

**THE USE OF CELLULAR PHONES TO IMPROVE CURRICULUM
PRACTICE IN ECONOMIC AND MANAGEMENT SCIENCES
CLASSES**

by

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DECLARATION

I, Lefete Innocentia Puleng, declare that the study hereby submitted, namely, THE USE OF CELLULAR PHONES TO IMPROVE CURRICULUM PRACTICE IN ECONOMIC AND MANAGEMENT SCIENCES CLASSES, is a product of my own efforts and has not previously in full or in part been submitted at any university for degree purposes.

All the sources used in this thesis have been duly acknowledged. I also hereby cede copyright of this work to the University of the Free State.

Signature: _____

I.P. LEFETE

Date: _____

DEDICATION

This study is dedicated to my mother, Magaebini Masitenyane and my late father, Ezekiel Mophete Masitenyane, who believed in me and inspired me to do my best while growing up. You became my role models and mentors during my schooling.

I also thank my loving sons, Tsebo and Letlotlo. Even though I was not as always present while I was completing my study, your patience and motivation encouraged me to complete this study.

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GOD BLESS YOU ALL

LIST OF ABBREVIATIONS AND ACRONYMS

CAPS	Curriculum Assessment and Policy Statement
CDA	Critical discourse analysis
CER	Critical emancipatory research
DBE	Department of Basic Education
EMS	Economic management sciences
FSDoE	Free State Department of Education
GET	General Education and Training
ICT	Information and communication technologies
LTSM	Learning and teaching support material
NCS	National Curriculum Statement
OBE	Outcome-based education
PAR	Participatory action research
SGB	School governing body
SWOT	Strengths, weaknesses, opportunities, threats
UFS	University of the Free State

ABSTRACT

The study aimed to design a framework for the use of cellular phones to improve curriculum practice in economic management sciences classes. Twenty-first century learners and the reforms in South Africa require that our education system accommodates intense use of technology in our classrooms. Effective use of technology for teaching and learning promotes effectiveness and competence in education. Most of the learners who reside in rural or poor areas have little or no exposure to an inspirational environment that could enrich their education, consequently, maximum learner participation, critical engagement and collaborative learning are not experienced. In order to redress the educational challenges facing South Africa, pedagogical approaches that encourage effective participation and collaboration prepare the learners for the life-world. This was possible, because critical emancipatory research, which advocates peace, hope, emancipation, respect and social justice, was used as the theoretical framework to ensure that the design of the framework is completed through the contributions of different people. Connectivism, by Van Dijk, was drawn on as the learning theory to strengthen the lens of the study. The collaborative and emancipatory agenda of the study aimed at addressing power relations, and led to participatory action research being put into action for generating data. Two focus groups consisting of learners and adults, were used for generating data through minutes of meetings. Data analysis was performed using critical discourse analysis, which is suitable for educational research and for discourses between social structures. The findings revealed that using cellular phones has the potential to transform the learning environment and assist learners to gain information.

Keywords: Economic and management sciences (EMS), curriculum practice, cellular phones

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CHAPTER 1: ORIENTATION OF THE STUDY

1.1 INTRODUCTION

The aim of the study was to design a framework to show how the use of cellular phones can improve curriculum practice in economic management sciences (EMS) classes. The study intended to show that cell phones, as an information and communication technology (ICT) resource, can be incorporated in classes to improve the curriculum practice in EMS classes. For the purpose of transforming classrooms to become democratic environments, we require practices that are emancipatory and collaborative. The purpose of this chapter is to introduce the initiative of designing the framework for using cellular phones to improve curriculum practice in EMS classes, by giving an overview of the study. This overview discussion will begin with a brief background of the study and will then discuss challenges motivating the need for designing the framework. It will also give an outline of the problem statement that resulted in the research question. The objectives of the study, theoretical framework, research design and methodology, delimitations and limitations of the study, ethical considerations and layout of all the chapters that follow, will be presented. Lastly, the chapter will provide a summary of the chapter.

1.2 BACKGROUND OF THE STUDY

This study aimed to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. The report for Save the children predicts that the use of ICTs in education will become much more diverse by 2025 (Unwin, Weber, Brugha & Hollow, 2017). The use of ICT for teaching and learning has an immense impact on the learning process (Rathod & Jadhav, 2015). Incorporating technology as one of the resource materials for teaching and learning provides teachers and learners with a multitude of new opportunities. Appropriate use of technology promotes effectiveness and competence in education.

Unlike learners from rural schools in Kenya and South Africa, who experience challenges, such as deteriorating infrastructure and limited access to computers and the internet, learners who are exposed to technology view the learning space as a place of exploration, because they are able to discover things on their own (Dahlstrom,

Walker & Dziuban, 2013:3). The situation caused by challenges related to the learning environment have a detrimental effect on learners' attainment and knowledge acquisition (Auld, Snyder & Henderson, 2012:287; Czerniewicz & Brown, 2014:2; Makoe, 2011:174).

In order to address challenges, such as those mentioned earlier, changes evolved more rapidly and led to mobile learning. Mobile learning emerged from e-learning in 1991. The evolution attracted many scholars' attention, who wanted to understand aspects of mobile technology and learning (Kreutzer, 2009:2). Mobile learning has the advantage of offering teachers and learners an expansion of space, and easy accessibility in class and outside the classroom makes it qualitatively different and a preferred mode of learning (Pegrum, Oakley & Faulkner, 2013:67).

1.2.1 Defining the key concepts related to the study

This section will focus on defining and discussing key concepts related to the title of the study. The aim was to help the reader understand how the concepts are relevant to achieving the objectives of the study. The following key concepts were clarified for the purpose of the study: curriculum practice, EMS and cellular phone. The definitions are given from encyclopaedias, dictionaries, literature consulted and, lastly, the view of the researcher of the study.

Curriculum practice is a concept that was formulated for the purpose of this study. In order to make a meaningful contribution to the discussion, the researcher defined 'curriculum' and 'practice'.

The term curriculum can be used with reference to a body of knowledge that is compiled by experts and specialists, to be taught by teachers and to be learnt by learners, as prescribed in the curriculum policy (Lynch & Smith, 2011). To ensure that learners are well equipped with skills and knowledge, teachers have to deliver a curriculum that affirms and critically enriches learners' knowledge, required to inform their lives and prepare them to be competent for their life-worlds (Schreuder, 2009:12). This can be achieved through the type of practice implemented in the classroom.

Practice is defined as an actual, professional way or method of doing things, and repeated to acquire skills (Crystal, 2004). A detailed discussion of curriculum practice will be presented in Chapter 3.

For the purpose of this study, only three phases constituting the General Education and Training (GET) band are mentioned to help the researcher explain where EMS is offered in the South African curriculum. The three phases are Foundation Phase, from Grade 0 to 3, Intermediate Phase, from Grade 4 to 6, and Senior Phase, from Grade 7 to 9.

EMS is a subject that was introduced in the 1990s to eradicate the remnants of the apartheid education system. The subject is relevant to the needs of the country, including that of alleviating poverty and unemployment, and that of preparing the twenty-first-century citizen (Schreuder, 2009:12). The practical curriculum of EMS that is offered in South African schools requires knowledge on the part of the learners. However, these learners need to be equipped with real-life skills that prepares them for their life-worlds (DBE, 2011:8).

For the purpose of this study, the word cellular phone is used, although other countries make use of the word mobile phone. In this study, it is defined as mobile and wireless gadgets at our disposal that radically changed how ideas and practices are communicated in the classroom (Beetham & Sharpe, 2013:6).

1.2.2 Literature related to the objectives of the study

This section will present the literature related to the objectives of the study. In order to achieve the objectives set, a detailed discussion related to the challenges, their solutions, conditions, threats and indicators for successful framework, will be presented.

The point of enquiry, focusing on demonstrating the need for the anticipated framework, is based on challenges experienced in South Africa and other countries. As is the case throughout the world, we need to impart knowledge and skills that prepare learners for processes and procedures that are meaningful to their own lives and for career opportunities (Mazzeo, Rab & Alssid, 2003:4). However, for those countries that have been subjected to the injustices of colonisation, oppression and

various forms of apartheid, it is difficult to yield the best results, due to the imbalances experienced.

Based on the principle of social transformation, even though there have been initiatives to address challenges relating to the absence of a stimulating learning environment in our schools, some teachers still experience challenges. The challenges mentioned above are also experienced in other countries, such as Australia and Kenya. There is a need for this framework, because teachers need to transform and adapt their teaching practices, so that they are able to use textbooks, as well as to incorporate other learning and teaching support material (LTSM). By doing so, the unfavourable learning environments can be transformed to a more favourable environment that allows learners to attach their life experiences to their learning.

The need for a stimulating learning environment is important, because teachers need to deliver the curriculum in a manner that promotes critical thinking and skills acquisition. The National Curriculum Statement (NCS) principle encourages exposing learners to learning processes that present an appropriate educational environment that does not prohibit learners from acquiring skills and knowledge in an exciting and appealing manner (Baglama, Yikmis & Demirok, 2017:121, DBE, 2011:4). Grinols and Rajesh (2014:93) suggest that incorporating cellular phones for the purpose of enhancing learners' investigative skills can be explored, just as tablets and laptops were integrated into the lesson.

For the effective implementation of the framework to use cellular phones to improve curriculum practice in EMS classes, teachers who are competent and creative and who display a sense of willingness to adapt practices, are needed. The use of cellular phones requires teachers who are skilled in using technological devices, or who, at least, have an interest in doing so (Bertram, 2011:12, Fraser, Kennedy, Reid & McKinney, 2007).

Teachers' negative attitudes, their failure to shift to a learner-centred approach, and excessive use of flawed textbooks that stifle learners' enthusiasm, need to be changed (Maguth, 2013:87). A framework is needed to guide teachers who have negative attitudes towards the use of cellular phones, who are incompetent and who lack skills to encourage learners to use cellular phones.

Challenges regarding incorporating technological resource materials into the lesson to improve minimum learner engagement have detrimental effects on maximising learner participation. Dowden (2010:4) states that the inability of the teacher to implement a learner-centred approach denies the rich ability of the strategy to be recognised. The framework for the use of cellular phone explores how teachers can use it to promote emancipation and collaborative learning. To prepare learners, who are viewed as twenty-first century learners, they need a learning environment that is relevant and conducive. The framework needs teachers to focus on implementing a curriculum suitable for preparing learners to be creative and imaginative, who will be able to solve complex problems of the twenty-first century and that are relevant to their life-worlds (Ewing, 2012:108).

Implementing the framework to improve the curriculum practice can be affected by removing barriers that hinder the integration of cellular phones in class. The solutions suggested for the challenges discussed have to be implemented under certain conditions that circumvent the related threats. Unavailable and irrelevant resources intended to stimulate the teaching and learning environment hinder the effective use of the framework. Inadequate provision of ICT resources and their use, as well as active phone lines and the internet connection thereof, are obstacles hindering the practice of using technological resources for education (Auld *et al.*, 2012:287).

One of the barriers challenging the use of cellular phones in class is the teacher's ability to use the framework. Inability of the teacher to allow learners the freedom to express their individuality, denies them the opportunity to explore new and exciting avenues (Vandeyer & Killen, 2007:107). The conditions to circumvent the threat entail proper training of teachers, such as in-service training, incorporating training for all student teachers, as well as funding and support by the education department. The school should include the use of cellular phones in class in the school policy, to avoid misunderstanding, and to have guidelines for the use of cellular phones.

The literature above was discussed to assist the study to attain its objectives.

1.3 MOTIVATION FOR THE STUDY

On the basis of the discussion above, the reasons driving the enquiry of this study are presented. South Africa became a democratic country after its first free elections in

1994. To most citizens, this meant that they would all be treated fairly and with respect regardless of race, cultural group, income level and gender. However, regarding the education system, we still experience some forms of discrimination due to settlement areas, levels of income and provision of resources. The National Department of Education introduced Outcome-Based Education (OBE), which brought some transformation of the curriculum implemented in earlier years. OBE was introduced to overcome the curricular divisions of the past regime. Thereafter, OBE was evaluated and recommendations were put forward to review the curriculum in 2000. This led to the Revised National Curriculum Statement (CAPS) Grade R-9 and, later, the National Curriculum Statement Grades 10-12 in 2002.

Though the NCS was implemented, ongoing implementation challenges resulted in the change to the National Curriculum Statement Grades R-12 in 2012. Nonetheless, South African education still experience challenges that the researcher believes are necessary, so that we are able to reflect and review our practices.

Despite the intention of the national government to offer a uniform curriculum across South Africa, there are challenges relating to learning and teaching practices. Teachers have to implement the prescribed curriculum under strenuous conditions. For example, there is shortage of resources, such as textbooks, there is inadequate infrastructure, and teachers are incompetent to teach EMS. In spite of these strenuous conditions, the prescribed curriculum of EMS requires that teachers teach learners quality content that is compatible with that of other countries. In addition, it is necessary to teach learners effectively, in a way that prepares them for their life-worlds (Rathod & Jadhav, 2015:26). However, some teachers are unable to achieve this due to challenges they face. The design of a framework that uses cellular phones to improve curriculum practice in EMS classes will contribute to assisting teachers to deal with challenges regarding the need for learners to find information, and to enhance teachers' teaching practices.

With reference to the issue of technology in education, the South African education system is shifting towards twenty-first-century practices. These practices entail the teacher's ability to transform the classroom into a vibrant environment by incorporating new technologies that excite learners (Khomokhoane, 2011:15). Classrooms have to be equipped with resources that are relevant to the content taught and that create

opportunities for twenty-first-century learners to be engaged in the learning process. However, the discrimination that we experience in schools, makes it almost impossible for teachers to achieve that, or the objectives set out in the CAPS document. As a result, we require the framework for the use of cellular phones to improve curriculum practice in EMS classes to assist us to address our challenges.

Technology opens avenues for the development of positive partnerships between teachers and learners. This can be achieved when twenty-first-century tools are adopted and learners are equipped with knowledge and skills compatible with the world (Maguth, 2013:88). Teachers need to adapt daily curriculum practice that focuses on imparting knowledge to the learners, to one that includes the use of technological devices. Therefore, we require competent and knowledgeable teachers who are able to use technological devices in class, and who are willing to adapt to a learner-centred approach (Dowden, 2007:52; Ford & Haley, 2014:5). According to Dowden (2007:54), technology has the ability to respond well to the educational and developmental needs of early adolescents, because they enjoy using technology.

The researcher was motivated to conduct this study to address the challenges mentioned in the discussion above. Learners' good performance, which is the core objective of each subject, relies on the fact that learners have to complete different activities related to the content taught. However, in some instances, learners are unable to do so, because of a shortage of resources, such as textbooks or computers that will assist them to find information. It is for this reason that the researcher argues for the design of a framework for the use of cellular phones to improve curriculum practice in EMS classes, to assist teachers to improve learners' performance.

1.4 PROBLEM STATEMENT

This study aims to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. The inability of learners to perform well in EMS economics, due to their inability to access information from other resource materials, is seen as a challenge. The focus of this study is on EMS, which is the subject offered from Grade 7 to Grade 9. The prescribed curriculum of EMS requires teachers who are able to give expression to the knowledge, skills and values worth learning (DBE, 2011:4). According to Naidoo, Rugbeer and Rugbeer (2013:84), it seems that the

majority of learners who reside in rural or poor areas of South Africa have little or no exposure to an inspirational environment that could enrich their education, consequently, maximum learner participation, critical engagement and collaborative learning are not experienced.

1.4.1 Research question

Based on the above discussion, the study aims to answer the following research question:

How can the use of cellular phones improve curriculum practice in EMS classes?

1.5 OBJECTIVES OF THE STUDY

To respond to the research question, the study aims to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. The objectives for attaining the aim of the study are:

- To justify the need for a framework to improve curriculum practice using cellular phones in EMS classes;
- To identify the components of a framework to improve curriculum practice using cellular phones in EMS classes;
- To identify the threats associated with a framework to improve curriculum practice using cellular phones in EMS classes;
- To explore the conditions of a sustainable framework to improve curriculum practice using cellular phones in EMS classes; and
- To provide evidence that the framework to improve curriculum practice using cellular phones in EMS classes will be functional and successful.

1.6 THEORETICAL FRAMEWORK

To design the effective framework intended by the study, the roles of the research facilitator and the participants are equally important. In addition, to understand the conditions leading to discourse in the study, a theoretical framework which is collaborative was operationalised, so that the objectives of the study could be

achieved. This was possible because the study was coached by a theoretical framework that ensured that the design of the framework was completed through the contribution of different people (Dold & Chapman, 2011:512; Mahlomaholo & Netshandama, 2010:7; McGregor, 2003:4; Rose, Spinks & Canhoto 2014:1).

In order to design the framework to improve curriculum practice using cellular phones in EMS classes, critical emancipatory theory (CER) served as the lens that created a critical consciousness that fosters, rather than suppresses, critical thinking and social interaction between participants (Giroux, 2018; Nkoane, 2012:100; Tshelane, 2013:415). CER advocates a shift, from a paradigm focusing on participants as research objects, to a paradigm that is collaborative and emancipatory (Hlalele, 2014:103). The participants were not expected to answer pre-structured questions posed to them by the researcher, instead, they participated in discussions that were initiated during the meetings.

CER was deemed necessary for this study because it advocates for democracy (Nkoane, 2012:98). The agenda of promoting democracy through the study was not only based on the participants' treatment, but also on how the research process developed. The entire coordinating team understood that everyone participated in the study willingly and possessed equal status. Therefore, each individual was free to voice their opinion regarding anything that intrigued them.

Moreover, CER influenced the researcher's role, as the research initiator, during the analysis process. The researcher became critical and conscious of the injustices that were brought to her attention by the participants. Conducting a study that was coached by CER helped the researcher to address issues that are caused and exposed by the social injustices experienced by marginalised groups. Thereby, issues of power, oppression, and emancipation were dealt with. The use of CER as the lens gave the researcher the opportunity to promote social justice, emancipation and equality (Biesta, 2010:43; Watson & Watson, 2011:66). Subsequently, the aim of showing respect to and enhancing social values among the participants of the study was realised (Nkoane, 2012:98).

The theoretical position of this study helped the researcher to discover insight into the process of the study, integration of participants, as well as power sharing among the participants (Mahlomaholo & Netshandama, 2010:1). In order to realise power sharing

and equality, the researcher, as a critical researcher who understands that people have different viewpoints about the study, carried out this study by consciously acknowledging issues of power dominance, oppression experienced in our societies, and injustices that occur during the research process (Koshy, 2009:2; Nkoane, 2012:98).

1.6.1 The origin of CER

A brief discussion about the origin of CER will be presented. It is suggested that CER is drawn from critical theory (CT), which serves to emancipate and transform the researcher's proactive values throughout the study (Gray, 2013:27). CT can be traced back to an imprint of classical Greek thought on autonomy and democracy (Devetak, 1996:163). However, it is the work of the Frankfurt School group of writers and researchers, connected to the Institute of Social Research at the University of Frankfurt, who popularised CT (Devetak, 1996:163; Held, 1980:14). Similar to the notion of consciousness that is related to this study, the concern of the Frankfurt

School's CT was dealing with social problems with an understanding of its historical and social development (Devetak, 1996:163). The continuation and existence of CT can be attributed to Jurgen Habermas, who is referred to as Adorno's student. His contribution entailed the remoulding of CT to the state that it occupies at present (Murray & Ozanne, 1991:132). Drawing from Habermas' notion that people in society are free to participate in the development of new ideas, this study gave participants the platform to design a framework for the use of cellular phones to improve curriculum practice in EMS classes (Biesta, 2010:43).

