth) of the adult female offenders;
- Economic (engaging in productive economic activities) awareness of how the creative art skills of female offenders can sustain economic shortfalls in correctional centres; and
- Political (mobilising for change) – reintegration of female offenders into civil society in a way that can stabilise the high crime and high recidivism rates.

Literature on adult education shows and highlights the empowering capacity of creative art education for adult female offenders as a connection between collective forms and the personal relation between creator and canvas (painting, drawing or craft). In support of this, Scott (2015: 6) advocates that 'art is crucial to prison education, and creative expression' for incarcerated adult female offenders. Empowerment,

according to Kasworm et al. (2010: 10), helps 'individuals attain greater social power, whereas adult education seeks to transform social systems, particular through collective action and social movements'. Newman (2016) indicates that, from an educational point of view, one should respect and meet learners' expectations and then make use of their learning pace. As a result, this study examined what adult female offenders make of these drawing and paintings they have created.

Creative art education and rehabilitation

As laid out by Kasworm et al. (2010: 210) earlier, creative art education can be a cornerstone in adult female offenders' understanding of the causes of gender oppression and developing a new perspective of gender relations in correctional centres. Potelwa (2019) found that adult male offenders are prioritised over incarcerated adult females in terms of creative art education. Creative art education opens mind and doors for both genders to understand their gender oppression and develop new perspectives on their life experience. Van Wormer (2010: 5) observed:

Women are the fastest growing population in prisons and jails, the majority having been sentenced for non-violent crime, and two thirds of female adult inmates are mothers of dependent children.

This study discovered that incarcerated adult females feel boredom and stress in their cells because of inadequate support for them engaging in creative art education as their tool of rehabilitation and therapeutic self-expression. This study considered how creative art education of adult female offenders helps them express their life experience; not getting an opportunity to explore creative skills is a form of punishment and goes against their humanity.

This section of the research examines the findings of other scholars regarding creative art education and rehabilitation with the aim of understanding the reasons why adult female offenders are not receiving support for their creative art education. Fiedrich and Jellema (2003: 48) state that self-esteem and self-worth of the adult female offender are 'considered to be empowering in itself, spontaneously fostering self-confidence, and independence, so that individual women can change their own lives in the ways they want'. Creative art education can motivate incarcerated adult women to develop their self-esteem, self-worth, self-expression and self-fulfilment. Johnson (2015) claimed that self-directed processes are a picture of adult women's consciousness and agency in correctional centres.

This study engaged the Department of Correctional Services about the role of creative art education programme activities in a correctional centre in order to make society and policy makers aware about the powerful effects of creative art education on the welfare of adult female offenders in relationship with their aesthetic narratives or stories in their painting, drawing and crafts. Refusal of correctional services to support the offenders with art materials and with their creative artwork does compromise creative art activities in correctional centres. Quan-Baffour and Zawada (2012: 73) showed similar results that education in correctional centres 'is gaining currency in many countries'. According to Becker (2013: 3), economics 'is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses'. Moreover, the literature shows that economists are as successful in understanding the production and demand of creative art education inside correctional centres as they are outside correctional centres. Parkes and Bilby (2010: 6) point out the value of adult female offenders engaging in creative art education in correctional centres as 'purposeful activity' that can be seen as economically productive activity in correctional centres. Parkes and Bilby (2010: 6) advocate that 'artistic and spiritual activities should constitute purposeful activity as they produce benefits with the current economic downturn and prison services facing budget cuts'. Adult female offenders engaging in creative art education in and out of incarceration as a productive economic programme is central to this study.