Relevant to the social transition that we are experiencing in South Africa, it was necessary for us to engage in rational and critical discourses with the participants, so that challenges could be addressed collaboratively, thereby aiming at emancipation (Nichols & Allen-Brown, 2004:3; Osterman & Kottkamp, 2004:3). The research question was addressed to enlighten readers and teachers about the use of technological devices, such as cellular phones, that can be used to transform our learning and teaching environment.

Reflecting on the idea that CER originates from CT is evident, because CT seeks to uncover the relationship between ideas and their social environment, which is the case

with this study (Jacobs, 2014:305). Through the implementation of CER, the participants were able to share information and knowledge regarding the common objectives identified during the research process. The shared information was based on their experiences, talents and skills (Asnawi, Gravelli & Wills, 2011:194). Moreover, adapting CER ensured that issues that are suppressed or which dominate the environment are resolved through the participation of selected participants in the study, enabling them to reveal those issues dominating their social environment (Janssen, Chalabadis & Zuiderwijk, 2012:267).

The researcher argues for the implementation of CER as the theoretical framework because she believes that this study is geared towards critiquing and changing established ways of thinking, forms of life and the development of inquiry for this study (Held, 1980:39; Jacobs, 2014:305).

1.6.2 The principles of CER

CER allowed the participants to make their voices heard and they were respected (Dold & Chapman, 2011:512). We realised this, because CER is the theoretical framework advocating peace, hope, emancipation, respect and social justice (Mgijima, 2014:200; Nkoane, 2013:394; Mahlomaholo, 2009:226). However, a sixth principle, power, was added.

Contrary to the positivist view that participants in scientific research are referred to merely as subjects, the nature of this study made it possible for the participants to be treated with care, respect and dignity as fellow humans by the researcher, irrespective of sex, race, position or academic qualification (Flyvbjerg, 2000:12; Moleko, Hlalele & Mahlomaholo, 2014:741; Nkoane, 2013:397; Tshelane & Tshelane, 2014:288).

The equality principle that we adopted made it possible for the participants to be awarded an open platform to communicate harmoniously during the process of developing the anticipated framework for the use of cellular phones in class, even though the participants differed regarding views on the topic under discussion (Nkoane, 2013:394).

The inclusion of participants from different facets in this discourse demonstrated that those who are assumed to be agents of power due to their knowledge, skills and

experiences that they brought forth, were prepared to work collaboratively (Nkoane, 2013:396). CER, as the lens of the study, helped us to address social injustices and bring about critical transformation, so that the framework anticipated could be effective and valuable. That was made possible because we drew our ideas from Habermas's epistemological theory of universal participation in work and interaction, which supports the individual's empowerment and transformation of societal systems (Watson & Watson, 2011:68).

CER allowed different stakeholders to engage in the study. Their participation in the study demonstrated willingness to take part in addressing the research problem collectively, which is not the case in studies where the generating of data is done through questionnaires. Thus, the idea of hope for the improvement of the situation in schools that needed to make use of the framework and to free learners from the oppression of being unable to access information, prevailed (Watson & Watson, 2011:67).

Participants involved in the study brought their own experiential insights and own perspectives, which changed as the participants interacted with each other, thereby creating a sense of freedom (Tshelane, 2014:29; Ukpokodu, 2008:480). The knowledge, insight and information that was exchanged during the research process emancipated the participants. Moreover, the emancipatory objective of the study engaged the researcher, as the research leader, to recognise the barriers leading to unequal power relations between the participants of the study (Watson & Watson, 2011:68).

During the data generating process the researcher became conscious of and stayed alert with regard to the equal power status that all participants possess. We ensured that power was distributed equally among them (Mgijima, 2014:200). Demystifying power was necessary, since the unique opinions that were communicated in the study by the researcher and the participants were all seen to be significant for the purpose of designing the framework for the use of cellular phones in EMS classes.

Due to the fact that this study concentrated on transforming classroom practice that involves learning and teaching, a learning theory was necessary, to show the significance of the framework for the use of cellular phones to improve curriculum practice in EMS classes. The theory of connectivism, by Siemens, was drawn on,

because new information is continually acquired, and the ability to draw distinctions between important and unimportant information is explored (Davis, Edmunds & Kelly-Bateman, 2010).

1.7 RESEARCH DESIGN AND METHODOLOGY

An appropriate approach applied for the purpose of generating data and knowledge construction necessary for answering the research question was participatory action research (PAR). Just as CER calls for collaboration, empowerment and emancipation, the researcher's duty to empower the participants was embedded in the fact that the study engaged the stakeholders involved, not as objects that are being researched, but as participants who received recognition and who were valued as significant role players. They contributed greatly to solving the commonly identified problem (Dold & Chapman, 2011:513).

The design and methodology used for generating data in the study for the intended framework engaged the participants. The participants took part in discourse for the sake of knowledge construction, thereby bringing emancipation and redress of social imbalances experienced in our society.

PAR was relevant to this study, because people are regarded as significant sources of information that all researchers will benefit from. PAR enhanced shared ownership of the problems identified in the study (Denzin & Lincoln, 2011:273).

PAR focused on how the participants interacted collectively when they were solving the shared problem affecting our society and those related to the study (Green & Thorogood, 2004:24). The participants treated each other with respect, and no opinions were dismissed.

Using PAR as an approach for generating data is valuable for a study coached by CER, because it allows free participation by the participants in the development of new ideas, and the design of a framework to empower us and to bring transformation to the way the research process unfolded (Biesta, 2010:43; Moriarty, 2011:2).

PAR created the opportunity to include members of the community who have a common interest in the social problems identified, and it involved action-based

solutions by the community members involved in the research (Kemmis & McTaggart, 2005:273).

In line with CER's objective of social justice, implementing PAR ensured that participants were not there to be researched, but to add value to the study through discourse that aimed to develop activities that would transform and emancipate the affected community (Koch, Mann, Kralik & Van Loon, 2005:262).

The participants who were involved in the data generation process comprised 19 members. The members were the school principal of the school involved, two EMS teachers, the subject advisor for EMS, two social workers, three school governing body (SGB) members, three parents, five Grade 7 learners, a university-based Master's student and the research facilitator. Data was generated through the use of discussions related to the topic, and questions posed by the researcher. The participants were assured that their identity would not be revealed. Before the commencement of the data generating process, the participants were issued with consent forms that were completed and returned to the research facilitator. The learners were issued with consent forms directed to their parents, as a sign that the parents gave permission for their children to participate in the study. The learners were also given assent forms to complete.

The analysis of the data generated was made possible through the use of critical discourse analysis (CDA), as advocated by Van Dijk. CDA was the most appropriate method to use, since it is suitable for educational research and for discourses between social structures (Rogers, 2011:1). CDA emerged from critical linguistics, critical semiotics and, in general, from a socio-politically conscious way of investigating language, discourses and communication (Van Dijk, 1995:17). During data analysis, the researcher used CDA's three dimensions, as outlined by Fairclough (1993:136), for analysis. The three dimensions are textual perspective, discursive practices and social structures (Wodak, 2013:302).

1.8 DELIMITATIONS OF THE STUDY

In order to generate data necessary for designing the framework, the study was conducted at a public school situated in Mangaung, in the Free State province. In South Africa, schools are categorised into five equal groups, called quintiles (Dass &

Rinquest, 2017:143). The quintiles are categorised according to the standard of living of the school's intake. In terms of Section 39(7) of the South African Schools Act of 1996, the school where the study was undertaken is classified under Quintile 1, due to the high intake of predominantly African, impoverished learners. This means that the school is referred to as non-fee-school, because it is uncertain whether parents can afford to pay school fees (DBE, 2017:5). In addition, it is a school that exists along a continuum of under-resourcing by the Department of Basic Education (Dass & Rinquest, 2017:146).

The researcher had been employed at the school since 2010. The researcher is responsible for teaching EMS to Grades 7 and 8, hence her interest in conducting the research. The researcher used the opportunity to undertake the study at this school because of the harmonious relationships that she had with the different stakeholders involved in the school. Moreover, the researcher believed it was necessary to engage all the relevant stakeholders, so that they could design the anticipated framework for the use of cellular phones to improve curriculum practice in EMS classes. The school principal, administrative clerk, SGB representatives, subject advisors, parents, EMS teachers, social workers, peer researcher and Grade 7 learners were part of the coordinating team responsible for generating data.

During the process of gathering data, the participation of individuals, who were referred to as the co-ordinating team, provided the opportunity to move away from traditional ways of conducting research. For instance, the objective of designing the intended framework to address inequities and social imbalances experienced by learners required the inclusion of the least disadvantaged groups, such as learners, to ensure its effectiveness (Denzin, 2017:8). This was possible, because a transformative and emancipatory inquiry to the study was implemented for generating data (Mahlomaholo, 2014:180). The approach used for generating data will be discussed in detail in Chapter 4.

1.9 LIMITATIONS OF THE STUDY

The intention of designing the framework was not only to highlight the challenges experienced, but also to provide solutions in a manner that is collaborative and transformative. Although the challenges are believed to be experienced in some areas

beyond the school too, the study was not conducted elsewhere, to ensure its validity. Therefore, the findings of this study are not reliable are objective, and cannot be generalised (Johnson & Onwuegbuzie, 2004:14).

Even so, a traditional approach to generating data, such as a positivist paradigm, was irrelevant to this study, since we were not testing a theory, investigating any hypotheses or predicting forces around us in scientific research (MacKenzie & Knipe, 2006:193). At the beginning, the research process was not easy, because the participants did not understand that structured and pre-prepared questions were not going to be used. The entire research process was dependent on the topics for discussion. Most discussions could not be specified in advance, since we depended on what the participants had just said. In some other instances, the participants gave unnecessary or irrelevant responses, and the researcher had to develop follow-up questions on the spot (Arthur & Nazroo, 2013:124).

1.10 VALUE OF THE STUDY

The study intended to design the framework in order to gain an understanding of the way the use of cellular phones can improve curriculum practice in EMS classes. The design of the framework encouraged teachers to incorporate technological devices, such as cellular phones, to transform the classroom environment. To produce good results and prepare learners to be compatible twenty-first-century learners, they require skills and competencies for competing in the global market (Rathod & Jadhav, 2015:26). Moreover, the framework can be utilised by any teacher with the intention of creating a collaborative, vibrant learning environment and enhancing their teaching and learning approach. Therefore, the framework is relevant to the NCS curriculum that is currently operational in South Africa.

The study also created an opportunity for marginalised groups that are usually not considered as important participants for generating data to be regarded as being important participants in the research process. The participants' role was elevated to the position of being knowledgeable contributors and decision-makers, instead of being treated as subjects that are researched (Rose, Spinks & Canhoto, 2014:2).

Furthermore, the study has significant value in the research field, because of its collaborative and transformative agenda. This study contributes to studies that focus on educational issues and those that are coached by CER.

1.11 ETHICAL CONSIDERATIONS

In order to protect the participants in the study, important ethical issues were considered during the research planning stage. Before conducting research with human participants, the researcher submitted an application to conduct the research to the University of Free State (UFS) Ethics Clearance Committee. The application was reviewed and approved by the appropriate committee (Harriss & Atkinson, 2011:819). The researcher obtained an ethical clearance number (UFSHSD2015/0650) and permission from the UFS Ethics Committee to conduct research (Appendix A). Thereafter, the researcher was able to ask permission from the Free State Department of Education (FSDoE) to be allowed to conduct research at a school, and this was granted (Appendix C). The participants were assured of confidentiality and anonymity, as this is another concern of ethical guidelines (Morrow & Richards, 1996:95). The participants were assigned pseudonyms for the data analysis, to protect their identity.

1.12 LAYOUT OF THE CHAPTERS

The study consists of the following chapters:

Chapter 1: This chapter presented the overview of the study, including the motivation for designing the framework, problem statement and research question, objectives of the study, its limitations and value of the study.

Chapter 2: This chapter will review the literature, focusing on the theoretical framework coaching the study, followed by the learning theory that the study is drawn from.

Chapter 3: This chapter will present a review of the literature related to the definitions of operational concepts of the study, followed by a comprehensive literature study for the purpose of developing constructs to attain the objectives of the study.

Chapter 4: This chapter will present a review of the literature related to the research design and methodology used for generating empirical data for the framework of the study.

Chapter 5: This chapter will orient the reader about analysis and interpretation of data, as well as presentation and discussion of the findings.

Chapter 6: This chapter will present a summary of findings and recommendations, and present the framework.

1.13 SUMMARY OF THIS CHAPTER

Chapter 1 provided an orientation to the research project and an overview of the entire study, including the outline of the study. A brief background of the study and the challenges motivating the need to design the framework were presented. This was followed by an outline of the problem statement resulting in the research question. The objectives of the study, theoretical framework, research design and methodology, delimitations and limitations of the study, value of the study and ethical considerations were discussed. Lastly, the layout of all the chapters that will follow, was presented.

CHAPTER 2: THEORETICAL FRAMEWORK AND LEARNING THEORY INFORMING THE USE OF CELLULAR PHONES TO IMPROVE CURRICULUM PRACTICE IN ECONOMIC AND MANAGEMENT SCIENCE CLASSES

2.1 INTRODUCTION

The aim of the study was to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. The chapter will deal with a literature review, within which CER, as the theoretical framework of choice, is located. The discussion in this chapter is divided in two parts: the first part will present the theoretical framework, and the second will conceptualise the learning theory driving the study. CER, as the theoretical framework of choice, helped to shape ideas of the participants, thereby, simultaneously, pursuing shared power between the participants and emancipation of the participants.

To build the argument of the study that justifies the choice of the theoretical framework, intense discussion of literature showing how CER is rooted in CR will be presented. Furthermore, the following will be discussed: the historical origins of CER, principles and objectives of the theoretical framework, the role of the researcher in the study, as well as the role of the theoretical framework in achieving the objectives of the study. Regarding the literature based on the learning theory connectivism, the elements or traits of connectivism and the role of connectivism in the study will be discussed.

Lastly, a summary of the chapter will be presented.

The formulated organising principles derived from the five principles of the general aims of the South African Curriculum, as outlined in the NCS document, will be drawn so that the following objectives of the study could be realised: i) To justify the need for a framework; ii) To identify the components of a framework; iii) To identify the threats associated with a framework; iv) To explore the conditions of a sustainable framework; and v) To provide evidence for a functional and successful framework.

2.2 THEORETICAL FRAMEWORK

In order to understand the conditions leading to discourse in the study, a theoretical framework that is collaborative is required, so that the objectives of the study can be

achieved through the voices of different people (Black & Mendenhall, 1990:114; Dold & Chapman, 2011:512; Mahlomaholo & Netshandama, 2010:7; McGregor, 2003:4). Of the different theoretical perspectives available, the preferred theoretical framework for this study will assist to show interaction between the research leader and the participants, as well as the interrelationships between the objectives of the study and the manner in which the research unfolds (Gray, 2013:21).

Since the study aims to formulate a framework that will transform classroom practice, a shift, from a paradigm that allows the main researcher to treat the participants as researched subjects, to a paradigm that is collaborative and emancipatory, is necessary (Hlalele, 2014:103). Moreover, the inclusion of the participants' voices when developing the framework for the use of cellular phones, will be valued, because participants are able to share their experiences and knowledge (Moleko *et al.*, 2014:741; Koch *et al.*, 2005:264).

For these reasons, CER was seen as the most appropriate theoretical framework to adopt, because of its emphasis on collaboration and emancipation (Nkoane, 2012:98). This was clear when the research leader and the participants operated as a team in order to address the shared challenges of this study, developed solutions and brought forth the indicators of a successful framework, together (Mahlomaholo, 2013:385). Therefore, the significant contribution that was made by the participants to address injustice, so that emancipation and transformation could take place, cannot be ignored (Mahlomaholo, 2014:180). This idea is supported by Ledwith and other writers, who believe that, to address social imbalances in our societies, and to bring emancipation and transformation, knowledge, new ideas and skills of community members must be brought together as a team (Hlomuka, 2014:11; Ledwith, 2011:11).

Reflecting on the above discussion, it is clear that we required a theoretical framework that focused on emancipation of oppressed social groups, and that would assist the researcher to show how power can be shared among the participants in the study. CER is relevant for constructing the knowledge necessary for solving collective problems that give rise to inequality and injustice. This study showed how CER was the relevant theoretical framework for dealing with studies that affect members of society who take social justice seriously. Moreover, it shows the significance of choosing democratic space, research methodologies and strategies that have a

transformative agenda (Biesta, 2010:43; Ledwith, 2011:14; Watson & Watson, 2011:6).

2.2.1 Historical origins of CER

To have an intense discussion about CER, the reader has to understand the origins of CER. It is suggested that CER was drawn from CR, which serves to emancipate and transform the researcher's proactive values throughout the study (Gray, 2013:27, Grant & Humphries, 2006:406). CT can be referred to the social analysis tradition developed by the Frankfurt School, a group of writers and researchers who were connected to the Institute of Social Research at the University of Frankfurt (Held, 1980:14; Steinberg & Kincheloe, 2010:141). CT originates from criticism of and defiance against Karl Marx's theory, and the School's belief that injustice and subjugation shaped the lived world (Steinberg & Kincheloe, 2010:142). The idea was advanced through the work of Adorno, Habermas and others at the University of Frankfurt in 1923 (Mgijima, 2014:200). Murray and Ozanne (1991:131) outline CT's development according to two general periods; in fact, they state that the first period started in 1923, during the founding of the Institute of Social Research, commonly known as the Frankfurt School (Held, 1980:29), and the second phase ended with the death of Max Horkheimer. The CT idea was not easily accepted in Germany during a period when Nazis had assumed power; this led to the critical theorists being forced to flee Germany and its ideas being disseminated to America and Europe. The continuation and existence of CT can be attributed to Jurgen Habermas, who is referred to as Adorno's student, and his contribution was to remould CT as it exists at present (Murray & Ozanne, 1991:132).

The idea of CT is to oppose the traditional way of conducting research, such as the positivist theory, which does not create opportunity for the emancipation of humans when research is conducted. The positivist theory argues that reality and knowledge exist externally in the social world, and it should be investigated using scientific inquiry (Gray, 2013:21). This notion is confirmed by Devetak (1996:165) and Murray and Ozanne (1991:130), who suggest that, to improve human existence when dealing with injustices, we need a force that allows for the intervention of humans for the better, as well as a force that declares an emancipatory interest. Furthermore, in a mission to

show the achievements of CT, Linklater presents four achievements, of which one is that utilising CT allows community members to develop new ideas that will help them to achieve higher levels of freedom (Linklater, 1996:279; Mahlomaholo, 2012:77).

During the period after the Second World War, educationalists in Germany began to argue that there could be no individual emancipation without wider societal transformation (Biesta, 2008:169; 2010:43; Devetak, 1996:163; Hlomuka, 2014:10). This notion resulted from Klaus Mollenhauer whose critical- emancipatory approach drew inspiration from the early work of the Frankfurt School members, such as Adorno and Habermas. The notion of bringing social justice, emancipating participants and liberating the members of the community was their reason for supporting CT (Biesta, 2010:43; Devetak, 1996:165; Stahl, Tremblay & LeRouge, 2011:379). As a result, a critical emancipatory framework was drawn from CT, because of its principles, and the link that is part of the development of Marxism and neo-Marxist philosophy (Biesta, 2010:43, Brookfield, 2001:8). Relevant to the researcher's career as a teacher and to this study, the actions developed and leading to emancipation of humanity are dominant to CT, which is significant for the improvement of the learning environment in our schools (Jacobs, 2014:297).

As mentioned earlier about CT being a platform where participants are able to voice their opinions freely as the notion of consciousness emerges, critical theorists understand that the kinds of inappropriate occurrences that are within a social realm, such as education, ought to be debated through the engagement of all stakeholders, in order to develop solutions for the problems identified (Kemmis, 2001a:92; Sekwena, 2014:11; Street, 2003:78). In arguing for the use of CER in this study, the participants' personal and social experiences are important for reconstructing the transformed environment. We need useful contributions from participants for developing the critical and self-critical understanding necessary for a suitable framework that aims to realise the objectives of the study, thus, consequently, leading to human emancipation as observed by CT (Granter, 2012:2; Kemmis, 2001a:92).

The researcher's knowledge and expertise, alone, as the research leader who initiated the research process, are not enough to develop a framework that will address the challenges experienced in class. In this regard, an emancipatory approach will not only assist to develop improved practices, but will also help to improve the relations that

exist between the participants (Kemmis, 2001:93). Moreover, the critical lens enables us, as critical researchers, to dig deeper beneath social life and uncover the assumptions that obstruct human freedom, and improve our understanding of how the world operates (Alvesson & Willmott, 1992:449; Jacobs, 2014:303).

As this study is concerned with producing a particular kind of knowledge that brings social transformation and empowers society and learners (Anderson, 1989:28; Grant & Humphries, 2006:406; Sekwena, 2014:12), creating a space for emancipation and making people self-conscious about their position and significance, is important in pursuing the objectives of the study (Geuss, 1981:58).

Although capitalism remains an important issue for many critical theorists (Nichols & Allen-Brown, 2004:3), critical theorists were inspired to analyse the Marxist orientation to capitalism, and were thereby forced to abandon it and to formulate patterns of social emancipatory strategies and collective actions, resulting in social transformation (Corradetti, 2014:13; Held, 1980:39). They emphasise the importance of promoting autonomy and self-determination, instead of strategies for maximising influence and power, for example, possessed knowledge that is seen as power by researchers (Buechler, 1995:442; Giddens, 2013; Held, 1980:39).

Just as critical theorists were not only concerned with disputing science, but rather with bringing imbalance and inequality to an end in a democratic environment, by promoting aspects such as moral perspectives that are achieved through the use of CER, this study will also seek that objective (Nichols & Allen-Brown, 2004:3). This moral perspective can be exercised further when dealing with educational issues that need our attention as a society, for example, the lack of resources that would enable learners to access information promptly in the classroom. Habermas suggests that political, educational and societal issues experienced can be uncovered through critical thinking and sharing of views between participants in the research, thereby allowing emancipation from oppressive situations to take place (Habermas, 2006:413). Based on the above, the idea of bringing together relevant stakeholders involved in education as participants, is to enable them to engage in identifying and solving the collective problem, thereby aiming at emancipating the participants (Osterman & Kottkamp, 2004:3).

The social transition that we experience in South Africa necessitates that we engage in rational and critical discourses, so that challenges in education can be addressed, as suggested by Nichols and Allen-Brown (2004:3). Critical inquiry is needed for dealing with the increasing complexity facing our education, due to global demands (Garrison, Anderson & Archer, 2001:9; Hughes & Acedo, 2014:8). Similar to the debates of political contention of the Frankfurt School, which emphasised emancipation (Corradetti, 2014:9), as well as a critical reflection that enhance our freedom, even to increase our chances of survival as suggested by Thomas, O'bannon & Bolton (2013:297), our engagement in problem identification and critical dialogues to address the problem is oriented to the understanding that experiences of societies are important (Alvesson & Willmott, 2012:6; Jacoby, 2009; Osterman & Kottkamp, 2004:2).

Similar to CER, CT is concerned with bringing revolutionary actions when solving social problems communities are faced with in their life-worlds (Geuss, 1981:59; Jacobs, 2014:303; Mahlomaholo & Matobako, 2006:207). Habermas emphasises that interaction through a variety of skills by ordinary people in our society who negotiate and sustain social interaction is needed to liberate humans from circumstances that enslave them (Edgar, 2006:89; Jacobs, 2014:305).

What needs to be discussed further is how CT links with CER for the study. CT seeks to uncover the relationship between ideas and their social environment (Jacobs, 2014:305). Through CER, the participants are able to share information and knowledge regarding the common objectives identified during the research process on the basis of their experiences, talents and skills (Asnawi *et al.*, 2011:194). Moreover, adapting CER ensures that issues that are suppressed or which dominate the environment are resolved through the participation of selected participants in the study, enabling them to reveal those issues dominating their social environment (Janssen *et al.*, 2012:267).

Another argument is that CT is social theory geared towards critiquing and changing established ways of thinking and established forms of life (Held, 1980:39; Jacobs, 2014:305). The researcher believes that the expectation that learners are supposed to gain information, either from their teachers, or from parents, is no longer valid, since we live in a democratic era. Their participation in the study awards them an opportunity

to gain the experience of contributing to the development of the framework, engaging with other participants and gaining information necessary for resolving lifeworld problems (Seymour, Hunter, Laursen & DeAntoni, 2004:502).

Based on Paulo Freire's development of an idea that is transformative and emancipatory when dealing with educational challenges, Nkoane and Galloway are in agreement that applying CER when conducting the research will encourage emancipation and social transformation (Galloway, 2012:163; Nkoane, 2012:99; Mahlomaholo & Netshandama, 2010:5). In light of this, in order to answer the research question, the researcher supports the use of CER in the study, because it is transformative and its collaborative features permit the participants to tell their stories in their own words, without fear that their views will be considered weak (Tsotetsi & Mahlomaholo, 2015:49). Moreover, the solutions required to address the collective challenges identified will, to a large extent, be informed by the individual's experience, whether social or political (Nkoane, 2012:100).

2.2.2 CER principles

CER is a theoretical framework that advocates peace, hope, emancipation, respect, and social justice (Mahlomaholo, 2009:226; Mgijima, 2014:200; Nkoane, 2013:394, Tshelane & Tshelane, 2014:288). CER identifies undesirable occurrences in societies and establishes a need to address this root source, particularly in areas of oppression (Nkoane, 2012:99; Tshelane, 2015:29). For the purpose of this study, the researcher added a sixth principle, power. This was done to show that the social injustices experienced have led to people being treated unfairly and power being misused. A discussion based on the principles of CER will follow.

2.2.2.1 Equality

Throughout the study, the researcher worked with participants from different facets of society, as equals, to design the framework. The participants were not merely seen as objects that are researched, but their contributions to the study were recognised and valued. The nature of this study made it possible for the participants to be treated with care, respect and dignity as fellow humans by the researcher, irrespective of sex, race, position or academic qualification (Flyvbjerg, 2000:12; Moleko *et al.*, 2014:741;

Nkoane, 2013:397; Tshelane & Tshelane, 2014:288). Contrary to the positivist view that participants in scientific research are referred to merely as subjects, the researcher embraced CER, because of its ability to make people understand how the participants' relations of dominance can be changed. Furthermore, according to Habermas, using a theoretical framework such as CER results in a situation where the participants contribute in the process of transformation without fear or prejudice, and they are quite aware that they will be treated humanely and with dignity (Flyvbjerg, 2000:2; Ledwith, 2011:12).

The point that the research leader and the participants both have equal statuses in the study, and that they are respected for their contributions to the study, is asserted by Nkoane and Habermas (Nkoane, 2013:397; Habermas, 2006:413). CER, which is transformative and participatory in nature, can translate into an understanding that the teachers and the learners are equal participants in learning and teaching, moreover, the learners from semi-rural and rural areas have an equal opportunity to access information through the use of cellular phones (Tshelane, 2015:30).

Based on the above, CER is a suitable lens, because it supports what is outlined by the NCS document. The principle of social transformation that is stated in the South African NCS curriculum aims to redress the imbalances of the past, thereby creating equal educational opportunities for every learner (DBE, 2011:4).

2.2.2.2 *Peace*

For the CER researchers and participants to work collaboratively as equal partners across the entire research process, a peaceful atmosphere is needed (Hlomuka, 2014:17; Mahlomaholo & Matobako, 2006:204). Through the use of CER, the participants are awarded an open platform to communicate harmoniously while developing the anticipated framework for the use of cellular phones (Nkoane, 2013:394). This can happen even though the participants may have different views on the topic under discussion. An environment that promotes an autonomous environment encourages the participants to observe democratic principles and express their views without any prejudice (Gundersen, 1995:28). Understanding each other's limitations and experiences, as well as the various roles that make it possible

for us to attain the objectives of the study, made it possible to operate peacefully and respectfully.

2.2.2.3 Social justice

In order to eradicate the inequalities that our education faces in South Africa, engaging all relevant groups that could present actions leading to a transformative framework for the use of cellular phones, is necessary (Mahlomaholo, 2012:77). The inclusion of participants from different facets of this discourse demonstrates that those who are assumed to be agents of power due to the knowledge, skills and experience that they bring forth, are prepared to work collaboratively (Nkoane, 2013:396). Their involvement in the study as stakeholders in education was demonstrated by their efforts to challenge social imbalances in an equal-power-relation, study such as this (Brookfield, 2005:86; Hlomuka, 2014:11).

In some studies, where a theoretical framework that is not collaborative and transformative, is utilised, only a certain group of people is given an opportunity to be actively involved in research regarding educational issues, moreover, they are mainly referred to as research objects (Mgijima, 2014:200). It is in studies like this where the status quo can be changed to overcome injustices and alienation of marginalised stakeholders in the research process through the use CER as a theoretical framework (Hlomuka, 2014:12; Nkoane, 2013:397).

To bring about critical transformation so that policies and processes ultimately replicate action and justice, the CER lens is deemed necessary, as it draws heavily on Habermas's epistemological theory of universal participation in work and interaction, which supports individual's empowerment and societal systems transformation (Watson & Watson, 2011:68). CER also promotes social justice education, whereby learners' participation in democratic structures and debate is encouraged, and nurturing the learners' creativity and involvement in the lesson have become pervasive (Ukpokodu, 2008:228). In his attempt to operationalise the vision and the intentions of the new dispensation to achieve a better life for all through universal education, Mahlomaholo (2010:298) suggests that creating an environment that allows learners to function optimally as empowered citizens capable of contributing to their economic well-being, is important, thus, the inclusion of learners as part of the research team

responsible for developing the necessary framework for the study (Nyakunga, 2011:20). Infusing the principles of social justice and human rights, as defined by the South African Constitution, shows that CER is an appropriate lens for the study, because of its inclusivity and sensitivity to issues of diversity and inequality, and other factors (DBE, 2011:5).

2.2.2.4 *Hope*

Developing the anticipated framework necessary for the use of cellular phones to improve curriculum practice provides an indication that relevant stakeholders notice their responsibility to come up with actions to eradicate the social problems they experience (Mahlomaholo, 2012:77). Despite the challenges experienced in some parts of South Africa, especially by previously marginalised communities (Brookfield, 2001:12; Tshelane, 2014:719), the involvement of different stakeholders in the study ensured that there would be hope for the improvement of the situation in schools, which could make use of the framework and free learners from the oppression of being unable to access information (Watson & Watson, 2011:67). Through the use of CER, parents, educators, and other community members who have been oppressed and voiceless about education matters, are able to work together to achieve a common objective (Hlomuka, 2014:13; Brookfield, 2001:13). The anticipated framework for the use of cellular phones presented an opportunity and the hope that the inclusion of cellular phones as part of resource materials would assist in providing information for education that is comparable in quality to that of other countries, as well as hope for an active and critical approach to learning, as opposed to the teacher-centred approach, or uncritical learning (DBE, 2011:5).

2.2.2.5 *Emancipation*

To emancipate means to break free from authority, and removing any kind of restraint and power struggles, so that participants involved in the study bring their own experiential insights and perspectives (Ukpokodu, 2008:479), which may change as the participants interact with each other, thereby creating a sense of freedom for them (Tshelane, 2014:29; Ukpokodu, 2008:480). The participants in the study became emancipated collectively, although other participants, such as learners, could be emancipated as individuals during the process of developing the framework (Boog,

2003:2). According to Watson and Watson (2011:68), the emancipatory objective of the study directs the research leader to recognise the barriers causing unequal power relations between participants in the study. Although other scholars argue that emancipation means that more people can achieve their potential to a greater degree, others see emancipation as an attempt to establish new relations that will free people from relations of power existing in relation to opportunities, authority and control (Nkoane, 2013:394; Watson & Watson, 2011:68).

The researcher supports CER, as it creates a platform for the participants to feel emancipated, regardless of their position, gender or status, when they are granted an opportunity to voice their opinions freely (Watson & Watson, 2011:66). Their contributions in an emancipatory study that aims to identify the problems related to the study, and provide solutions, as well as designing the framework intended to transform the classroom environment will, for example, encourage an improved pedagogic relationship between the teacher and the learners of EMS when the framework is put into practice (Nkoane, 2013:394).

2.2.2.6 Power

Adopting CER allows the participants to be conscious of their position, and questions their status in life and want to change it (Sekwena, 2014:13; Mahlomaholo, 2011:314). The researcher put forward that the key idea of CER was to gain adequate insight into the power relations that constitute their situation, which is why demystifying power is significant (Biesta, 2010:43). According to Nkoane (2013:396), priority should be given to countering dominant discourses for those assumed to be without power, voices, skills and knowledge. As the research leader of the study, the researcher has to be conscious and stay alert of the equal power that all participants possess and which has to be distributed equally among them (Mgijima, 2014:200).

In order to liberate ourselves from the oppressive workings of power and to achieve emancipation, we first need to expose how power works upon our consciousness (Biesta, 2010:44). Excessive power produces ideologies of superiority and inferiority amongst the participants (Fyvbjerg, 2000:200-233; Sekwena, 2014:13). Freire asserts that all people are conscious beings who are equally liable to reflect and act upon the world and their personal experiences (Galloway, 2012:166). Based on this statement,

it can be concluded that we needed people in the study whose consciousness was not subjective with regard to power, but is positioned to be objective and truthful about their condition (Biesta, 2010:44). The unique opinions that are communicated in the study by the researcher and the participants are all seen to be significant for the purposes of the study.

2.2.3 CER objectives

Given the changing social and education demands experienced, we somehow need to adapt our regular practices (Kincheloe & McLaren, 2002; Steinberg & Kincheloe, 2010:140). The development of a successful framework relies on the ability to bring together a team that is dedicated to reaching the objectives of the study. In order to regulate interactions, roles and identities among the participants in a study with a collaborative setting and which is rooted in CER principles, as discussed earlier, the following objectives of CER remind us and make us understand that societies are also organised according to the shared objectives pursued (Sekwena, 2014:15).

2.2.3.1 *Multiplicity of perspectives*

Based on the critical theorists' idea to establish the critical theoretical framework movement, we clearly understand that their motivation was that they believed that utilising the theoretical framework would bring together a group of human beings with different ideas that could assist in shaping their society (Held, 1980:29). Just as the phenomenologists believed that knowledge is socially constructed and created from within, and for a particular group and context (Zuber-Skerritt, 2001:7), the participants in the study have equal opportunities to bring forth their experiences, skills and expertise, as opposed to human behaviour, their intention in the study and their freedom being ignored (Sankara, Dick & Passfield, 2001:7; Zuber-Skerritt, 2001:11).

This is contrary to the positivists' approach of formulating general laws and predictions to measure broad patterns before taking a closer look at the individual and deeper meaning construction by the participants (Cohen, Manion & Morrison, 2007:18; Sekwena, 2014:12). Furthermore, Zuber-Skerritt's (2001:7) suggestion that the researcher's role is not to give the participants a problem, but to describe and explain the situation or case to the participants as truthfully as possible, helps the researcher

to refrain from establishing generalisable laws. The participants need to bring out their different views, so that the objectives of the study can be attained. The uniqueness of the researcher's study includes reference to the researcher's role to know, understand, and improve a particular social situation for the benefit of the community participating in the study, not as subjects, but as participants (Sankara *et al.*, 2001:7).

2.2.3.2 *Accepting ownership*

A study that is couched in CER is regarded as a platform that permits participants in the study to take ownership of the matter, even though the researcher is the one who approached them. The study is collaborative and critical, and the participants are self-critical regarding a major problem or issue of mutual concern in their community (Hlomuka, 2014:15; Sankara *et al.*, 2001:19). When the research leader has to convince the participants to accept the research question, the expectation is that they are not forced. The acceptance of ownership of the research is done voluntarily, thereby creating a strong bond between the participants, with the aim to realise the common objective, subsequently resulting in the setting of the common vision. The critique, that it is necessary to bring organisational change, is accepted by the participants and not taken as a personal attack by other participants (Sankara *et al.*, 2001:12). The participants are accountable as a team for dealing with the problem and finding a solution.

What can be understood from the above discussion agrees with what is suggested by Zuber-Skerritt, that the engagement of participants in the study allows them to 'own the problem' and feel responsible for finding the solution through teamwork (Sankara *et al.*, 2001:19). The participants' willingness to deal with the problem identified displays that they accept their responsibility as members of the society to address their challenges. Subsequently, the participants learn and grow within the research process.

2.2.3.3 *Freedom of speech*

When CER is operationalised as the theoretical framework, it creates an opportunity for dialogue or debate of discourse. We need to know and understand the root of the problem through engaging different people from the community, because the intent is

to bring transformation to the community through communication. Nkoane (2012:100) argues that it is through language and communication that the researcher and the participants are able to engage in the study and express their experiences. Discourses in the research process take place in the language most convenient to the participants. Therefore, critical connections with the structural roots of oppression from which inequalities are to be eliminated can be identified (Ledwith, 2007:597). Any critical practice that has a transformative social justice intention, which originates from the community, aims to bring about social change that will foster emancipation and empowerment of the community (Cohen *et al.*, 2013:18).

Based on the notion of true democracy, CER gives autonomy to the voices of subordinated groups, who accept that there are many truths, rather than one universal truth (Ledwith, 2007:599). Engaging in critical discussions makes the participants unwilling to accept everything put forward, instead, they situate their problem from the community. Through CER, the mission to strengthen communication and engagement among stakeholders is maintained (Hlomuka, 2014:15).

2.2.3.4 Power sharing

Due the collaborative setting of the study, the participants engage with knowledge and consciousness of issues of power and authority. McTaggart (1997:3) suggests that issues of power cannot be overlooked, since power is relevant in all relationships. The understanding that CER aims to demystify power ensures that the research leader is conscious about the discursive acts that could hamper the sound relationships between the participants (Nkoane, 2012:100). CER affirms that society is also organised on the basis of power, which regulates interactions, roles and identities among its members. Excessive power has to be confronted and subverted. CER is important, because it influences power and ideology (Sekwena, 2014:13). When using CER, the relations between the participants are not dominated by power of authority or knowledge. The participants are all seen as equal, and their roles in the research are not based on superiority or on seniority (Nkoane, 2013:396).

Based on the above discussion, in order to achieve the emancipation of the participants, power sharing should be present, so that an objective condition can be

realised, which is transforming reality such that there is equality and empowerment (Biesta, 2010:44; Hlomuka, 2014:14).

2.2.4 The role of CER in the study

For the reader to understand the role of CER in the study better, the researcher decided to make use of the following constructs.

2.2.4.1 *Favourable environment*

CER is the most appropriate lens for this study, because it supports the notion of the creation of a favourable environment for conducting research (Bielaczyc, 2006:308). The study allowed collaboration between participants and observed issues of power, so that participants were comfortable and worked in a favourable environment. According to Nkoane (2013:396), the stakeholders involved in the task committee ought to create a platform to construct alternative possibilities, through engagement in discourse, to design a framework for the study, thereby creating opportunities that intend to empower all participants and enhance the principles of democracy.