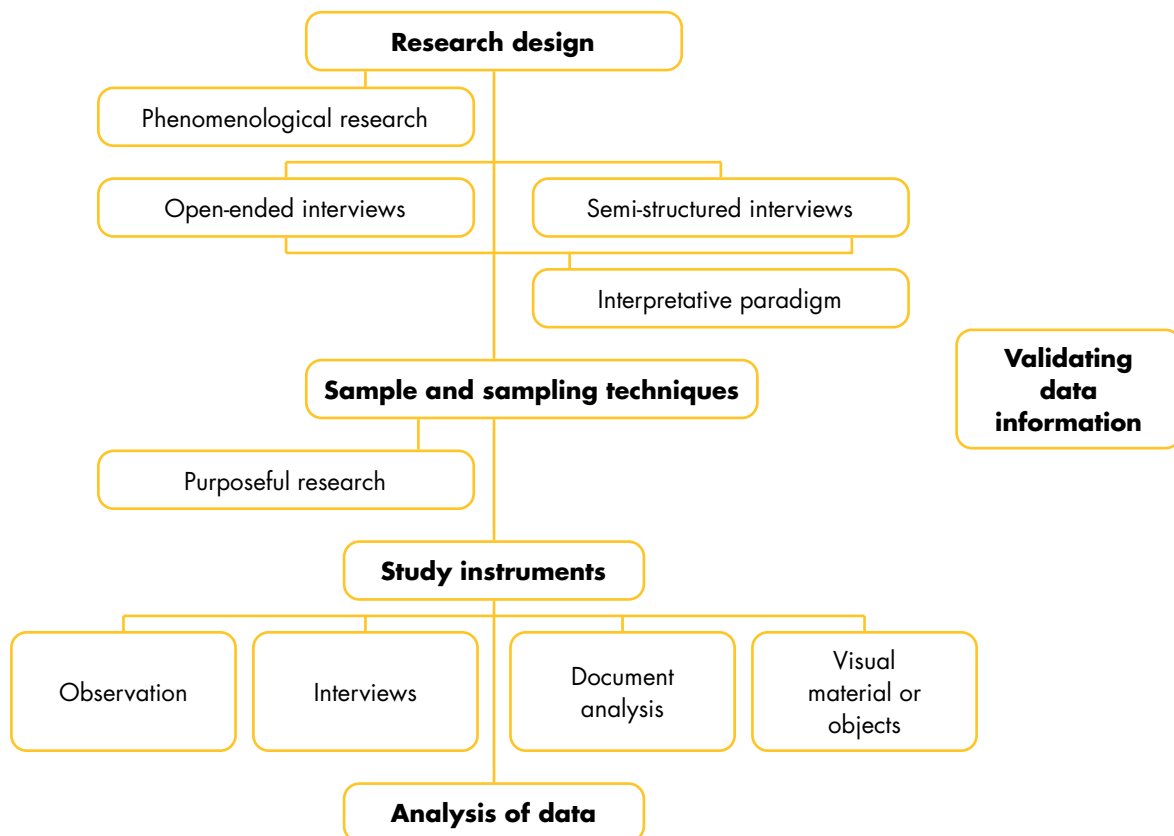
Mobilising incarcerated adult female offenders for change requires education programmes to empower them artistically and spiritually (Parkes & Bilby, 2010). Dastile (2014: 1) sets out findings from interviews held during data collection with adult incarcerated women: vulnerabilities were clarified by high levels of poverty, unemployment and limited skills of creative art education, as such 'adult women being sole income providers for their children as well as related dysfunctional relationships in marriage and romantic relationships'. Dastile (2014: 1) showed how incarcerated women found their life experiences very difficult to manage 'in respect of correctional assessment and rehabilitative and intervention programming during incarceration'. The researchers in this study presented the significant contribution that creative art education can make in mobilising personal transformation of adult female offenders regarding self-expression, anger management and self-learning, which should be taken into account by correctional centres.

METHODOLOGY

Research approach

The form of enquiry that was selected for this study was the qualitative approach. Figure 2.1 presents the methodological processes followed in the study.

Figure 2.1
Methodology processes



Research design

A phenomenological approach was selected as the research design of this study. This approach is defined by Creswell (2014: 13) as 'a design of enquiry coming from philosophy, and psychology in which the research describes the lived experience of individuals about a phenomenon as described by participants'.