2.2.4.2 *Discourse*

Adopting CER as our lens creates a platform for the participants to voice their world experience through dialogue. It draws on Habermas' notion that people in society are free to participate in the development of new ideas and to design a framework for the strategy of this study through one another (Biesta, 2010:43). Just like CT, CER is action oriented and aims to uncover distorted practices that affect society, thereby creating opportunity for discourse, at the same time having an emancipatory effect on society (Jacobs, 2014:305). The study does not merely intend to highlight the problem and bring about correct understanding, but to create a social and political condition that is conducive to learning and teaching (Sekwena, 2014:14). The possibilities for liberation and correcting the imbalances that arise from changing historical circumstances experienced during apartheid (Goodwilliam, 2012:4), give hope that the marginalised can be empowered (Hlomuka, 2014:11), thereby leading to transformation of the education fraternity through the implementation of CER in the study (Jacobs, 2014:305).

2.2.4.3 *Appropriate environment*

As a critical educator, it is the researcher's task to ensure that the research environment is appropriate for the participants, who are not seen as objects in the research, but as researchers too (Biesta, 2010:40). Steinberg and Kincheloe (2010:143) state that critical educators who are able to work collaboratively to search for those forces that insidiously shape who we are, ought to respect those who reach different conclusions in their personal journeys. Particular practices and methods utilised for designing the framework for the use of cellular phones lead to actions that influenced the situation at the institution identified (Steinberg & Kincheloe, 2010:146). Taking the role of a critical researcher made the researcher understand the power implications of this study, especially the way it benefits the study. As knowledge was constructed during the research process, the researcher understood the knowledge based on her experience, simultaneously gaining awareness of how the knowledge contributes to the research in education (Kincheloe, McLaren & Steinberg, 2011:166).

2.2.4.4 *Empowerment and emancipation*

CER brings emancipation to participants when it aims to change those conditions that impede the desired improvement in our society (Sankara *et al.*, 2001:19). Including learners in the study means the researcher undertakes to elevate their role to being seen as experts only because of the kind of knowledge they contribute, thereby helping them gain self-confidence and be empowered. Working collaboratively while anticipating to resolve the problem of the study incorporates deep, powerful and intimate values, such as trust, caring, love, dignity, and the need for growth.

By incorporating CER in the study, the researcher acknowledges issues of power, oppression, and emancipation (Biesta, 2010:43; Watson & Watson, 2011:66) in the study. The idea of emancipation plays a central role in modern education and practices that encourage freedom of speech, sharing of information and independence when a stance is taken by the researchers (Biesta, 2010:39). As a critical researcher in education, the researcher believes that the emancipatory interest of critical pedagogies focuses on the analysis of oppressive practices, which allows society to take part in the transformation of education curriculum practices and revolution (Biesta, 2010:43; Watson & Watson, 2011:70). Communities gain knowledge, which provides

them with the ability to act in empowering ways, which were previously impossible (Steinberg & Kincheloe, 2010:145). The CER framework enables researchers to be analytical and to search for deeper meaning from multiple perspectives relating to the research question (Moleko *et al.*, 2014:741).

2.2.5 The role of the researcher in CER

As an emancipatory researcher, the researcher's role is to assist the participants to realise emancipation. Participating in the study provides the participants with the opportunity to realise that they possess the ability to bring change in education. As a critical teacher, the researcher allows the learners' contribution to transform their classroom situation into a more fun- filled, exciting environment that permits them to be empowered.

Secondly, the researcher has to take the stance of diffusing power amongst the participants, so that they can experience the emancipation that is intended by the study (Nkoane, 2013:398)

Thirdly, the researcher's role as an emancipatory researcher is to bring together a team of people with different life experiences and different abilities to solve the problem they are faced with, as teams, so that individual, team and organisational goals are attained (Gallos, 2006).

Lastly, the researcher has to ensure that all participants are handled with respect and recognition of equality like the researcher. The participants should be given equal opportunity to voice their opinions freely, so that the best solution can be attained by the team (Mahlomaholo, 2009:225).

2.2.6 Epistemology and ontology

The way of thinking, transforming the relationships between the participants, and accessing information and production of knowledge will be revisited using CER as the theoretical framework for promoting emancipation and creating a just and democratic society (Nouri & Sajjadi, 2014:78). In order to critique objectivity, Cohen and others assert Roazak's argument, that science, in its pursuit of objectivity, is a form of alienation from our true selves and from nature. The justification for any intellectual

activity lies in the effect it has on increasing our awareness and degree of consciousness. In this view, all knowledge becomes equated with scientific knowledge (Cohen *et al.*, 2013:18).

As CER is drawn from CT, there is a view that the ontological position of the critical paradigm is historical realism. According to Guba and Lincoln (1989:10), historical realism is the view that reality is shaped by social, political, cultural, economic, ethnic and gender values that are experienced by different participants who are treated as humans. The information required from the participants to design the framework is communicated and shared, because they are not treated as subjects of experimentation or objects of study (Guba & Lincoln, 1989:11). The role of the learner, who is perceived as the known, according to the positivists' epistemology, no longer only receives information from the teacher, but participates in the research process (Berry, 2011:25; Guba & Lincoln, 1989:18; Kaur, Ganapathy & Sidhu, 2012:131). To ensure the effective implementation of the framework, stakeholders need to hold the view that education is not stagnant, and, therefore, they should become agents of change (Hlomuka, 2014:14). During the study, participants were able to disclose information that was important for the empowerment process.

The success of this study is based on the fact that all the participants were actively involved, because they had equal power in the study. The position of the researcher was not directive, but rather collaborative (Janssen *et al.*, 2012:263).

2.3 CONNECTIVISM

Due to the call to use technology in the study, the study draws on the theory of connectivism by Siemens, which is driven by the understanding that new knowledge is continually acquired by individuals throughout the process of learning (Siemens, 2004). Connectivism focuses on learning that occurs when individuals interact socially using collaborative, technologically enhanced resources (Thota & Negreiros, 2015:2) to distribute information across networks (Siemens, 2008:10); the information can be stored in a variety of digital formats (Kop & Hill, 2008). Connectivism is not an area in which a great deal of writing and research has been done to date, however, the manner in which connectivism can assist us to enhance learning and teaching using

technological resources, could be of fundamental importance (Darrow, 2009:47; Edgar, 2006; Garcia, Brown & Elbeltagi, 2013:253).

Instead of individuals keeping the information inside of them, they share it with others through networks (Siemens, 2006), because learning is not an individualistic activity in the community, but an act of recognising patterns shaped by complex networks (Siemens, 2006; Trnova & Trna, 2015:109). Connectivism is driven by the understanding that decisions are based on rapidly altering foundations: new information is continually acquired and, for learners, the ability to draw distinctions between important and unimportant information is vital (Darrow, 2009:16; Davis *et al.*, 2010).

Siemens postulates that finding that today's learners have a different learning style has led to the origination of a new pedagogical or learning theory, named connectivism, *A Learning Theory for the Digital Age* (Trnova & Trna, 2015:109). The researcher concurs with this finding, as learning is now more influenced by communication technologies, which provide information and knowledge. Siemens justified the need for the learning theory, due to the exponential growth and complexity of information available on the internet, new possibilities for people to communicate on global networks, and for the possibility to combine different information streams (Kop & Hill, 2008).

2.3.1 Elements or traits of connectivism

Although some writers critiqued the elements following their experience (Tschofen & Mackness, 2012:127), Downes describes a semantic condition consisting of four major elements, traits or methodological principles, which he believes creates reliable connectivist dynamic learning within a community (Downes, 2009; Downes, 2012:71; Tschofen & Mackness, 2012; Trnova & Trna, 2015:110).

2.3.1.1 *Autonomy*

The understanding is that connectivism is embedded in networks (Siemens, 2006) that possess knowledge and face choices, and has freedom and will. Therefore, the suggestion is that it has social and individual significance for developing a framework necessary for transforming our institutions, as part of our society (Ryan & Deci,

2006:1557). Individuals who possess knowledge and experiences in the network are expected to function free from ideological oppressions that might prevail during the research process (Downes, 2009). The approach that was used in this study for knowledge construction is reliant on discourse. Autonomy had to be present for optimal functioning of our research team while they developed a framework for the use of cellular phones (Ryan & Deci, 2006:1558).

The concept autonomy can be described as some form of recognition and undertaking that individuals have the freedom to engage willingly whenever they express their opinions and emotions during the knowledge construction process (Ryan & Deci, 2006:1557; Tschofen & Mackness, 2012:129).

Autonomy has the ability to influence the research process as well as the learning environment. An autonomous environment and relationship in a network, such as in our classrooms, promotes emancipation (Alvesson & Willmott, 2012:434). The ability to willingly share information acquired creates the opportunity for some members to utilise it and, thereby, eradicate the imbalances affecting them.

In addition, autonomy displays intrinsic positive behaviour within the participants forming the network. Power sharing, which ensures equality, in the study, influences the conduct between participants, as they treat each with respect and care (Nkoane, 2013:396).

Based on the above, what the researcher finds interesting is that the relationship between CER and connectivism prevails due to autonomy that influences hegemony of relationships, and empowerment. In light of this, autonomy compliments the principles of freedom, emancipation and empowerment as advocated by CER. During development of the framework that the study anticipated would transform the quality of life of participants, the choice to willingly share knowledge benefited everyone.

2.3.1.2 *Diversity*

The nature of this study fostered creativity among members, who represent unique perspectives based on personal experience and insight. The study consists of participants of different genders, cultures, qualifications and socio-economic status, who came together for the purpose of developing a framework for the use of cellular

phones (Tschofen & Mackness, 2012:134). Downes (2009) suggests that diverse participants in a study make a great contribution, because of their unique views, knowledge and experiences that they exchange, unlike having participants that are the same (Duke, Harper & Johnston, 2013:3).

A democratic stance in the research process results in liberation (Darrow, 2009:58). The knowledge constructed during the research process is regarded as empowering to the participants, because they were encouraged to voice their opinions as a form of imparting knowledge (Thota & Negreiros, 2015:2).

Based on the above, the diverse opinions that are expressed through discourses and refined through critical dialogue, as suggested by Ravenscroft (2011:140), serve as a base for emancipation that is intended through the use of CER. The epistemological view concerned with how we construct knowledge influences the learning process. Addressing the social injustices experienced not only requires discourse, but also actions, which are explored by participants throughout the research process, so that they are able to take informed decisions (Siemens, 2006). These outcomes that are developed are regarded as a form of learned knowledge for the network created.

2.3.1.3 Openness

Downes (2009) argues that, if a community is open, it sustains a sufficient flow of information to generate new knowledge, but if it is closed, no new information is generated. The participants in the study, as in the community, should be able to communicate with each other freely, as well as participate and leave the study with ease. By contributing to lifelong learning, the study creates interaction between participants, space for self-expression, debate and dialogue, consequently creating a space to nurture ideas and test new approaches that are beneficial to the framework pursued (Thota & Negreiros, 2015:2).

The open learner network during the EMS class allows flexibility and external information from the internet to flow into the network, as opposed to a closed network, where the learners are dependent on the teacher for information, or the opportunity for co-operative learning is not created to facilitate transformation, empowerment and emancipation of learners as members of the network in class (Koper, 2014).

Based on the above, the researcher argues that the principle of openness contributes to attaining a favourable learning environment during learning and teaching, where everyone makes valuable contributions to learning and teaching, which are equally worthwhile for the study and for improved learner attainment (Schor, Fitzmaurice, Carfagna, Attwood-Charles & Poteat, 2016:73). Furthermore, similar to CER, it advocates for freedom of speech to achieve empowerment, and it encourages teamwork (Mahlomaholo, 2009:226; Mgijima, 2014:200; Moleko *et al.*, 2014:741).

2.3.1.4 *Interactivity and connectedness*

In this study, knowledge is produced in the network and it is distributed across an information network (Kop & Hill, 2008). Drawing from connectivism, knowledge is not merely distributed from one person to another, but develops the communicative behaviour of the participants (Kop & Hill, 2008). Knowledge created is produced through interactive learning sessions characterised by the openness of the learning environment to stimulating discourse (Thota & Negreiros, 2015:2). When engaging in a network, learners become connected and the knowledge relevant to the investigation activity that is accessed through the use of cell phones is derived through a process of interactivity (Downes, 2012:66).

The realisation that sharing the constructed knowledge is important in networks is influenced by the fact that working together in a harmonious environment promotes effective and successful functioning of the team (Maxwell, 2012:2). The use of cellular phones to access information also serves as a means of sharing information that is stored on the device.

2.3.2 The role of connectivism in the study

Drawing from connectivism is necessary for the study, as it involves making connections with others. Learners make connections with other learners and the teacher (Bellanca, 2015). Darrow (2009:28) states that, in many ways, connectivism is a return to the basics: trust in the creative process and a strong sense of mentorship between teacher and learner.

Connectivism allows the future of education to be viewed from an optimistic perspective, as learners co-create knowledge differently from a perspective of not

incorporating technology in class for learning (Darrow, 2009:28). Active involvement of learners is present through collaborative learning, which is stimulated by the use of cellular phones during the EMS class (Covili, 2012). The internet, with its emphasis on openness and diversity, challenges the classroom conception of authority and expertise (Darrow, 2009:39). Downes (2010:29) suggests that learning networks capture an essential element in learning today, because of the need for learners who are compatible with and prepared for world exposure.

It is often suggested that the best we can manage is to teach learners how to learn, and to encourage them to manage their own learning thereafter (Downes, 2010:29). Connectivism supports the notion of empowering learners so that they can make their own decisions in learning. When learners use cellular phones to find the current information needed for EMS activities, they are given the opportunity to be independent and to freely share the information acquired. The use of cellular phones in class confirms that easy access to advancing technologies means that the learners can now take control of their learning (Mackness, Mak & Williams, 2010:267). Their learning experience becomes exciting and interesting. The network allows autonomy, as learners can make their own decisions regarding learning in the network.

2.4 SUMMARY OF THE CHAPTER

The chapter explored and successfully justified the application of a theoretical framework for the study. Through the objectives of the study, it became clear what the study aimed to achieve. The researcher initiated the discussion by indicating the theoretical framework that informed the study, CER. The historical development of CER, principles and objectives of CER and the role of the theoretical framework for the study were discussed intensively, to justify the use of CER as the appropriate lens for the study. The learning theory of connectivism was also drawn in, because the use of technology is relevant for the study. Furthermore, the researcher showed the interrelatedness between CER and connectivism for the successful attainment of the objectives of the study. The next chapter will focus on a discussion based on operational concepts relevant to the study, formulating the constructs relevant to the attainment of the objectives of the study, and a literature review regarding the design

of the framework for the use of cellular phones to improve curriculum practice in EMS classes.

CHAPTER 3: LITERATURE REVIEW RELATED TO THE USE OF CELLULAR PHONES TO IMPROVE CURRICULUM PRACTICE IN EMS CLASSES

3.1 INTRODUCTION

This study aims to design the framework for the use of cellular phones to improve curriculum practice in EMS classes. This chapter will comprise a comprehensive literature review that provides perspectives on designing the framework. Furthermore, the constructs relevant for the attainment of the objectives of the study will be drawn from five principles based on the general aims of the South African curriculum as outlined in the NCS document. The chapter will build the argument and attempt to reach the following objectives of the study: i) To justify the need for a framework; ii) To identify the components of a framework; iii) To identify the threats associated with a framework; iv) To explore the conditions of a sustainable framework; and v) To provide evidence for a functional and successful framework. The formulated constructs will be utilised as organising principles.

The chapter will start with an explanation of how operational concepts used in this study are understood by dictionaries and technical literature, as well as how they are to be understood in this research study. Then, literature related to the objectives of the study and that justify the designing of the framework for the use of cellular phones follows. Lastly, a summary of the chapter will be presented.

3.2 DEFINING OPERATIONAL CONCEPTS

Defining the operational concepts derived from the title of the study is critical to the operationalisation of the study. It will help readers to understand the way the concepts have been applied and how these concepts are used to assist in achieving the objectives of the study. Definitions are given from encyclopaedias, dictionaries, literature consulted and, lastly, the researcher's view of the study. The following key concepts are clarified as they are understood in the study.

3.2.1 Curriculum practice

In order to define curriculum practice, the researcher, firstly, defined curriculum, then practice, so that the connection between the two concepts could be highlighted. The

Encyclopedia of Informal Education defines curriculum as the process of transmitting a set of knowledge designed for the learners to achieve certain objectives, using certain means with the aim to emancipate the learners (Lynch & Knight, 2011; Smith, 2000).

Encyclopedia.com defines curriculum as a set of planned activities at school level, jointly planned by the relevant stakeholders and used to reflect their understanding (Westbury, Hirsch & Cornbleth, 2002).

The Merriam-Webster Dictionary (2006) and Dictionary.com (n.d.) define curriculum as courses or subjects offered at an institution for learning.

The term curriculum can be used in reference to a body of knowledge that is compiled by experts and specialists, to be taught by teachers and to be learnt by learners, as prescribed in the curriculum policy (Lynch & Smith, 2011). Achor and Wilfred-Bonse (2013:112) agree that curriculum is a useful tool, which gives direction to the teacher to execute what is intended at school, thereby preparing learners to acquire the skills and knowledge necessary for addressing global and social competence that will influence their behaviour.

Schreuder (2009:12) suggests that curriculum affirms and critically enriches the knowledge required by learners to inform their lives and to prepare them to be competent for their life-worlds.

In reflecting on the above, a planned and structured document containing content, aimed at transferring information, knowledge and skills to learners is necessary for preparing the future citizens of the country. A formal educational institution, subsequently, prepares learners for job opportunities, and skills that are comparable to others in life – though an EMS curriculum will also do so. In South Africa, the curriculum designed by the Department of Basic Education gives us direction and knowledge of what to teach, when to teach it and how to teach it to the learners. Teachers should be able to adapt their teaching practice to the true image and demands of the society that caters for learners who require knowledge, skills and competence (Achor & Wilfred-Bonse, 2013:114; Onwuka, 1996:221). The intended curriculum and the teacher delivering it should create opportunities to emancipate the learners and to conscientise them about the abilities that shape them to get better

employment opportunities, thereby eradicating equality challenges and uplifting (benefiting) the entire society (Brady & Kennedy, 2013:4).

To implement and transfer the knowledge, skills and competency prescribed in the curriculum, actions and strategies that promote emancipation and empowerment are required. Encyclopedia.com defines practice as an actual, professional way or method of doing things repeated to acquire skills (Crystal, 2004).

According to the Merriam-Webster Dictionary (2006), practice refers to the teacher doing something constantly according to the customs and teachings of education. Furthermore, practice is defined as action that happens, rather than thought.

According to scholars, practice refers to system change, behavioural intervention or educational approach, designed to be used during learning and teaching (Horner, Carr, Halle, McGee, Odom & Wolery, 2005:175).

Although the intended curriculum can be prescriptive, the teachers entrusted with conveying it require strategies and approaches that enhance learning for the sake of improved learner attainment, empowerment and eradication of educational imbalances. From the above explanations of curriculum and practice relevant to the study, the researcher can say that curriculum practice depicts the actions, approaches and strategies, which are repeatedly changed and performed in class by teachers as professionals, thereby mediating curriculum designed by experts for the purpose of a viable learning and teaching environment that empower learners through education that is comparable in quality to that of other countries (Brady & Kennedy, 2013:6; DBE, 2011:5). As suggested by Lingard and McGregor (2014:105), teachers need to be willing and able to facilitate learning and teaching of the prescribed content by transforming the classroom environment through the use of cellular phones that assist learners to find information, so that it reflects the reality about the dynamic society they are exposed to, and is geared to achieve a favourable learning and teaching environment necessary for empowerment and eradication of educational imbalances (Achor & Wilfred-Bonse, 2013; Schreuder, 2009:13).

3.2.2 Economic and management sciences

The Free Dictionary defines economic sciences as the management, production, distribution and consumption of goods and services required by individuals for need satisfaction of the society (Farlex, 2003-2008).