Open-ended and semi-structured interviews were used to gather data. The interpretative paradigm guided the research because this study sought to understand how individuals create meaning from their artworks, as a voice or communication, expression and lived experience (Marshall & Rossman, 2016). Participants were required to bring their art portfolios, display their work and present the meaning of each artwork through his or her life experience during interviews.

Sample and sampling technique

The sampling technique used was purposive sampling, which is defined as the 'selection of participants or resources of data to be used in a study, based on their anticipated richness and relevance of information in relation to study problem and research questions' (Yin, 2016: 11). Four adult female offenders in a correctional centre were selected based on their art portfolio status. The participants selected already doing artworks were of a certain age, had a type of offence for which they were incarcerated, all with short-term incarceration.

This study is indebted to the four incarcerated adult female offenders who shared their time, self-experience, stories and reflections through their creative artwork. During open-ended interviews, adult female offenders showed their artworks and narrated the stories from drawing, painting and crafts works. Extensive open-ended and in-depth semi-structured interviews, document review and focus group discussion showed how the correctional centre limited participants' creative art education by not providing them with art materials, and revealed how their own materials were confiscated and destroyed by the warders or officials.

Sweeney (2010: 3) argued that 'imprisonment constitutes a wastefulness of life and a form of social revenge that damages prisoners and the wider society'. The researcher was inspired after observing the way these adult females claimed their rights and freedom to establish their own creative art education programme that was not in the formal curriculum of the Department of Correctional Service (DCS) school in the facility. However, this study identified the creative art skills, the voices and the stories of adult female offenders as a gap that has not been addressed and considered, for their personal identity to developed, transformed or changed and rehabilitated was observed during data collected as barriers. Correctional officials (warders) do not recognise and promote adult female creative skills as a tool for offenders' therapy. The DCS White Paper (2005) advocated that incarcerated adult female offenders' social conditions need to be redressed. Sweeney (2010: 4) supported adult women's creative art skills and explored how they used creative art education to achieve personal development, 'critical insight', and 'even transformation' of their lives within incarceration and out of incarceration.

Study instrument

To gather data, this study employed a number of sources (Creswell, 2014), including observation, interviews, document analysis, and audio or visual material or objects.

Sample of interview questions

- What do you think creative art education is trying to achieve (do)?
- If not all (how) has creative art education improved your life?
- How do you see creative art education impact on the lives of other adult females incarcerated?
- What are some of the problems (challenges) you see?
- Why is creative art education important for adult learning?

Data analysis

The study analysed interview data according to themes to discover the answers and factors that would influence the policymakers in the DCS to close the gap and recognise a creative art education programme

for incarcerated adult female offenders. This study used an inductive process to code and analyse the data to derive main themes and sub-themes. The inductive process works 'back and forth between themes and the data until the researchers have established a comprehensive set of themes' (Creswell, 2014: 254).

Setting of the study

This study was conducted at the Medium–C correctional centre for adult female offenders in West Bank, East London in Eastern Cape Province, South Africa. This study coded the participants as P1, PS, P3, and P4 so that it could flow and the research saw if all participants participated in the research.

The study procedure

This study was approved by the University of Fort Hare Ethics Research Committee of the Faculty of Education. The DCS, granted the researcher permission to conduct this study in the selected institution. Incarcerated adult female offenders received an information letter and consent form related to the study and returned it if they wanted to participate in the study. According to the Research Ethics Policy of the University of Fort Hare (2015), confidentiality must be observed and maintained all the time. As a result, this study's participants were anonymised to preserve their personal identity and signed a consent form. Collection of data was by means of an audio-video recorder; participants were informed about how the device works.