Some writers refer to entrepreneurship education as a subject area capable of creating an entrepreneurial mindset, providing knowledge and skills to all learners, also associated with their daily lives, and not only associated with the act of starting a business, which will create a sustainable environment (Jones, Matlay & Maritz, 2012:817).

For readers outside South Africa, it is important to explain that EMS is one of the compulsory nine subjects in the curriculum offered in the Senior Phase of General Education and Training (GET) band of the South African curriculum. According to the CAPS document, EMS is defined as the subject dealing with the efficient and effective use of types of resources to satisfy humans' needs and wants (DBE, 2011:8) with important value, including its contribution to economic literacy and empowerment (Schreuder, 2009:5). EMS is expected to have great value in the curriculum, as it exposes all learners to different economic competencies (Schreuder, 2009:6), as well as reflecting critically on the impact of resource exploitation of the environment and of the individuals (Schreuder, 2009:26).

Similar to entrepreneurship education offered in Australia, EMS is a practical subject that also focuses on equipping learners with real-life skills and competencies that are necessary to make learners responsible thinkers who are able to contribute to economic development, reducing poverty and attaining sustainable growth (DBE, 2011:9; Pinheiro & Simoes, 2012:383). Not only does EMS aim to equip learners with knowledge and skills, but also to change their attitudes and behaviour regarding their environment (Lund, 2015:2; Raposo & Do Paco, 2011:454). For instance, the Grade 7 economics content deals with the effect of natural and health epidemics that affect businesses (DBE, 2011:12).

Equipping learners with skills and knowledge to meet the needs and expectations from society and labour markets, EMS curriculum in senior phase covers valuable skills as a means of instilling business development and management sense (Enombo, Hassan

& Iwu, 2015:2). The content includes skills, such as economic, entrepreneurship, financial and managerial skills for entrepreneurship education in an African school (DBE, 2011:24; Enombo *et al.*, 2015:502). Like South Africa, Kenya has a large rural population, however, Kenya does not offer, Entrepreneurship Education as a separate subject in general education, but in higher levels (Farstad, 2002:45).

In Botswana, at the level that is regarded as Further Education and Training (FET) in South African education, subjects called Business Studies and Commerce, which mainly focus on topics such as accounting, office procedures and financial management (Farstad, 2002:28), is being offered. This is done to keep up to date with the challenge of injecting a theoretical perspective into the students' learning experience while, at the same time, maintaining a strong "real world" focus (Ottewill & MacFarlane, 2003:2).

Reflecting on the discussion above, EMS teachers in South Africa are facilitators of the curriculum and have the responsibility of expressing the general aims of the South African curriculum. The prescribed curriculum promotes credible, quality and resourceful education that provides lifelong knowledge comparable to that provided by other countries (DBE, 2011:5). The researcher believes that we, as EMS teachers, have to be creative and innovative to ensure that theory is rooted in the practical business of shaping learners for the economic world and society (Beetham & Sharpe, 2013:3).

3.2.3 Cellular phone

The online Business Dictionary defines cell phone as a small, wireless device that is mobile and that can be used anywhere, even in the classroom during learning and teaching (Dictionary.com).

Known as a cell phone in some countries, and mobile phone in other countries located in Australia, Africa and elsewhere (Goggin, 2012:16), cellular phones are regarded as new media and are associated with qualities of portability and mobility for accessing information through Google for education (Goggin, 2012:17).

Currently, we operate in a world that places digital, mobile and wireless gadgets at our disposal, that has strongly changed how ideas and practices that are communicated in the classroom (Beetham & Sharpe, 2013:6).

3.3 LITERATURE RELATED TO THE STUDY

3.3.1 The origins of mobile technology

The extensive use of technological and mobile devices has affected our learning and teaching practices, more importantly, through the use of the internet (Briz-Ponce, Pereira, Carvalho, Juanes-Mendez & Garcia-Penalvo, 2017:618). The origins of mobile learning can be dated back to 1968, when Alan Kay conceived the Dynabook. Even though it was regarded as an educational device, it never went to production (Atkinson, 2008:13; Layton, 1993; Wilson, 2001:29). Since then, more rapid changes have taken place, and mobile devices are now viewed as resource materials that can be incorporated into teaching and learning (Baglama *et al.*, 2017:120). Later, the evolution led to e-learning, which then led to mobile learning (m-learning), which covers the use of many different digital technologies (Pegrum *et al.*, 2013:67). The first experience of m-learning dates back to 1991, when the Wireless Coyote project was launched in Europe; it aimed at investigating how teachers and learners would use networked mobile computers on a field trip. After 2002, the focus was on how mobile devices could be utilised to enhance learning process, as in the case of this study (Carletti, 2013:55). Mobile learning that, which emerged from e-learning, aroused many scholars' attention and they attempted to understand aspects of mobile technology and learning (Kreutzer, 2009:2). Mobile learning has the advantage of offering teachers and the learners the expansion of space, and easy accessibility in and outside the classroom makes it a qualitatively different and preferred mode of learning (Pegrum *et al.*, 2013:67).

In this age of connection, access to multimedia is extended to other devices that support access to information related to EMS content, anywhere and at any time (Moura & Carvalho, 2009:90). The practical curriculum of EMS that is offered in our schools requires knowledge on the part of learners. However, these learners need to be equipped with real-life skills that prepare them for their life-worlds. Activities that

are related to content taught should contribute to personal development and should promote the idea of sustainable economic growth (DBE, 2011:8).

3.3.2 Curriculum practice

Looking at aspects that influence learner attainment, it is clear that there are many factors involved, such as improved curriculum practice (Beetham & Sharpe, 2013:4). Cubans believe that schools need to bring changes, adapt their practices and accommodate the technological developments we face (Tshelane, 2015:5). Various studies attest to the importance of having access, not simply to schools, but to a minimum level of resources that provide learners with information (Ackers, Migoli & Nzomo, 2001; Kanno & Kangas, 2014:874).

Adapting daily curriculum practice requires competent and knowledgeable teachers who are able to implement a learner-centred approach that is coupled with varied methods, allowing learner engagement in their learning and teaching (Dowden, 2007:52; Ford & Haley, 2014:5). Dowden (2007:54) states that much research evidence supports the efficacy of a learner-centred approach. He mentions its ability to respond well to the educational and developmental needs of early adolescents. Therefore, adapting curriculum practice is relevant to EMS, more particularly, because in South Africa it is taught from the senior phase, where most learners are aged about 13.

The discourse around improving curriculum practice is not based on learner performance only. A report of studies conducted – one from an advanced country and another from a sub-Saharan country – states that incorporating technological devices into the classroom prepares new teachers to face any challenges they are confronted by in the teaching profession (Achor & Wilfred-Bonse, 2013:115). In addition, learners are modelled towards secure jobs in a competitive job market (Jhurree, 2005:468).

There have been initiatives by the South African Department of Basic Education to transform the curriculum and drive it towards being relevant and meaningful to the learners' life-worlds (Priestley, Biesta & Philippou, 2015:187). Improved curriculum practice based on the curriculum to be delivered and the changing circumstances of the global information society, that reflect changing needs of learners and new

approaches to learning and teaching, seem to be a challenge for some teachers in South Africa (Hooker, 2008; Smith & Killen, 2015).

Preparing children to be twenty-first-century citizens who are compatible with the entire world is not only relevant with regard to the use of technology. Schreuder (2009:12) and Jhuree (2005:468) argue for a comparable, resourceful, explorative and learner-centred offering of EMS curriculum. The researcher argues that the eradication of poverty and unemployment, as well as the preparation of learners for a natural transition to Further Education and Training (FET), is not dependant on what the country wants for our young generation, but can be achieved through improved practices that are implemented through the use of the framework to be designed by this study (Jhuree, 2005:468).

Reflecting on the discussion above, the invention of mobile devices was an important step to assist teachers to improve learners' performance. These efforts include the ability of teachers to integrate technological resource materials to improve their curriculum practice.

3.4 LITERATURE RELATED TO THE OBJECTIVES OF THE STUDY

3.4.1 Justifying the need for a framework

Technology provides teachers and learners with a multitude of new opportunities for promoting education. But, beyond the impressive possibilities lie deeper truths that should be considered before designing a successful framework for the use of cellular phones to improve curriculum practice in EMS (Richardson, 2014:369). In this section, the point of enquiry, which focuses on demonstrating the need for the anticipated framework, is based on challenges experienced in South Africa and other countries. Arguably, working against higher demands of changing practices when imparting knowledge, skills and competencies to learners, requires new possibilities, so that the framework can be justified (Botha & Triegaardt, 2015:421; Mahlomaholo, 2012:74).

Having the framework in place to monitor the effectiveness of its use in education ensures that the outcomes of that education system address the problems facing the country. As is the case throughout the world, we need to impart knowledge and skills that prepare learners for processes and procedures that are meaningful to their own

lives and for career opportunities (Mazzeo *et al.*, 2003:4). As South Africa has a high unemployment rate compared to countries such as Malawi or Uganda (Resnick & Thurlow, 2015:6), we need a framework that supports teachers' practices to prepare the learners. Mahlomaholo (2014:172) and Spaul (2013:436) are in agreement that the provision of quality education in South Africa will help to eradicate the many and very complex problems our youth faces. In light of this, for those countries that have been subjected to the injustices of colonisation, oppression and various forms of apartheid, it becomes difficult to yield the best results, due to the imbalances experienced.

This section will present a discussion based on the imbalances experienced and the challenges the imbalances cause. The challenges related to the study are, i) the absence of a stimulating learning environment; ii) the inability to enhance learners' investigative skills; iii) a need for teacher agency; iv) the inability to engage learners while teaching; and v) an inability to cater for twenty-first-century learners. To support the discussion, the following five principles, which are based on the general aims of the South African curriculum, as outlined in the NCS document, will be referred to as organising principles: i) social transformation; ii) active and critical learning; iii) progression; iv) human rights; inclusivity; environmental and social justice; and v) credibility, quality and efficiency (DBE, 2011:4).

3.4.1.1 Absence of a stimulating learning environment

Based on the principle of social transformation, EMS teachers should ensure that the gap resulting from unequal distribution of resources is addressed (Taylor, 2012:61). Based on the prescribed curriculum of South Africa, learners from all facets of life have equal opportunities to access information from various resource materials that are utilised during tuition time, subsequently leading to a stimulating learning environment (DBE, 2011:4). In South Africa, we still have learners who are educated in an environment that has no exposure to inspirational learning, or which is not very enriching, while other learners have access to resources that are stimulating and enriching to their learning (Naidoo *et al.*, 2013:84).

The ability of the teacher to create a conducive environment for enhanced learning and teaching is one of the important requirements for learning and teaching (Jhurree,

2005:468; Tshelane, 2015:44). Thus, creating a stimulating learning environment conducive to active learning and content relating to the learners' real-life experiences seems to be challenging for teachers (Scales & Kelly, 2012:3). In addition, the inability to incorporate mobile devices, thereby providing learners with recent information, is seen as a hindrance to their progress (Haydn & Barton, 2007:1020; McGrath, 2014:8).

Challenges relating to the inability to stimulate the learning environment are also experienced worldwide, because Australia's policy, aimed at improving performance of remote indigenous Australian learners, identifies the challenges linking a stimulating teaching and learning environment to poor outcomes (Auld *et al.*, 2012:280). For example, they mention classrooms that are still arranged the same as in past centuries, and an inability to use technological equipment during learning and teaching (Covili, 2012:2). Furthermore, indigenous Australians experience challenges due to being restrained and disadvantaged by knowledge deficits and unfamiliarity with technological devices as a result of colonisation and its drastic, unbalanced law and culture (Dreise & Meston, 2017:7).

The Education Faculty of Charles Stuart University in Australia states that teachers need empowerment for integrating technology into the classroom in a way that results in a stimulating learning and teaching environment (Dowden, 2007:79).

This challenge is also experienced in Kenya, because teachers lack ideas to motivate learners, and the ability to change their attitudes towards the subject. This is attributed to lack of knowledge about infusing technological equipment into the lesson and an inability to create a willingness to learn through them on the part of the learners (Dhillon & Wanjiri, 2013:19).

Even though there have been initiatives to address challenges relating to the absence of a stimulating learning environment in our schools, some teachers still experience the challenge, for instance, the use of a teacher-centred model in classrooms, as opposed to a learner-centred model that allows the infusion of technological resources and that is recommended by the current curriculum (Jhurree, 2005:471; Tsoetsi, 2013:35). In addition, the learning environment, which is shaped by learners' background, has a very profound influence on children's learning and, consequently, on their life chances.

Christensen's recommendation, that high-impact, low-cost technology is used, and internet access is necessary to transform the learning environment, is imperative to the improvement of curriculum practice. In light of this, the use of cellular phones in EMS classes is an essential part of the 'basics' of education that will ensure that the challenge caused by the absence of a stimulating environment is addressed (Dowden, 2007:80) and learners will be able to bring new ideas and explore their own creativity when acquiring knowledge, skills and competencies during the learning process, even when there is lack of textbooks or materials to consult (Covili, 2012:3).

Reflecting on the above discussion, there is a need for this framework, because teachers need to transform and adapt their teaching practices so that they are able to use textbooks and incorporate other LTSM. By doing so, an unfavourable learning environment is transformed and becomes a more favourable environment that allows learners to attach their life experiences to their learning. Therefore, the intended framework would show that teachers need to adapt learning and teaching practices to create opportunities for effective learner engagement (Hartnell-Young & Vetere, 2008:284).

3.4.1.2 *Inability to enhance learners' investigative skills*

Looking at how the policies and systems of EMS are currently outlined, teaching and learning are complemented by the principle of active and critical learning of the NCS general aims of the South African curriculum (DBE, 2011:4). The principle encourages exposing learners to learning processes that present an appropriate education environment that does not prohibit learners from acquiring skills and knowledge in an exciting and appealing manner (Baglama *et al.*, 2017:121; DBE, 2011:4).

The discussion below will commence by focusing on the challenges experienced when implementing inappropriate practices that fail to enhance the learners' investigative skills (Bentrovato, 2017:14).

Enhancing learners' skills that encourage an active and critical approach is due to a differentiated learning and teaching environment that provide learners with different ways of demonstrating what they have learnt (Hartnell-Young & Heym, 2008:6). This is asserted by Wan's (2017:76) suggestion that teaching beliefs and perceptions could influence learners. Therefore, the teacher's anticipation of difficulties, and perceptions

of and attitudes towards adopting differentiated practices to enable differentiated learning to take place has a negative effect on enhancing learners' investigative skills (Wan, 2017:86).

A study conducted in Kenya also states that teachers face the challenge of delivering the curriculum in a more pressured manner, which compels teachers to use any resource material available, even material that is unfavourable to learners' ability to gain knowledge in a more active and stimulating manner (Dhillon & Wanjiri, 2013:18). This suggests that it sometimes becomes difficult for the teacher to use the relevant resource to stimulate active and creative learning.

South African challenges are due to number of known and unknown reasons. A study investigating factors contributing to learner performance, conducted in Motheo District in the Free State, reveals teaching strategies as one of the direct influences on learner performance (Ramohapi, Maimane & Rankhumise, 2015:447). Furthermore, it argues that, in some instances, the poor performance is due to the way the teacher, who had been educated in an incompetent manner, learnt the inappropriate practice, and then implements it (Ramohapi *et al.*, 2015:447). Academic performance varies due to circumstances such as an unfavourable teaching and learning environment, where teachers often prefer to be content deliverers, instead of creating the opportunity for learners to investigate on their own using the technological equipment at their disposal (Ramohapi *et al.*, 2015:445). Another well documented feature of the South African school system is that a very strong verbal culture dominates classrooms, with the teacher doing most of the talking and learners doing very little talking, reading and writing (Taylor, 2011:16).

Inability to use relevant resources to stimulate the child's interactive environment while they investigate and learn (Naidoo *et al.*, 2013:86), through which they subsequently develop critical thinking and problem-solving skills (Dhillon & Wanjiri, 2013:20; Naidoo *et al.*, 2013:85), needs to be addressed. This can be achieved when teachers are able to plan lessons suitable for encouraging an active and critical approach to learning, thereby resulting in learners' investigative skills being activated (DBE, 2011:4). Regarding the EMS curriculum in South Africa, we need to use cellular phones when it is convenient for learners to conduct investigation for topics such as, the negative effects of industries on the environment, and strategies to combat the negative effects,

as well as when they conduct a needs analysis of rural communities, (Covili, 2012:4; Gudmundsdottir, 2010:177; Naidoo *et al.*, 2013:84).

Reflecting on the discussion of the literature reviewed, the anticipated framework for the use of cellular phones is necessary to provide teachers with better practices. Contrary to learners reproducing the information from the teacher or the textbook they use, the teachers need to apply differentiated teaching, thereby being prompted to use differentiated activities to enhance learners' investigative skills.

3.4.1.3 *The need for teacher agency*

The principle of the NCS general aims of the South African curriculum states that teachers are required to offer high knowledge and high skills that should be achieved by learners at each grade (DBE, 2011:4). Teacher agency refers to the ability of the teacher to adapt to the expectations of the young generation, thereby providing support, learner engagement and stimulating high levels of thinking (Moura & Carvalho, 2009:92).

The implementation of the curriculum that was documented by experts is often managed by the teacher, so that effective teaching and learning can transpire through the use of mobile devices. In light of this, the responsibility of ensuring that practices that hinder learning and teaching progress, that are due to an inability to adapt classroom practices, lies with the teacher (Maguth, 2013:87).

Challenges, such as failing to incorporate technological devices as resource materials to modify the way teachers communicate curriculum, has the potential to deny teachers the opportunity to reach different types of learners, or enhance their critical thinking. We realise that encouraging high-level thinking has the potential to create a more fun-filled experience in class (Amuko, Miheso & Ndeuthi, 2015, Maguth, 2013:88; Hartnell-Young & Vetere, 2008:284).

Regarding teachers offering high levels of knowledge and skills in EMS, we are aware that the changes currently experienced in education are coupled to the use of mobile technology, which is believed to have the potential to promote learning and transform the learning environment for both teachers and learners (Maguth, 2013:88, Moura & Carvalho, 2009:90). This situation is likely when teachers understand the role of

technology in promoting effective learning that creates opportunities for acquiring highlevel knowledge and skills.

Maguth's study, conducted in one of the affluent countries, suggests that learners' disdain for a subject is caused by some teachers being highly dependent on inconsistent or flawed textbooks, and persistent application of teacher-centred approaches, serves as a challenge to instigate the design of the framework (Acquah, 2015:17; Covili, 2012:4; Maguth, 2013:87). In addition to the challenges highlighted above, various challenges, such as teachers' perceptions, attitudes and usage patterns of mobile devices emerged from Baran's research, which addressed the trends and gaps determining current implementation practices in class (Baran, 2014:24).

A report based on a case study in the United Kingdom, reveals that children from privileged backgrounds are often privately educated by well paid, highly trained and enthusiastic teachers, who use innovative and creative technological resources (Unwin *et al.*, 2017:3). These type of teachers are needed in our schools, despite the unequal distribution of resources in our societies.

The challenge posed by teacher perception in relation to incorporating mobile technology in the classroom is not an isolated problem, because the study conducted in Kenya by Amuko and others suggests that teachers have the responsibility to address the challenges they face regarding effective incorporation of mobile technology (Amuko *et al.*, 2015:1). The research indicates that the majority of teachers have negative attitudes towards the integration of cellular phones into teaching and learning, because they lack the knowledge and skills to successfully implement mobile devices into learning (Amuko *et al.*, 2015:2).

Many of the educational problems observed in South African classrooms are apparently rooted in inadequate knowledge of using resources by teachers, and inability to prepare learners for tasks that have depth and complexity in relation to the NCS general aims of the South African curriculum (Naidoo *et al.*, 2013:85; Taylor, 2011:16; DBE, 2011:14). Due to recommendations made by Grinols and Rajesh (2014:94), to enquire into encouraging or discouraging multitasking with smartphones in class, my view is that critical thinking and productive learning outcomes can be achieved when teachers are able to change their mind-sets.

For teachers to be able to change their mind-sets about improving their classroom practice, Makoe (2011:177) suggests that challenges regarding the use of mobile devices in class are due to a lack of willingness to learn to use and to incorporate the resource material necessary for teaching and learning. Bertram (2011:6) also comes out to say that teachers lack knowledge of what is required of them to improve their classroom practice, and they are unable to implement it in under-resourced conditions. It is in light of this that enquiries should be made regarding teachers who require professional knowledge, skills and positive attitudes to improve their classroom practice (Bertram, 2011:12; Fraser *et al.* 2007).

Teachers who are at the forefront of influencing classroom practice, need a positive attitude that will break the major barriers to incorporating technology into the classroom, even though they consider using cellular phones to be a challenge. Indeed, lack of experience, professional support and professional training need to be addressed, so that teacher perceptions on the role of technology can change. (Amuko *et al.*, 2015:2; Jhurree, 2005:475; Levin & Wadmany, 2005:284).

Reflecting on the discussion above, it emerges that, even though much has been done to encourage the effective use of mobile technology in classrooms, several limitations exist, such as teachers' negative attitudes and unpreparedness to incorporate mobile devices, that serve as one of the LTSMs required for transforming our classroom environment (Baran, 2014:28). We need positive educational values about mobile technology on the part of both teachers and learners (Porter, Hampshire, Milner, Munthali, Robson, De Lannoy *et al.*, 2015:6). The intended framework of this study has to develop solutions to address the limitations mentioned above. Moreover, it has to reveal the need for using mobile technology that is necessary for exploring the pedagogical potential of mobile technology, and that relies on the meaningful integration of mobile technology (Baran, 2014:29).

3.4.1.4 *Minimal learner participation*

Challenges regarding incorporating resource materials into the lesson to improve minimal learner engagement are experienced by EMS teachers. The fourth principle drawn from the NCS general aims of the South African curriculum requires teachers who are sensitive about social justice and the learners' human rights as defined in the

Constitution of the Republic of South Africa (DBE, 2011:4). This suggests that teachers need to create opportunities to engage learners as active participants during the learning process, which involves more than just listening.

According to the NCS principles and EMS curriculum policy, the type of collaboration required is influenced by the teacher through tailored activities that engage learners. This is done to show that learners have an important role to play in their learning as human beings (DBE, 2011:4). In order to achieve this, it is important that lifelong learning that is not competitive, but rather, collaborative, should be instilled during the learning process, even though the classroom consists of diverse learners (Sharples, 2000:178). To affirm this, Dowden (2010:3) suggests that young adolescents learn effectively when they develop positive relationships with their teachers and when they are able to connect and incorporate their everyday experiences into schooling.

A study conducted in United States of America reveals that teachers argue for learner-centred curriculum integration, because the challenge is even experienced in other countries. The teachers' experience challenges regarding curriculum design, as curricula do not connect with young teenagers. Furthermore, Dowden (2010:4) states that the inability of the teacher to implement a learner-centred approach denies the rich ability of the strategy to be recognised.

This challenge, of engaging learners in the learning process, is not unique to developing countries, because in one of the studies conducted in an affluent country, Kukulska-Hulme (2010:182) appeals to teachers to create a collaborative environment that permits learners to share the information accessed through their cellular phones, at any time during learning and teaching in the classroom (Gaskell & Mills, 2009:5). The appeal demonstrates a need to create, through the use of technological devices, a learning environment that is collaborative (Kirsch, 2016:2261).

In Kenya, it is reported that the majority of teachers experience a challenge to engage learners with the use of technological equipment that helps to stimulate the learners' learning environment (Dhillon & Wanjiri, 2013:20). The failure to engage learners during the learning and teaching process denies the teacher the chance to enhance the learners' learning experience and encourage maximum learner participation (Edutopia, 2008; Grinols & Rajesh, 2014:94).

A study conducted among junior secondary school teachers in Botswana reveals learner engagement as one of the important factors in answering the research questions (Dibapile, 2012:149). The report suggests high enrolment as one of the factors that makes it difficult for every learner to possess a textbook or to complete tasks (Dibapile, 2012:152). Even where high enrolment is experienced, we need to move away from the use textbooks that are deemed to be insufficient. Kukulska-Hulme (2010:185) states that incorporating technological devices will not replace teaching, but can engage learners, assist in facilitating access to information and improve collaborative learning. Even so, learners are able to search for information themselves through the use of internet. Thereafter, the information gathered can be shared in class immediately (Dhillon & Wanjiri, 2013:20; Naidoo *et al.*, 2013:85).

Reflecting on the discussion above, it is clear that engaging learners during the learning and teaching process sets up a collaborative environment. The anticipated framework seeks to develop a better understanding of the roles of technological devices, such as cellular phones, as a means of maximising learner engagement (Kirsch, 2016:2261). In addition, we need to break the tradition of depicting teachers as vessels of information and learners as recipients of knowledge or information. The anticipated framework seeks to show that engaging learners as active human beings in their learning, rather than the teacher spoon-feeding them, helps to maximise learner participation (DBE, 2011:4).

3.4.1.5 *Inability to cater for twenty-first-century learners*

Drawing from the fifth NCS general aims of the South African curriculum, teachers are expected to provide education that is credible and comparable in quality to that of other countries (DBE, 2011:4). Some teachers are challenged because they lack the ability to teach in a manner that caters for empowered twenty-first-century learners, and to grant learners the opportunity to gain lifelong education with teachers' assistance (Covili, 2012:4).

It is evident that Australia faces the challenge of developing globalised twenty-first century learners, as their young learners fell behind their international counterparts (Lingard & McGregor, 2014:96). The Australian curriculum believed that the curriculum should cater for successful learners who are responsible, independent, confident and

informed contributors to their well-being (Lingard & McGregor, 2014:101). To deal with the challenge, Ewing (2012:108) suggests a need for the Australian curriculum to transform its education to cater for flexible, creative and imaginative learners who will be able to solve the complex problems of the twenty-first century, and which are relevant to children's life-worlds. The South African education system needs to shift towards twenty-first-century practices, which involve the classroom incorporating new technologies that excite learners (Khomokhoane, 2011:15). We cannot ignore the fact that most learners possess smart phones. As teachers, we have to show learners the benefits of possessing cellular phones with internet access, which enables learners to access, communicate and share information (Pegrum *et al.*, 2013:68). By encouraging learners to bring their cellular phones to school and to use them as resource material will not only help us to promote digital learning, but I believe this gesture will help learners to utilise it for everyday changing realities in different context (Pegrum *et al.*, 2013:68). The need to use cellular phones in class is justified, as teachers are able to equip learners with lifelong knowledge and skills, and award them the opportunity to succeed in a rapidly changing environment (Jhurree, 2005:471; Sharples, 2000:178).

The framework provided by this study can assist teachers to use cellular phones in class during EMS lessons, and enable teachers to prepare learners to be globally oriented twenty-first-century citizens who are knowledgeable, skilful and competent, thereby strengthening their competitive edge, like other nations do, even regarding their careers (Lingard & McGregor, 2014:102; Covili, 2012). Teachers need to develop new assessment systems that emphasise skills other than memorising content (Unwin *et al.*, 2017:4). When learners are expected to prepare a presentation on the negative effects of inequality and poverty, they need information that is available through Google, so that they can deliver a sound presentation consisting of constructive facts that show that their individual learning can be embedded in their real lives (Beetham & Sharpe, 2013; Carletti, 2013:51).

3.4.2 Identifying the components of a framework

In light of the literature reviewed, EMS teachers seem to be experiencing challenges regarding the incorporation of cellular phones into the teaching and learning environment. In order to achieve the pursued objectives of the study, a discussion on

the literature regarding the way different countries deal with the challenges outlined in the study will be provided next.

3.4.2.1 *Incorporating stimulating resources*

To address the challenge related to lack of stimulating resources for learning and teaching, mobile learning can benefit learners, as it stimulates interaction and improves the learning process. This means that, when learners use cellular phones as stimulating resources, they are able to transform their learning process to an informative one, because they are able to access information (Moreira, Pereira, Durao & Ferreira, 2018:982). According to Macharia, Chege, Mutano and Namuye (2014), ICT development is not entirely about devices, but about their use to empower people and lead to improved well-being.

According to Walsh, Shrestha and Hedges (2013:188), cellular phones are used in some affluent countries for teaching. The strategy makes use of software that learners enjoy using. Vocabulary lessons were sent to Japanese university students in order to promote regular study, and teachers received video clips and audio recordings that exemplify a range of correct and incorrect English communicative language teaching classroom (CLT) practices (Walsh *et al.*, 2013:194).

In Australia, a study that set out to explore the social practices associated with the daily use of cellular phones by indigenous people, revealed that cellular phones had the potential to bridge the boundaries between computing and new possibilities for educational applications (Auld *et al.*, 2012:281). To address the gap identified, cellular phones were used in people's everyday literacy practices (Auld *et al.*, 2012:279).

To stimulate the learning environment in Botswana and the Gambia, cellular phones were used for communication purposes to promote learning, as a social tool, an organisational tool, and as an instrument for knowledge sharing between teachers (Dewah & Mutula, 2013:151).

In South Africa, using cellular phones proved to be an important resource for a stimulating learning environment. University of South Africa (Unisa) students used cellular phones because of features such as cameras, instant messaging and the internet (Makoe, 2011:175; Thomas *et al.*, 2013:297). This strategy is relevant to

education, as the software features of cellular phones are used during learning and teaching to stimulate a young generation of learners to increase the possibility of informal and exciting learning (Makoe, 2011:176)

The discussion above suggests that the countries mentioned used cellular phones to address the challenges they face. The discussion also indicates that the different applications and features of cellular phones can be used for sending information, empowering the learners and as a means to integrate the nation (Macharia *et al.*, 2014). Regarding this study, the framework intends to explore other uses of cellular phones to stimulate the learning environment and to empower both the teacher and the learner.

3.4.2.2 Ability to enhance learners' investigative skills

Ownership and use of cellular phones are reported to be high amongst a young generation of learners, because they enjoy working on technological gadgets, especially, finding information on the internet (Line, Jain & Lyons, 2011:27; Taylor, 2012:64). From the learners' perspective, they prefer using cellular phones, because of its ability to support multitasking through conducting research using the internet, and then being able to share the information with other learners (Thomas *et al.*, 2013:297).

The Australian government supports the use of ICT from the early years in class, including that of mobile phones, as their ability to teach learners to investigate, create, communicate, and manage and operate by using these devices enhanced learning (Pegrum *et al.*, 2013:66).

In Japan, for example, Dewah and Mutula (2013:151) report that university students were observed using cellular phones as voice recorders and for taking pictures. The suggestion is that cellular phones have the potential to encourage learning by shifting learners' dependence away from the teacher.

The findings of one of the research studies conducted at a South African university reveal that students used cellular phones for the purpose of downloading notes and accessing information from libraries (Chigona, Kamkwenda & Manjoo, 2008). It is evident that cellular phone use can assist learners to access information when they

are given activities that are investigative, such as comparing different countries' currency values.

From the discussion above, it is clear that students were able to complete activities on their own, because they were able to download notes and access the library even when they were not at the university. The framework of this study seeks to explore the changing nature of where, what and how learners can make use of the internet for activities designed to stimulate investigation at school level (Schuck, 2016:127).

3.4.2.3 Professional development

In order to keep abreast with ongoing changes in technology, Lawless and Pellegrino (2007:597) argue that the most important impact a professional development activity can have on a teacher is that of a transformed pedagogical practice that reflects a deeper change in curriculum knowledge. Prior research in the area of professional development has emphasised the need for designing activities to prepare the individual teacher to promote development and learner empowerment.

According to Schuck (2016:126), much research indicates that, to prepare confident and competent teachers for a specific subject, focus on development programmes for teacher graduates and school teachers is important.

Lombardi (2007:7) reports that, when new teachers face difficulty translating the theories they learned at university, to real-world practice, several universities, including one in Singapore, devised educational software that would help students manage behavioural and learning issues in the classroom.

Addressing the challenges faced by the teachers who lack the competence to incorporate technology into their lessons, the suggestion is to create several initiatives to develop and upgrade the teachers by instituting in-service training programmes (Sayed, Kanjee & Nkomo, 2013:50).

A reward system that acknowledges the extra effort and commitment of teachers who incorporate technological resources in the classroom can prove to be highly motivating to teachers (Scheepers, 2015:50).

According to the discussion above it is clear that teachers' development regarding the use of technological devices has been initiated, although it still needs to focus further

on developing strategies for finding information. This framework seeks to find solutions based on developing competent teachers who are able to assist learners to find information easily using cellular phones.

3.4.2.4 *Maximising learner engagement*

Grinols and Rajesh (2014:94) recommend that the strategy of using cellular phones for learning purposes could lead to increasing learners' accuracy in analytical and creative thinking.

Although cellular phones are perceived to be private and personalised resources, it contrasts with the notion of phones supporting collaborative learning (Auld *et al.*, 2012:285). The strategy of using cellular phones in classrooms is supported, because of its ability to support collaboration. Through the features of cellular phones, learners are able to use them for communicating, cooperative problem-solving, and collection and analysis of information (Thomas *et al.*, 2013:297).

In addition, cellular phones have been used for teaching and learning in many ways, from connecting distance-learning students, taking photos, using Google, and text messaging with other learners and the teacher, thereby encouraging collaboration. Maguth (2013:88) states that cellular phones can serve as an important platform for engaging learners and creating an exciting environment for them.

The discussion above reveals that cellular phone features afford learners the opportunity to engage with each other for educational purposes. The strategies mentioned above were successful in creating opportunities for several platforms. In light of this, this study seeks to explore opportunities for creating a network among the classmates using the information collected in class, thereby creating a collaborative environment that involves all the role players.

3.4.2.5 *Ability to cater for twenty-first-century learners*

According to Lombardi (2007:2), authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities and case studies that are similar to the EMS content as outlined in the NCS document of South Africa.

Maguth (2013:88) suggests that teachers are open to the interests and experiences of digital tools. To use technological devices meaningfully in preparing learners to be twenty-first-century citizens, new technology has been incorporated into the classroom practice. Subsequently, lessons often tap into learners' cultural and digital interests.

Lombardi (2007:4) reveals that, in an attempt to prepare twenty-first-century learners, universities and colleges have turned to authentic learning practices that improve the way students absorb, retain, and transfer knowledge. Lombardi (2007:2), furthermore, makes mention of strategies such as simulation, that students can utilise to make valuable connections with their mentors around the world.

From the discussion above it is clear that using problem-based and simulation-type activities that require the use of technology, can assist teachers to prepare learners for their life-worlds; it also gives them an idea of how the employment world operates. Even though the strategies used in higher education are relevant to education, this study will explore how cellular phones can be incorporated in the classroom to encourage valuable connections with the real world by means of EMS.

3.4.3 Identifying threats associated with a framework

Although the framework can be implemented to improve curriculum practice, there are barriers that hinder the integration of cellular phones in class. Based on the literature reviewed, these barriers will be discussed.

3.4.3.1 *Inadequate provisioning of stimulating resources*

Findings from Australian studies reveal that inadequate provision and use of ICT resources, and too few active phone lines and internet connections, are obstacles hindering the practice of using technological resources for education (Auld *et al.*, 2012:287).

The South African Department of Education has made adjustments to the policies to redress the imbalances in education that had been experienced previously (DBE, 1996:1). However, this has not necessarily resulted in major changes in the classroom, because some teachers still favour the teacher-centred approach and the traditional use of textbooks, which are generally not appropriate resources for stimulating learners' interest in a subject (Kanjee, 2009:67; Vandeyer & Killen, 2007:101).

3.4.3.2 *Lack of exposure to active, critical activities*

Disallowing and prohibiting the use of cellular phones in class disregards learners' need to obtain information related to their life-worlds. In addition, the learners don't get easily excited about the subject (Maguth, 2013:87). Unlike learners from rich or well developed areas, some learners are not exposed to technological resources, because of an uneven distribution of income, poor infrastructure and resources provided by the government. Therefore, their exposure to technological devices threatens their ability to use digital devices. Moreover, they are deprived the opportunity to experience the ability of technology to enhance their learning (Unwin *et al.*, 2017:1).

To ensure that the shift from an uninspiring way of doing things becomes a reality, teachers' teaching approaches and assessment strategies that do not encourage critical thinking are to be avoided. One of the barriers challenging the use of cellular phones is the inability of the teacher to allow learners the freedom to express their individuality (Vandeyer & Killen, 2007:107). The type of activities used to assess the learners' understanding, and preparing learners for their life-worlds have to be compatible.

3.4.3.3 *Teachers' attitudes towards technology and development*

According to Lombardi (2007:8) the teacher-as-facilitator can make or break a learning event. The negative practices utilised in class can evoke feelings that reinforce, support, or detract from knowledge construction.

The importance of teachers' professional development is to allow learners to acquire learning skills and suitable knowledge that promote effective development. African countries are threatened by teachers who are not competent to address the needs of twenty-first-century and development in line with the UNESCO Competency Framework for Teachers (Tairab, Huang, Chang & Zheng, 2016:316).

Inadequate expertise to use these new technologies and content knowledge is a hurdle experienced by South African teachers too (Makoe, 2011:178). The Department of Education needs to support teachers so they can incorporate technological resources into the classroom effectively (Thomas *et al.*, 2013:298; Kanjee, 2009:68).

According to the discussion above, it is clear that a lack of national policies to promote the responsible use of cellular phones in classes may hinder the implementation of the framework in South Africa (Porter *et al.*, 2015:13).

3.4.3.4 Lack of resources and discipline

Porter *et al.* (2015) and Grinols and Rajesh (2014) are in agreement that there is a lack of organisation of the classroom with regard to procedures and discipline, especially in classes with a large enrolment. According to a study by Grinols and Rajesh (2014:92), multitasking poses a threat to the smooth operation of a classroom. Measures to circumvent disruptions, which could involve sending text messages to learners while they are concentrating, taking pictures, chatting on Facebook during class and ringing phones derail the learners and should be planned for in advance (Porter *et al.*, 2015:27; Vandeyer & Killen, 2007:109).

The unequal distribution of resources, such as low income of some households, has an influence on the type of cellular phones learners possess. According to the results of the study conducted by Porter *et al.*, nearly 50% of both boys and girls in South Africa possess cellular phones. Subsequently, incorporating cellular phones may be hindered by the fact that not all the learners possess cellular phones, or don't possess cellular phones that are internet compatible (Porter *et al.*, 2015:26; Unwin *et al.*, 2017:1).

The ability of teachers to incorporate technological devices in their classroom requires that they adapt innovative learning strategies and adjust their assessment strategies to accommodate collaborative learning (Lombardi, 2007:9). Cellular phone use is deemed necessary because it is expected to assist the learners in areas such as accessing information directly relevant to the curriculum content especially in contexts where text books are scarce (Porter *et al.*, 2016:25).

Many countries have little or no vision and less commitment to the need to change their education systems to accommodate the global market economy, which requires competent and skilled learners (Jhurree, 2005:476). The Survey of ICT and Education in Africa Report states that one of the recommendations from the Working Groups was that an ICT policy be developed for schools to accommodate the rapid inclusion of technological devices in education (Farrell, Isaacs, Trucano, Harndy, Hare, Tetang

Tchinda, Mangesi, Tutu Agyenman-Duah & Fall, 2007:4). In South Africa, the Gauteng province Guidelines for Management and Usage of ICT's in Public Schools in Gauteng encouraged each school to develop its own ICT policy, and to take an honest look at the current ICT status at a school and to decide how to make the best use of what already exists and how to progress further (GDE, 2011:33).