RESULTS

During the observation, the researcher realised that creative art education was a learning area that the Department of Correctional Service management neither knew about nor understood the role of. Interviews revealed correspond with other authors' (Behan, 2014; Gussak, 2013; Sweeney, 2010) findings that the reasons many incarcerated adult female offenders participate in education reflect the range of expression and motivations of adults inside and outside incarceration. This study held face-to-face interviews and focus groups with all the participants who completed the consent forms over a period of three weeks. This study found that participants who showed their involvement in the art programmes of creative skills changed and developed their minds, attitudes and feelings about incarceration. Creative art education assisted them in relieving boredom and has the potential to enhance problem solving and self-awareness. Participant (P2) said:

I used to be a patient of depression with a lot of anger against my husband. One psychologist asked about my profession and gave me a sketch book pad and told me to go under a tree and draw whatever. I was not ready to do that and resisted but she persuaded me. I went under the tree and drew and kept drawing. During next consultation because I was admitted at a psychiatrist hospital, she asked about my drawing. I showed her, and she told me that I can draw and other people can change their situation through applied art.

This study validated the significance of creative art education programmes for incarcerated adult female offenders when the participants confessed that their lives had changed since they became involved in the programme through practical and theoretical assistance from other female offenders that had a background in art. The following positive response was contained in an acknowledgement letter that was written by one of the participants (P3):

Creative art develop a sense of self-worth and provided therapeutic change without verbal interaction need.

During the investigation of the study in the correctional centre, participants acknowledged the idea that the research chose them (adult female offenders), and the programme they were not supported, empowered,

and encouraged. This study found that the participants utilised creative art skills for communication purposes although they did not know that – through the course of this study, they realised this and were able to narrate their drawings, painting in canvas and craft works.

The value of the creative art education programme conducted during data collection was acknowledged by the social worker, clinical psychologist and by the warders who had not previously supported adult female offenders' artwork. The manager of the adult female offender's correctional school showed support by providing a classroom and proof of an application for procurement of art material. The challenge they face now is the absence of an adult art professional educator to teach, encourage and look after the creative art educational programme like other academic learning areas.

Regarding positive and negative aspects of a creative art education programme, Cullen and Gilbert (2013: 15) stressed that programmes that provide rehabilitation 'receive considerable support as a major goal of the correctional system', but this was not the case for the participants in this study. One of the participants (P4) said:

Offenders that were good in creative art skills were used by warders to draw or paint the project homeworks of their children without compensation.

The literature referred to above regards creative art education as a voice of healing and storytelling for incarcerated women whereas correctional centres are mainly about punishment. The value of creative art education, which is the gap that brought about this study, is its contribution to rehabilitation: it reduces adult female offenders' idleness, and increases their self-worth, self-fulfilment and self-development. Participants (P2) further elaborate during interviews:

Visual art developed from my experience as I never studied it before. I am a person who loves creativity and fear mistake and judgement. I was afraid to do art, but one day I started to drawing cartoons, baby room and crafting. What I learnt through my art experience is that I can do something if I am ready to do, now I can imagine something and create it without fear. Even for my crafting I designed drawing before crafting or mosaic.

Creative art education programmes can provide evidence of change in the offender so they can complete other treatment programmes and the evidence may contribute to the negotiation of parole. Wright et al. (2012: 775) pointed out the problem with rehabilitation as an 'exclusive focus on the individual, is that it fails to recognise the importance of certain ecological factors that have been shown to be significant predictors' of re-offending. The lifestyle of one participant involved in the creative art education programme, as shown above, appeared to be personally transformed or changed. The programme, provides discipline, and rehabilitates adult female offenders in the correctional centre.

The programme of creative art education was perceived to cause no harm, introduce no risk and show no negative consequences for adult female offenders in the correctional centre. P3 doubted that art materials such as pencils and paint brushes were a risk for offenders: 'I refuse to agree that art tools are a risk' (P3). The negative life experiences of some participants influenced them to not show their art-making to other participants because they are not educated and trained to present their drawings/paintings in front of other offenders. Lack of knowledge was a challenge for their low self-esteem and confidence. One participant (P2) cited a personal negative experience of how offenders were fighting with each other:

In the cells, we are not doing anything, ever since our art material was seized during cell search operation; now make us stressed and boredom.

This study found that some participants refused to share their life experience with the social workers but through participation in the creative art education programme they shared and narrated their life challenges through crafting, drawing and painting. Gussak (2013b) stated that female offenders are reserved and could not say out loud, she will gag to avoid to be embarrassed. P4 shared her story, saying:

I would love to share one that I did for my sister because my sister was my victim. I started sketching this drawing for crafting something special that she can see how apologetic I am for my wrongdoing.

DISCUSSION

Incarcerated adult female offenders in this study indicated that when they started to learn about creative art education, it was hard to find reliable literature and a teacher to motivate them. They were ashamed and did not have confidence in their practical drawings, crafts and paintings, but the information they found in newspapers, magazines, television and online in their correctional service school computer lab helped them to understand something about creative art education values. Along with the issue of risk that was identified by one official, information about creative art education should be addressed and awareness should be raised to prove that the programme is not harmful but rather a tool that has proven to rehabilitate adult female offender incarcerated in South African correctional centres. No participant perceived creative art education programmes to be a risk for them. Participant (P1) said:

There are a lot of offenders rehabilitated by use of visual arts because visual art to me and other is expression, inside before we had a lot of offenders with anger but through creative skills of arts helped them and me. Offenders have nothing to express themselves with, inside here there is a lot of infighting and morale is low. Without this visual art, there is no rehabilitation anymore.

This research above presented good results of self-expression, confidence, development, rehabilitation and self-worth from the participants regarding the important role that the creative art education programme played. However, the refusal by warders to allow offenders to express themselves through creative art education was an infringement of their right to learn. This study's results showed the clear reason for the rationale identified for this study. Many positive benefits of creative art education for adult female offender's personal transformation were limited for adult female offenders. Personal transformative learning theory is 'a process of perspective transformation that has three dimensions: psychological (change in understanding of the self), conviction (revision of belief system), and behavioural (change of lifestyle)' (Mezirow, 2014: 1). Shailor (2011: 8) stated that personal transformation 'is through the freedom found in artistic self-expression, creativity, and self-discovery; inmates gain a sense of renewed hope in themselves and their future'. It was evident in this study that incarcerated adult females found self-direction, self-worth and self-development. P4 said:

Visual art keeps me busy, motivated to be a better person, develop self-worth and self-esteem.

This study explored how a creative art education programme can play an important role in helping offenders escape emotions and bad experiences in confinement.

Creating something is to get rid of frustrations, to keep ourselves in good morale and busy, stay out of troubles and conflicts. (P4)

Shailor (2011: 11) suggested that 'it is important to blend arts as an intervention for personal development, life skills, and learning' while building a supportive sense of community in a correctional centre. This study adopted four artistic disciplines as employed by Shailor (2011: 11) who drew from the Discipline Based Art Education (DBAE) learning model:

- Art production – creating and making art while learning how to express ideas and their stories/ voices into picture;
- Art history – acquiring knowledge and understanding of the artistic life, the historic time period in which they lived, and the contributions of their art to culture and society;
- Aesthetics – through creative art, discovering a personal transformation and appreciation of beauty, emotion, feeling and personal philosophy of what is beautiful in art; and
- Art criticism – the process and result of critical thinking about art; this usually involves description, analysis and interpretation of art, expressing some kind of judgement.

The above model shows the framework of artistic discipline that presents the fundamental ‘principles of adult learning’ as identified by adult education theorist Malcolm S. Knowles (Shailor, 2011: 12). Knowles, Holton and Swanson (2005) addressed the following key adult learning principles that also guided this research:

- It is important for adults to be involved in planning and assessing what they learn;
- Experience serves as an important foundation for learning;
- Adults learn best when doing activities that have immediate personal relevance; and
- Adults learn best from problem-centred rather than context-related experience.