Based on the above discussion it is evident that cellular phone use is expected to be incorporated in class for areas such as accessing information directly relevant to the curriculum content especially in contexts where text books are scarce (Porter *et al.*, 2016:25).

3.4.3.5 *Inappropriate learning environment*

Tairab *et al.* (2016:322) suggest that the learning environment should promote autonomy as far as possible, and be compatible with the global learning space. Some of the older generation of teachers are struggling to adapt their teaching approaches, from teacher-centred to learner-centred, through the use of technological devices promoting freedom and autonomy, enabling learners to engage in class the same way they would do in their life-worlds.

Inappropriate learning resources and unequal distribution of resources pose a threat to achieving the objectives of teachers to prepare twenty-first-century learners, and to extend access to resources (Mdlongwa, 2012:5).

From the discussion above, it can be deduced that the inappropriate use of technological devices hinders the learning process and the ability to prepare twenty-first-century learners. For the intended framework to be successful, this study seeks to circumvent such threats.

3.4.4 Exploring the conditions of a sustainable framework

In order to deal with the barriers threatening the effective implementation of the framework, the conditions to circumvent the barriers above will be discussed.

3.4.4.1 *Availability of resources*

To circumvent the threat posed by a lack of stimulating resources, Australian authorities provide teachers with suitable resources that are accessible via the internet, so that teachers can transform the teaching and learning environment (Kanjee, 2009:69).

The availability of varied and relevant resources that stimulate the teaching and learning environment is critical, so that teachers can support learners. It is the responsibility of the national Department of Education to provide teachers with the relevant resources that stimulate teaching and learning, though cellular phones can be provided by schools, from their individual budgets. Setting up of the correct infrastructure to enable teachers to practice collaborative learning is important. Schools should plan to provide schools with access to the internet, preferably through Wi-Fi (Jhurree, 2005:477).

Using cellular phones could be more cost-effective than schools acquiring tablets or computers, which will need massive security measures (Valk, Rashid & Elder, 2010:118).

3.4.4.2 *Creating an environment that promotes high skills and critical learning*

Many teachers consider knowledge to be an entity that they can just transfer to the learners and expect them to memorise it (Wang, Shen, Novak & Pan, 2009:675). Failure to use a learner-centred approach in class will disadvantage the teacher too. Active learning techniques can benefit the learners greatly, as suggested by Wang *et al.*, who suggest that relevant activities are required to assist the learners to develop critical thinking skills, to solve problems in a different way and to think independently (Wang *et al.*, 2009:675). High skills and critical learning require that teachers allow the learners to be actively involved in class. For example, analysis of information retrieved from the internet gives the learners the opportunity to apply the high-quality knowledge acquired.

3.4.4.3 *Policy on teacher development*

Teachers require support and development, so that they can accept transformation regarding the use of technological resources. Strategies and policies that serve to support teachers' development need to be put in place to enable them to change their classroom practices and their attitudes and improve their competency (Grinols & Rajesh, 2014:94; Kanjee, 2009:68). The government's plans regarding professional development, as well as national policies, should cover training for incorporating and using technological resources during teaching and learning (Vandeyer & Killen, 2007:101). Furthermore, teachers suggest that they need adequate training and commitment from the government, which should provide overarching structure and guidance through clear policy on teachers' class use of cellular phones (Porter *et al.*, 2015:13). The increased ability to use cellular phones and skills to incorporate them into the classroom will mean that less time is needed to train teachers (Thomas *et al.*, 2013:298).

3.4.4.4 *Proper planning to enhance collaborative learning*

Collaborative learning is important for changing the learning environment. The teachers ought to have a strategic and coordinated plan, so that it can work to the benefit of the teachers and the learners. Since the use of cellular phones is believed to encourage active learner participation in the learning process (Wang *et al.*, 2009:676), the teacher needs to do intense planning prior to the lesson, so that it is known what the learners will do and what the teacher will do (Beetham & Sharpe, 2013:7). Having said that, due to ill-disciplined learners who derail classroom activities when they bring their cellular phones to class, the situation where "self-monitoring strategies" should apply is not always functional. However, learners should control the temptation to use cellular phones for the wrong reasons or in an inappropriate manner (Grinols & Rajesh, 2014:90).

3.4.4.5 *Promoting a twenty-first-century learning environment*

The twenty-first-century learning environment is influenced by the teaching approach to learning and the intentions of the lesson. One of the conditions suggested is giving the teacher greater freedom to choose relevant content (Garrison, 2011:65).

Burton argues that a young generation of learners needs to be empowered with lifelong knowledge, in order to build their own agency; and be supported to acquire skills that will enable them to become competent and confident citizens (Porter *et al.*, 2015:15). This study does not intend to argue that educational practices are determined by technology, though it can be incorporated in the classroom to promote twenty-first-century learning (Beetham & Sharpe, 2013:6). Although we are experiencing challenges, such as minimal resources at schools, teachers are still at liberty to adjust their approaches to the benefit of the learners (Beetham & Sharpe, 2013:7). Teachers have the responsibility to design an environment and the activities that are pedagogically suitable for promoting twenty-first-century learning (Beetham & Sharpe, 2013:8).

3.4.5 Providing evidence for a functional and successful framework

3.4.5.1 *Teaching and learning environment*

Prensky (2005:4) claims that internet browsing is one of the means to enable learners to access information. The successful use of cellular phones is based on the fact that they can be utilised as research tools that enable learners to search for information that they will be able to share in class. By doing so, the teaching and the learning environment becomes stimulating, because not all the work is done by the teacher.

3.4.5.2 *Enhancing role playing*

Mentors who took part in research into mobile learning report that using cellular phones improves learners' ability and skills in reading and writing. Finding information requires the learners to possess good reading and writing skills, for the purposes of giving feedback or sharing information with other learners (Attewell, 2005:13). Using cellular phones will be successful because it caters for diverse learning methods that facilitate knowledge-centred learning at any time. The teacher is able to transform the classroom into an exciting, learner-centred environment through the incorporation of cellular phones (Valk *et al.*, 2010), thereby promoting collaboration (Pegrum *et al.*, 2013:74).

3.4.5.3 *Content promoting empowerment*

In line with the challenge faced by teachers to create a stimulating environment that is appealing to learners and transforming them so that they can be globally compatible, Pengrum *et al.* (2013:66) comment that a learner-centred pedagogical approach that encourages communication and collaboration has the potential to create well-informed and well-connected learners who are digitally literate. Creating a flexible environment where learners are not exposed only to static equipment, but can also have access to hand-held devices that will assist them with the relevant activities, is seen as a condition for promoting empowerment (Beetham & Sharpe, 2013:65).

3.5 SUMMARY OF THE CHAPTER

An intense literature review related to designing a framework for the use of cellular phones was presented. The operational concepts relevant to the study were discussed. The formulated organising principles, drawing from the five principles of the general aims of the South African curriculum, as outlined in the NCS document, were utilised as constructs for shaping the argument for justifying the design for the framework. The literature related to the objectives of the study was discussed.

In the next chapter the research design and methodology that informed a framework for the use of cellular phones to improve curriculum practice in EMS classes will be presented.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY INFORMING THE FRAMEWORK

4.1 INTRODUCTION

The aim of the study was to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. This chapter will present the research design and methodology that was used for generating data for the purpose of achieving the objectives of the study. In an attempt to realise the aim of the study and to answer the research question, the PAR approach was put into action to generate data, because of its collaborative and emancipatory agenda, which is advocated by CER. This chapter serves to orient the reader and justify the research design and methodology utilised for generating data, in order to achieve the five objectives of the study pursued, namely, i) To justify the need for a framework; ii) To identify the components of a framework; iii) To identify the threats associated with a framework; iv) To explore the conditions of a sustainable framework; and v) To provide evidence for a functional and successful framework.

In this chapter, a comprehensive description of PAR, its origins and its objectives, will be discussed. The chapter will then present the role of PAR in achieving the objectives of the study, and the role of the critical emancipatory researcher when generating data. This will be done to show that PAR does not allow the participants to be treated as subjects being researched, but as being producers of knowledge and information necessary for designing the framework for the use of cellular phones to improve curriculum practice.

Furthermore, the steps that were followed to generate data will be explained. In order to validate a data-generating approach, the stages that unfolded during the process of generating data will be discussed. The epistemology and ontology relating to PAR will be discussed. The significance of the development of the strengths, weaknesses, opportunities and threats (SWOT) analysis, the team's mission and vision and the strategic plan will be outlined. A comprehensive discussion about how the intervention process unfolded will be given. The brief description of the method used for data analysis and ethical considerations will be discussed. The chapter will end with a brief summary.

Chapter 5 deals with the presentation, analysis and interpretation of data, and discussion of findings towards designing the framework for the use of cellular phones to improve curriculum practice in EMS classes.

4.2 RESEARCH DESIGN AND METHODOLOGY

The design and methodology used for generating data in the study to design the framework intended is useful for the education fraternity in their attempt to transform educational imbalances, thereby creating equal opportunities for learners experiencing the problems identified by the study. Moreover, the study intended to engage the participants, to enable them to participate in discourse for the sake of knowledge construction, which would bring emancipation and redress of social imbalances.

In order to extend Habermas's notion of the emancipation of humanity, integrating an approach calling for critical inquiry related to power structures associated with social control and issues affecting society is justifiable (Brough, 2012:350; Kemmis & McTaggart, 2005:271). Relevant to the kind of research that focuses on the oppression or inequality suffered by marginalised groups, and power relations, this research seeks to emancipate disempowered participants while they work collaboratively to avoid further marginalisation (Brough, 2012:350; Morrison, 2009:28).

4.3 PARTICIPATORY ACTION RESEARCH

4.3.1 Defining PAR

PAR was the appropriate approach for generating data and constructing the knowledge necessary for answering the research question. PAR is a systematic approach to finding things out by using a collaborative way to generate data (Hancock, Ockleford & Windridge, 1998:6). PAR focuses on how the participants interact collectively when solving a shared problem affecting our society (Green & Thorogood, 2004:24). Cornwall and Jewkes (1995:1668) suggest that the key feature of PAR is its ability to disseminate power within the research process. Furthermore, Sohng (1996:82) suggests that a participatory research, such as this, has three key elements that distinguish it from traditional researches, namely, people, power and praxis.

PAR assists the research team to determine, by collaboration, the crux of the problem, as well as to identify actions that bring transformation to the situation as a means of new knowledge (Loewenson, Laurell, Hogstedt, Ambruso & Shroff, 2014:12; Sekwena, 2014:49; Turnbull, Friesen & Ramirez, 1998:178).

PAR is an interpretive approach that differentiates itself from other approaches concerned with investigating, because of its action purpose, bringing change, and its critical element (Khan & Chovanec, 2010; Walter, 2009:1). PAR also identifies, understands and brings improvement to the world through transformation. It enables researchers, who are part of the community, to collaborate in order to pursue new knowledge and actions, and initiate change to emancipate communities from the oppression experienced (Esau, 2013:2; Freire, 1970:33). The use of PAR benefits participants, as they build knowledge through their experience in their everyday lives (Ledwith, 2011:8).

Using PAR as an approach for generating data is valuable for a study that is coached by CER, because it allows free participation of the participants in the development of new ideas and the design of the framework, which has the intention to empower (Biesta, 2010:43; Moriarty, 2011:2). In addition, the open environment created through the use of PAR allowed us to have close contact and active interaction in the team (Baum, MacDougall & Smith, 2006:854; Moriarty, 2011:2; Rose *et al.*, 2014:2).

With regard to relevance of the research design, we were not depending on certain participants to provide data. For example, as opposed to traditional ideas, where the main researcher possesses the superior role above the researched individuals during the research process, PAR supports the emancipatory notion of transferring power, from the researcher, who is regarded as an expert in solving the research problem and sharing it with all the participants involved in developing the emergent framework for the study (Mertler, 2008:21; Moriarty, 2011:7).

As a result, Freire's suggestion in his book, *Pedagogy of the Oppressed*, assisted us to respect each other and appreciate others' viewpoints during the research process (Hancock *et al.*, 1998:6; Moriarty, 2011:2).

Reflecting on the above discussion, it can be said that the significance of using PAR as an approach for generating data is valuable for a study that is coached by CER,

because it allows free participation of the participants in the development of new ideas and the design of a framework that intended to empower us (Biesta, 2010:43; Moriarty, 2011:2). Using PAR as an approach in the study is related to Kemmis and McTaggart's (2000:273) three attributes of PAR, which distinguish it from other approaches. All participants feel committed to the research, because of the shared problem that has to be resolved by the participants collectively. PAR creates the opportunity to include members of the community who have common interests in the social problem identified, and PAR is involved in action, based on solutions by the community members involved in the research.

4.3.2 Origins of PAR

PAR originates from the pioneering work of Kurt Lewin and the Tavistock Institute of Human Relations, which developed it in the 1940s and gave impetus to the action research movement (Esau, 2013:3; Kemmis & McTaggart, 2005:272). Lewin was credited for advocating democracy in the workplace and collaboration with workers while changing the institution (Kindon, Pain & Kesby, 2007:10; Ozanne & Saatcioglu, 2008:427).

In the 1970s, the classical work of Paulo Freire, that is, *Pedagogy of the Oppressed*, had a massive impact on emancipatory practices (Ledwith, 2011:606). Paulo Freire's work gave rise to the PAR approach that was greatly used in projects that intended to help members of communities and to engage them in transforming their situation (Herr & Anderson, 2014; Koch, Selim & Kralik, 2002:110). Freire attempted to use critical pedagogy and dialogical reflective methods in his adult education classes (Esau, 2013:3). This ensured that the problem experienced was not resolved only on the basis of a certain class of people's perceptions or views. The stance taken was to ensure that the research would be left in the capable hands of deprived and marginalised people, so that they could identify themselves as knowing role players, define their reality and transform their lives (Sohng, 1996:81).

Later, action research emerged, blending together critical emancipatory action research and PAR, which developed from the social movement. The members called for the need for approaches that are action oriented, and the need to do collaboration with communities (Kemmis & McTaggart, 2005:272).

PAR became part of the research programme at the Western Cape University in 1987 (Esau, 2013:3). To this day, PAR is used in South Africa by anti-apartheid activists to promote emancipation of South African teachers.

4.3.3 Objectives of PAR

4.3.3.1 *Democracy*

PAR was preferred, because of its democratic process. It is concerned with developing and engaging community members, so that they are able to transform their situation using knowledge and actions. PAR is itself a social and an educational process (Kemmis & McTaggart, 2000:277). By using PAR in the study, the following objectives were achieved.

4.3.3.2 *Transformation*

The participants were not merely seen as research subjects, but were recognised and valued and, thus, treated with respect, care and dignity, because of their transformative role (Brookfield, 2001:13). PAR allows researchers to depower themselves to create a platform for all the participants to freely voice their opinions and be listened to, thereby drawing equality into the study (Baum *et al.*, 2006:856).

4.3.3.3 *Empowerment*

We find ourselves experiencing unjust treatment or distribution of resources in our workplaces or communities. In order to eradicate the challenges explored by this research study and to bring empowerment, we needed a team that would engage collaboratively in discourse to generate the data necessary for developing the solutions.

4.3.3.4 *Social justice*

Kemmis and McTaggart (2005:567) suggest that the use of PAR is emancipatory, because it helps the research team to address an unjust situation, their challenges, and unsatisfying conditions being experienced (Esau, 2013:4). For example, the purpose of using PAR as an approach was not only to empower community members, but to allow the voices of under-represented or disempowered groups to be heard as

they produce educational knowledge during the research process (Esau, 2013:3; Moriarty, 2011:7).

4.3.3.5 *Emancipation*

Kindon *et al.* (2007:2) are in agreement that PAR is emancipatory, because its emphasis is on creating a dialogue between participants and the development of strategic actions that will bring change to those conditions that impede the desired improvement (Hien, 2009:103; Zuber-Skerritt, 2001:19). Having said that, the inclusion of marginalised communities in the study was not done only to utilise them in the study, but to acknowledge their contribution to the study and to grant them the opportunity to develop actions that enhance the participants' ability and that would emancipate them (Koch *et al.*, 2005:264).

Looking at the relevance of the theoretical framework and the methodological approach, both CER and PAR advocate a process that intends to bring participants out of any limitations or restrictions through participation into action (Baum *et al.*, 2006:856). PAR is relevant for this study, as it shapes the researcher's study to be collaborative, subsequently aiming at eradicating the imbalances experienced by the participants in the study. In line with CER's objective of social justice, implementing PAR ensured that participants were not there to be researched, but to add value to the study through discourse that aimed to develop activities that would transform and emancipate the affected community (Koch *et al.*, 2005:262).

Like CER, another important objective of PAR is hope. The participants willingly agreed to participate in the research study with the view that their contributions will result in a transformed research environment (McIntyre, 2007). By engaging in participatory research, participants hoped to equip themselves with knowledge that would be acquired during discourse. Their involvement has the power to develop actions necessary for designing the framework for the use of cellular phones in EMS classes (Sohng, 1996:93; Zuber-Skerritt, Wood & Louw, 2015:40).

Based on the above, we can understand that the choice of the approach to generating data is dependent on the theoretical lens coaching the study, as well as that approach's intentions in the study. According to PAR, this research offers the epistemology that addresses people, power and praxis in the democratic society, so

as to deviate from the manner in which traditional researchers generated data (Sohng, 1996:79). According to Hemmati (2000:15), even though we were a diverse group of people who collaborated and engaged in a discourse to strengthen our capacity, we operated with an approach that encouraged the principle of unity, peace and emancipation of the participants.

4.3.4 The role of PAR in the study

Based on the shared problem that was adopted by the team members, we took the decision to develop the framework that was suitable for transforming the classroom environment, whilst empowering the teachers and the learners involved (Biraimah, 2003:428). The approach we used to generate data ensured that the people who formed part of the team were relevant people and their significance was revealed through the use of PAR. To assert what was suggested by Biraimah regarding Freire's theoretical perception, of making a positive change in our working field as teachers and learners, our meaningful engagement in the discourse gave us important information we required to design the framework that was aimed at transforming the classroom environment (Biraimah, 2003:428).

The type of approach chosen for the study seemed to fit the researcher's study, as the intent was not only to generate data that would help to answer the research question, but to bring change to the community, and convert the participants' role from merely subjects being researched, to being producers of knowledge and information necessary for designing the anticipated framework (Berg, 2004:204; Esau, 2013:3, Sohng, 1996:80). Since the study deals with issues relating to social justice, equality, domination of expertise over common knowledge in decision making and power, the use of PAR ensured that the barriers were broken down between the researcher and the participants (Maiter, Simich, Jacobson & Wise, 2008:306). The inclusion of the team members in the study ensured that their role was not just to provide information for the research, but to grant them the opportunity to experience the research process, as well as providing powerful knowledge for eliciting social transformation that would address social imbalances (Baum *et al.*, 2006:855).

By applying PAR in the study, the researcher ensured that all the participants' knowledge for the purpose of addressing social practices resulting from social

imbalances would be shared for the benefit of all the community members (Dold & Chapman, 2012:512; Kemmis & McTaggart, 2005:277). Drawing on CER and PAR in the study is justifiable, since they both serve to uncover the relationship between ideas and their social environment, and designing the anticipated framework with the assistance of all the participants (How, 1995:13; Jacobs, 2014:305).