This study blended the DBAE learning model and adult learning principles to elucidate the research questions of how adult female offenders in a correctional centre present their emotions, feelings and moods, and how they escape stress through participation in creative art education for their self-worth, self-esteem, rehabilitation and personal transformation. This study showed that adult female offenders incarcerated discovered their ‘own voice and to experience life with a sense of personal freedom’ (Shailor, 2011: 8).

Adult female offenders during the collection of data revealed that they were not compensated for their creative artworks by warders. They regarded this as a form of punishment that disproportionately targeted the females incarcerated and limited their potential for rehabilitation. Another participant in the study revealed that

Creative art prevent conflicts, re-offending, reduces offenders offences and make discipline among us.

This study has both a weakness and a strength to address the significance of educating incarcerated adult female offender about creative arts. The weakness was that not all preparation by the correctional centre was organised as the researcher would have liked. The strength of the study was the topic of investigation. It attracted adult female offenders and it gave them the opportunity to specialise and develop new expertise.

CONCLUSION

The results showed that creative art education is an important tool that can be used by correctional school management, social workers and clinical psychologists for rehabilitation of incarcerated adult females. The results showed that creative art education allows and developed confidence, and challenged offenders’ low self-esteem. Therefore, there needs to be advocacy for creative art education for incarcerated adult females to be taken into consideration as for other academic subjects offered by correctional centres.

The role ABET is playing in the political life and socioeconomic landscape of South Africa is very important. Many universities in this country offer courses in creative art education, and many child and adult education professionals are sitting at home jobless. It is very sad that despite all the gains of this country, incarcerated adult female offenders cannot have even one professional creative art educational teacher or intern. This study provides an understanding of the perception of incarcerated adult female offenders who took the deliberate decision to not be deterred by the barriers and challenges they encounter. They refused to be passive and do nothing while incarcerated even when their artworks were seized by the warders during search operations. The encouragement currently provided by the warders and senior officials turned out to be inadequate for creative art education of adult female offenders in the correctional centre.

Offenders are in need of creative art resources and professional educators to improve their adult learning and their knowledge about the value of creative art education programmes to their humanity. Access to art resources would encourage more offenders to participate in the programme. It was noted that creative art education is useful for developing discipline among adult female in their respective cells. Creative art education is a communication strategy that allows those that normally remain silent to voice their feelings through creative artwork, either by drawing and painting on canvas or paper. Obstacles faced by incarcerated adult offenders were, firstly, the lack of art resources; secondly, the lack of books to read in order understand the theory of creative art education; and, finally, the lack of a professional creative art skills educator.

RECOMMENDATIONS

This study suggested further research and creative art educators to shed light at the correctional centre on the importance of creative art education programme. Professional educators in the correctional centre should make aid communication development of creative art education to allow adult female offenders to value their own drawings or painting narratives for self-expression, and the growth of self-worth and self-development. Clearly, more research needs to be done to explore and expose the importance of creative art education programmes. In addition, more research needs to be done to advocate andragogy to incarcerated females reluctant to learn and explore other learning areas.

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RESEARCH TITLE

Evaluation of a school-based health promotion intervention in a resource-constrained community

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Professor William (W.) Fraser
Institution: University of Pretoria, South Africa
Year of Award: 2019
Qualification: PhD (Educational Psychology)

ABSTRACT

The purpose of this study was to evaluate the outcome of a school-based health promotion intervention that was implemented in three primary schools in a resource-constrained community in Bronkhorstspuit, South Africa, among Grade 4 to 6 learners. I accordingly investigated the learners', teachers' and parents' experiences, perceptions and potential behavioural changes in terms of healthy food practices after the implementation of the Win-LIFE (Wellness in Lifestyle, Intake, Fitness and Environment) intervention. The study forms part of a broader institutional project. I followed an evaluation research design, applying Participatory Reflection and Action (PRA) principles, an interpretivist paradigm and a qualitative approach. The conceptual framework was based on Bronfenbrenner's (1979) bio-ecological theory and Bandura's (1986) social cognitive learning theory. A purposeful sample of 31 learners, 18 teachers and 31 parents participated in PRA-based data-generation and documentation activities. In addition, I used observation-as-context-of-interaction, field notes, research diaries and audio-visual techniques. In terms of results, the teacher-participants valued the PRA-based nature and their involvement as partners in developing and implementing the intervention. They also perceived the intervention as valuable to others, experienced some challenges during the implementation and made certain recommendations for future implementation. The parent-participants indicated that they gained knowledge about healthy food practices because of the Win-LIFE intervention. They started applying their newly gained knowledge yet required additional guidelines. Finally, the learner-participants' experiences (reported as part of two master's studies) of the enriched Life Skills curriculum (Bentley, 2016) and Natural Sciences and Technology curriculum (De Vos, 2017) were positive. They valued the experiential and cooperative learning approach and supportive facilitators, resulting in positive learning outcomes and their application of the newly gained knowledge, despite some challenges they identified. The findings thus indicate that the Win-LIFE intervention was valuable to teachers, learners and parents, increasing their awareness of, as well as their knowledge and skills regarding healthy eating practices (food choice, production, preparation and storage) and healthy living, thereby enabling them to adopt a healthier lifestyle. Furthermore, the teachers' repertoire of

teaching strategies was extended. The learners, on the other hand, began to engage in their own learning more actively, based on the confidence, discipline and ability that they gained to retain information. Learners also transferred their knowledge and skills to their parents and other family members.

Keywords: Enriched school curricula; Food choice; Food consumption; Food preparation; Food production; Food security; Health-promotion intervention; Participatory Reflection and Action (PRA); School-based intervention; Wellness in Lifestyle, Intake, Fitness and Environment (Win-LIFE) intervention

The full thesis can be found at <http://hdl.handle.net/2263/69954>

RESEARCH TITLE

Indigenous pathways to appraisal during resilience processes

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Qualification: PhD (Educational Psychology)

ABSTRACT

This comparative case study formed part of the Indigenous Pathways to Resilience (IPR) project which aims to contribute to an indigenous psychology knowledge base on resilience from an African perspective. This study focused on contributing knowledge on indigenous pathways to appraisal processes as part of resilience processes to mostly Western-orientated discourses. IPR situated its investigation in two conveniently selected rural South African communities who experience chronic circumstances of high risk and high need and had non-Western worldviews. Participants from the two research sites were stratified according to location, age and gender. Indigenous Psychology (IP) was selected as the theoretical paradigm for the study, with post-colonial research paradigm as the meta-theoretical lens. Participatory reflection and action (PRA) served as the methodological paradigm to generate data in two waves over a period of two years (eight days per site). Data sources included textual data (verbatim transcripts of audio-recorded PRA activities translated into English) and observation data (researchers' field notes and observations). Trustworthiness was enhanced by capturing the process and context visually over time. Data was analysed using thematic in-case and cross-case analysis lead to inductive themes indigenous pathways to appraisal during resilience processes. This study contributes a novel insight into (African) non-Western appraisal processes as part of resilience. It points to interconnectedness (interpersonal, spiritual and environmental) as a core worldview point of departure during appraisals. Appraisal from a non-Western (African) perspective is then followed by collaborative appraisal processes, including consultation and consensus for problem solving. The non-Western (African) appraisal converges in agency as motivation. This study was delimited to.

Keywords: Resilience; Appraisal; South African; Chronic high risk, high need environment; Indigenous Psychology (IP); Participatory reflection and action (PRA); Worldview of interconnectedness; Consultation; Consensus; Agency

The full thesis can be found at <http://hdl.handle.net/2263/67811>

RESEARCH TITLE

Cultivating socially just responsible citizens in relation to university accounting education in South Africa

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Institution: Stellenbosch University, South Africa
Year of Award: 2019
Qualification: PhD

ABSTRACT

The aim of this study – situated within the particular South African context that has been marred by systemic inequality and social injustice – was to determine whether higher education institutions could cultivate and nurture socially responsible democratic citizens. Secondary research questions focused on the required teaching and learning practices that support democratic citizenship education, and on the identity of the university educator responsible for implementing these teaching and learning practices. In particular, the focus was on the advantages of utilising deliberative encounters as a pedagogical strategy in higher education. In the development of the study, the emphasis particularly shifted to the consideration of whether deliberative encounters could assist in cultivating socially responsible chartered accountants. The research approach used was pragmatism, which was appropriate to focus on the possible responses to existing societal problems. Within this framework, deconstruction was applied as method in order to determine whether any marginalised voices were absent from this particular discourse. Through applying Foucault's genealogical analysis to the chartered accountancy educational landscape in South Africa, three mechanisms of disciplinary power were identified, namely the accreditation process, the issue of a competency framework and the writing of an examination. As a result of these mechanisms in operation, it was found that critical thinking pertaining to knowledge construction, the decoloniality of the curriculum, deliberative encounters as teaching and learning practice, and principles in support of the ubuntu practice were largely absent from the chartered accountancy educational landscape. In response to the above-mentioned findings, the study proposes that the re-education of the chartered accountancy profession should include a re-negotiation of the relations and roles of each stakeholder involved in the education process. The study further argues for a transformation in terms of the identity construction of a chartered accountant. Chartered accountants should primarily identify as responsible future business leaders with a unique professional skill set as secondary requisite. Furthermore, various teaching and learning practices that support democratic citizenship education and which could result in the cultivation of socially responsible chartered accountants should be adopted by chartered accountancy university educators at higher education institutions.

Keywords: chartered accountant, deliberative encounters, democratic citizenship education, power, responsible leaders, social justice

The full thesis can be found at <http://hdl.handle.net/10019.1/107058>

RESEARCH TITLE

Crossing the border: Gendered experiences of immigrant children in South African schools

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Qualification: PhD

ABSTRACT

The study examines how the family, peers, and sociocultural environment at school in primary schools in South Africa perpetuated divergent gendered experiences among immigrant learners. A qualitative narrative inquiry was used during the study. Snowball sampling was used to select the participants for the study. The study drew on a narrative account of 27 participants, 18 immigrant children (9 girls and 9 boys) and nine teachers (6 women and 3 men) from three primary schools in the Johannesburg East District. Semi-structured in-depth interviews and observations were used as instruments to collect data from the participants. Collected data from the semi-structured, in-depth interviews and observations was analysed using thematic content analysis and was presented by using illustrative quotes. The study revealed that the school is a highly gendered place and serves to propagate gendered experiences among immigrant children in school between girls and boys. The findings of the study have significant implications for stake holders at all levels in education. It is recommended that school principals should ensure that teachers and administrators are familiar with both the Department of Basic Education (DBE) and the school's policies and regulations that address gender, sexual harassment, immigration issues, school violence, and bullying. Improved perception of immigrant children and gender quality in schools will contribute to a positive school environment which may lead to increased positive wellbeing and academic performance to all learners regardless of gender and country of origin.

Keywords: gender, socialization, gender socialization, gender role shift, immigrant parents, gender roles, immigrant children, migration, gendered experiences, gender differences

The full thesis can be found at <http://hdl.handle.net/10500/26669>

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References, both in the body of the article and in the reference list, must be presented using the Harvard style. References that are cited in the body of the article must be present in the reference list and vice versa. Articles in past editions of the IJTL itself are the best source of practical examples of the preferred organisation of articles and of the heading styles favoured by the IJTL.

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