4.3.5 The role of the researcher in PAR

The researcher's role as an emancipatory researcher was to bring together a team of people with different life experiences and different abilities, who are able to solve the problems they are faced with. A diverse team ensured that individual team and organisational goals were attained effectively (Gallos, 2006).

Since PAR has an emancipatory agenda, the researcher, as a critical, transformational researcher, initiated the discourse so as to create awareness, by giving people knowledge and expertise to realise new actions for the emancipation of ordinary community members. I took part in the study, not standing alone, but alongside the participants, who took part in the discussions that were necessary to design the framework for the use of cellular phones to improve curriculum practice in EMS (Sohng, 1996:93). By doing so, the emancipating and empowering intentions of PAR in agreement with what CER advocates, prevailed. Since PAR is people centred, the participants' presence in the study ensured that they engaged in a democratic environment that influenced the design of the framework necessary for transforming the classroom into a more fun-filled, exciting environment that permitting emancipation through the use of cellular phones (Galloway, 2012:163; Sohng, 1996:82).

Unlike situations where a researcher uses the participants mainly as research subjects for generating data, promoting the idea of emancipation in the study was possible because we worked collaboratively with the participants to transform our unfavourable situation collectively, which necessitated a process that would refute the long history of positivism in research (Dworski-Riggs & Langhout, 2010:216). This kind of setting ensured that we appreciated one another's contributions to the research process.

As an emancipatory researcher, collaborating with the participants was necessary for realising emancipation through the interaction between the team members (Berg, 2004:202). Participating in the study provided the participants with the opportunity to

realise that they possessed the ability to bring change in education, thereby freeing them from any oppression they experienced. As a critical teacher, the researcher included the learners as part of the research team, to allow them to contribute to transforming their classroom situation into a more fun-filled, exciting environment. In addition, it empowered them, so that they were able to reflect on their situation in society (Amuko *et al.*, 2015; Darder, Baltodano & Torres, 2003:364; Freire, 1970:96; Naidoo *et al.*, 2013:86).

For the research environment to be free from any power struggles, the researcher took a stance to diffuse power amongst the participants, thereby making it possible for the participants to experience the emancipation that is advocated by CER (Nkoane, 2013:398). During the information session we introduced each other and the participants where explained how PAR entails and the issues of power relations. By so doing, I ensured that power was diffused, irrespective of our positions (see 4.4.2.1).

More often, because of the power or knowledge possessed by some of the participants or researchers in the study, participants speak and unconsciously force decisions on other participants, who have no idea about the matter under discussion, instead of sharing the power with them (Baum *et al.*, 2006:855; Freire, 1970:96). Some participants thought that, because of their experience, skills and expertise, they could decide on the matter without further discussion with team members. Just as in politics, Freire suggests that community members who are oppressed will commit and be convinced to accept decisions made concerning their situation when they intervene critically. Their leaders treating them as objects is unacceptable (Freire, 1970:16). Diffused power allowed effective communication throughout the study, subsequently understanding the language and the tone used by the participants and allowing a sound engagement between participants.

The adoption of PAR as an approach for generating data made it possible for the researcher to take the role of facilitator with interests in technical, communicative and emancipatory matters, as outlined by Murray and Ozanne (Dold & Chapman, 2012:512; Ozanne & Saatcioglu, 2008:424). Furthermore, the researcher acted as the coach for facilitating change, not as the owner of the research (Walter, 2009:2).

During the research process, the researcher became a participant and a learner, instead of being regarded as an expert who considered other participants as objects

(Kemmis, 2001:593; Sekwena, 2014:80). Walter's (2009:3) suggestion, that participatory research is social research, was evident, because the use of PAR encouraged the researcher to be critical when dealing with issues that affect society and to allow discourse that yielded activities, particularly for improving the teaching and learning practice, as intended by this study (Esau, 2013:2). PAR allowed the researcher to be a participant who created ownership of the research, rather than offering a diagnosis and imposing ideas, like the methodologies and approaches used in positivist science research (Baum et al., 2006; Walter, 2009:3).

The collaborative nature of this study created the opportunity for the researcher to draw in participants, who brought activities as solutions necessary for solving the practical problem affecting the community (Berg, 2004:201; Ozanne & Saatcioglu, 2008:424). The approach chosen for generating data made it possible for the researcher to engage the community in the study, though not as objects that are researched, instead, they received recognition and they were valued as significant role players who contributed greatly towards solving the common problem identified. Just as CER calls for collaboration, empowerment and emancipation (Dold & Chapman, 2012:513), the researcher's role to empower the co-researchers is embedded in the fact that PAR allowed us to design a framework that could assist teachers to improve their classroom practice through the use of cellular phones, thereby solving the problem of accessing information and minimal engagement of learners in class (Esau, 2013:4).

4.3.6 Stages of PAR (reflective spiral)

Kemmis and McTaggart describe the PAR steps as a self-reflective spiral, because of the collective and reflective nature of PAR (Figure 5.1) (Kemmis & McTaggart, 2000:276; Koch, Selim & Kralik, 2005:110; Koshy, 2009:5). In agreement with Kemmis's four steps of action research, Gaffney (2008:10) suggests that the four simplified steps serve as an acronym for PAR, namely, planning and action, observing and reflection (Hien, 2009:101). During the research process, we constantly had to evaluate the process, so that necessary adjustments could be made, where possible (Koshy, 2009:5). Participatory research does not follow a specified structure, because the steps overlap one another. There were instances when we found that our initial

plan had to be abandoned due to adjustments that needed to be addressed during the development of the research (Kemmis & McTaggart, 2000:277). These steps do not take place in a clear, linear form, but are interactive (Mertler, 2013:16; Swann, 2002:58). In light of this, the cycle continues through as many repetitions as needed to resolve the problem or reach the objective of the activity planned for (Mertler, 2013:18). Furthermore, Loewenson *et al.* (2014:14) state that the knowledge and experience gained from the executed action serves as input for a new round of inquiry, informing the analysis phase. This simply meant that the previous step influenced the next step. For example, the action taken to seek for clarity from the school principal regarding the shortage of textbooks used by Grade 7 learners, came out during the reflection session, when we dealt with the issue of the inability of learners to complete their informal tasks in class. The learners complained about insufficient textbooks. We then decided to include the shortage of textbooks as a matter that would be addressed when dealing with team priorities (Paragraph 4.4.3.1).

Koshy maintains that the spiral helps the participants to understand a particular issue and grants them the opportunity to learn consciously while making informed decisions, and, thus, becoming empowered (Koshy, 2009:5; Swann, 2002:58).

4.3.6.1 Planning stage

The importance of using PAR as an approach for generating data was justified by the need to address our challenges, so that we could transform our situation collaboratively (Stringer, 2013). As part of preparation for the establishment of the research team, different stakeholders were invited to attend the forum for discussing the issues concerning the effects of the inability of learners to access information during class, which, in the end, hinders their performance (Stringer, 2013:31).

The coordinating team was established and they were informed how the participatory research would unfold. As suggested by Walter (2009:3), the planning for a focus group was influenced by the fact that the type of data that was required for designing the framework was based on the participants' knowledge, skills and experience. Moreover, we needed solutions that were sustainable over time (Stringer, 2013:16).

Data generation and analysis were concurrent, which enabled identification of emerging themes and issues to guide subsequent group discussions. Feedback to the

participants was a continuous process and, to validate the emerging themes, the issues from the previous PAR session were presented and confirmed at the beginning of the next session.

To curb the challenges that were highlighted by McTaggart (1991:170) regarding the group dynamics, such as power relations, we understood that we had to plan collectively as participants, regardless of our positions or experiences. The process of generating data began by the participants identifying the problem that was related to us, as well as planning for the activities that would be implemented to assist us to transform the situation (Hien, 2009:101). Contrary to traditional approaches, where the principal researcher imposes the research question for generating data, the research question that the researcher initiated was debated and was accepted by the team members. The theoretical framework coaching the study, as well as the research approach, were explained thoroughly, so that each participant could understand how the research process would unfold (Rose *et al.*, 2014:4). The state of affairs in our schools assisted us, as part of the community and participants in the study, to develop activities essential for achieving the objectives of the study aimed at transforming the classroom environment. Therefore, in addition to the theoretical framework and the research approach, we had to agree on matters such as the objectives of the study, procedures to be followed during the research process, ethical issues, confidentiality and consent participation (Rose *et al.*, 2014:4). A thorough discussion pertaining to the above-mentioned matters will be presented under the discussion of Phase 1 of the intervention process.

4.3.6.2 Action stage

According to Koch *et al.* (2002:113), acting refers to the development, implementation and evaluation of plans devised by participants. This is the stage where all the activities deemed necessary for transforming the situation in class were executed. Following the planning that was done before each action could be executed, it was important for all the participants to engage, so that they could share their experiences or knowledge. The implementation of the planned actions was necessary for generating data, although, sometimes, the topic was derailed or blown out of proportion by some members of the research group. The data generated was necessary to create the framework for the use of cellular phones to improve the curriculum practice.

One of the activities that was necessary for realising the objectives of the study was observing two EMS lessons, where, in the first lesson, cellular phones were not incorporated into the lesson as resource materials, whereas in the second lesson cellular phones were incorporated as resource materials. The topic of the lesson observed was Entrepreneurship: Advertising your business. During the first lesson the teacher explained what advertising is and gave the learners an activity in a form of homework. The learners were asked to explain how they would advertise their businesses. They had to explain 5 means of advertising. Feedback was expected the next day but some of the learners complained that they could not find information because they didn't have textbooks. This showed us the challenge the learners and teachers face when the resources are insufficient.

During the second lesson the learners used cellular phones as resource materials. They were able to complete the same activity in class using information from the internet. The second lesson showed us the importance of using cellular phones for the purpose of finding information for content related matters.

These actions above were implemented to show how the use of cellular phones can stimulate the learning environment. During the lessons we generated data through the actions executed as a result of the planning that we had done as a team. While we observed the lessons, we were able to reflect on the actions and we managed our actions, so that we could proceed smoothly to the next planned actions.

Another activity that was executed was a workshop, presented by the subject advisor responsible for Inclusive education after identifying the challenges faced by teachers regarding curriculum adjustment that was necessary to enable teachers to reach all the learners in the class (Annexure G). Teachers need to adapt their lessons and apply different approaches to suit the type of learners they teach (Annexure G). Flexibility is required, so that alternative actions can be for towards curriculum adjustment (Hien, 2009:102). According to Rose *et al.* (2014:4) and Koshy (2009 4), implementing the actions should be accompanied by observing and monitoring the results. Furthermore, observation of consequences of the anticipated change leads to the next stage, which is reflection (Koshy, 2009:4).

4.3.6.3 Reflection stage

Although reflection is considered to be the last stage in the process (Rose *et al.*, 2014:4), the participants have the responsibility to reflect on what is done in the study to enable them to monitor their progress and to initiate new developments based on what was planned previously (Annexure A). Reflection created the ability for the participants to monitor our progress as a team, and to create self-awareness as they voiced their opinions throughout the process (Koch, *et al.*, 2002:114; Zuber-Skerritt *et al.*, 2015:40). Based on the consequences of the previous actions, reflection was necessary, because it was sometimes necessary for the team to set in motion the process of planning, acting, observing and reflection (Koshy, 2009:4; Rose *et al.*, 2014:5).

4.3.7 Epistemology and ontology

Epistemology is concerned with the nature of knowledge and how it can be acquired (Koshy, 2009:24). In the light of the argument by Kindon *et al.* (2007:13), the researcher, as a critical researcher who used PAR as an approach for this study, adopted a participatory perspective that allows participants to create knowledge. The epistemology of PAR reminds us that people are diverse and they have multiple interpretations, experiences and knowledge that is important for the research process (Koshy, 2009:24). Bringing the participants together under one roof seeks to combine their actions, skills and knowledge to solve the problem. The validity of PAR is measured according to the ability of the actions developed by the participants to transform the situation and to answer the research question effectively, and not on beliefs (Koshy, 2009:22). It is important that the issues that concern society should be dealt with by the members of that society, since they possess a great deal of experience that has personal meaning based on their knowledge (Sohng, 1996:80). PAR maintains that the participants become committed to the study and ensure that the dialogues that are initiated yield actions that will transform the situation and empower the participants.

4.4 INTERVENTION

The emancipatory appeal of PAR was the driving force of this study (Koch *et al.*, 2002:112). Usually, the subject advisors for EMS organise a results analysis meeting so that the EMS teachers can discuss the controlled test results that are part of a formal programme of assessment for every term (DBE, 2011:25). (Bertram, 2011:5), asserts Fleisch's suggestion that most South African learners struggle to achieve good marks for their assessments. During the meeting teachers realised that learners are encountering problems in terms of obtaining good marks (i.e. 50% and above) in EMS. The following were among the reasons that were suggested by the teachers: learners lack responsibility and dedication, the content is congested, lack of reading and writing skills that hinder the learners' performance, and lack of proper preparation for the test. One teacher said:

teachers are always blamed for poor results whereas these learners are lazy to study and to complete the activities. They don't care whether they fail or pass.

The teachers, together with the subject advisors, agreed that, even though the learners are to blame for their performance, the teachers, school management team, parents and the education department are also responsible for ensuring that learners are supported and well prepared for formal assessment (DBE, 2011:24). Another issue highlighted was that some learners in rural or disadvantaged areas lack resources that enable them to access information for learning EMS. The EMS teacher is expected to vary assessment tasks, so that the principles outlined in the EMS CAPS Policy Statement of 2011 can be attained (DBE, 2011:4). This became an issue of interest to the researcher, because classroom practice has an influence on the learners' level of readiness and performance (Weinstein, Soulé, Collins, Cone, Mehlhorn & Simontacchi, 1991:341; Zuber-Skerritt, 2001:19). Kemmis and McTaggart (2000:277) emphasise the fact that using PAR as approach allows teachers, as researchers, to critically investigate actual practices that we find ourselves applying, collaboratively with other individuals who directly or indirectly influence the situation. In agreement with this notion, Hien (2009:103) emphasises that PAR is usually implemented to improve the quality of people's conditions, thereby contributing to the emancipation of society. In order to deal with the problem identified, the research process unfolded as follows.

4.4.1 Phase 1: Preparation

This section will describe the initial stage of the research process.

4.4.1.1 *Planning*

Before the commencement of the research process, planning regarding how the research will evolve is important. Although the purpose of this study was to design a framework for the use of cellular phones to improve curriculum practice in EMS, this study also empowered the participants. Secondly, the voice of all the affected members of the community were heard as they gave their opinions freely (Dold & Chapman, 2012:512). Applicable to collaboration, which is advocated by PAR and CER, members of the team were put together, as they are regarded as producers of knowledge because of their experience, skills and expertise, which were necessary to resolve the problem identified (Esau, 2013:3).

The participants included the EMS teachers, subject advisors, social workers, parents of Grade 7 learners, SGB members, Grade 7 learners and the school principal. There is emphasis on the strong and active involvement of participants during the research process that is advocated by PAR (Walter, 2009:2). During the forum, the issues of collaborating together as a team was emphasised to the individuals present (Esau, 2013:3).

Thereafter, a coordinating team was established. Some of the members volunteered to participate in the study, which the researcher acknowledged as an act of commitment and willingness to share their experiences with other participants in order to solve the shared problem (Dold & Chapman, 2012:512; Koch *et al.*, 2005:264). The relevant consent forms were issued to the team members to ensure commitment to the study. The consent form permitted the participants to tear off the section that would serve as proof for future use (Appendices E, F, G) (Dold & Chapman, 2012:512).

4.4.1.2 *Putting the team together*

In order to generate data, two focus groups were developed. Focus groups are a form of group interview that capitalises on communication between research participants in order to generate data (Kitzinger, 1995:299).

Focus groups were ideal, because the research process took place in an environment that was comfortable and relaxed and that allowed the participants freedom to give their own views without any judgement (Kruger & Casey, 2014). Similar to Morgan's point on supporting focus groups, our team brought together participants with different attitudes, to achieve group interaction and a synergy of ideas (Morgan, 1996:188).

Due to the nature of the study, that is, collaborative, our two focus groups participated in group discussions for data collection through interaction between the participants (Hancock *et al.*, 1998:17). The discussions occurred through the use of different topics that were initiated, monitored and recorded as minutes (Annexure D) (Stewart & Williams, 2005:396). Establishing focus groups made it possible for the participants to present their views on the matter and to keep it relevant to the research question (McLafferty 2004:187; Morgan, 1996:2; Ritchie, Lewis, Nicholls & Ormston, 2013:171).

Using focus groups ensured that the participants' use of language and sense of understanding related to the topic was spontaneous. In one instance, a learner portrayed dissatisfaction, while another learner explained that he was glad that he was part of this study, instead of using 'we' as a form of displaying collectiveness. The other participant's quick response was:

Mpho [learner]: Rona, not wena o le mong.

Mpho [learner]: Us, not you alone.

This study brought together participants with a common interest in the problem and who possessed valuable information that enabled us to assess our collective needs and act upon them (Herr & Anderson, 2014; Maiter *et al.*, 2008:306). The team comprised 19 members. The members were the school principal of the school involved, two EMS teachers, subject advisor for EMS, two social workers, three SGB members, three parents, five Grade 7 learners and a university-based Master's degree student and the researcher, the research facilitator.

4.4.2 Phase 2

This section will explain how the second phase of the research process unfolded. Explanations will be given for information session, credentials of participants,

developing a code of conduct, mission and vision statement and, lastly, the SWOT analysis.

4.4.2.1 *Information session*

The coordinating team attended the brainstorming session, as planned, to discuss the research process, as they were not exposed to PAR, the approach used for generating data (Annexure E). As the research facilitator, the researcher took up my role of explaining the research title, research question, research problem statement, data generating process, research approach and ethical considerations. Moreover, the participants were enlightened about the collaborative approach that seeks to engage everyone as equal and willing participants in the research process (Stringer, 2013:114). The researcher reminded the coordinating team that it is acceptable to initiate anything during the research process, and assured them of confidentiality.

4.4.2.2 *Credentials of participants*

During the meeting, the chairperson for the day indicated that we introduce ourselves, so that we could understand our roles in the community, although our qualifications, position or expertise do not necessarily influence the research process according to PAR. The profiles of participants were as follows.

a) The research facilitator

Since the study is collaborative and empowering, the researcher's role, as the researcher, was more facilitative and less directive (Stringer, 2013:15). The researcher gained an interest in and the desire to improve the quality of our EMS results in South Africa. The researcher was responsible for initiating the research, so that we could formulate a framework for the use of cellular phones to improve curriculum practice in EMS classes. The researcher was responsible for putting together the research team that designed the framework for the study. My experience as an EMS teacher and as a Master's student ensured that proper processes were followed regarding the gathering of data necessary for designing the framework according to CER as the theoretical framework and PAR as the approach followed for gathering data. The researcher explained PAR, its relevance to the theoretical framework, CER, and the research question, and coordinated the activities during the research process. The

researcher's role was, again, to initiate debate using the questions that the researcher presented to the team in order to probe into the problem identified. As a teacher, the researcher had the opportunity to increase her level of empowerment, as she was also referred to as a participant while generating data for the study (Mertler, 2013:24). The researcher was also responsible for analysis of data generated. She ensured that ethical processes were observed.

b) Grade 7 learners

Learners of Grade 7 participated in the research study. Their inclusion in the coordinating team gave them an opportunity to learn how to probe into problems affecting their social environment using the research. Richardson (2014:369) challenges the positivist view on children that consider them as lesser and passive entities who must be made to submit to adult decisions about their lives. The learners' participation in the study changed, from the usual one of being mere recipients of information from the teacher, to learning about the elements of the research. Their participation displayed how power can be redistributed in a research study, so that their voices can be heard (Brough, 2012:366; Sekwena, 2014:52).

c) Parents

Parents were involved in the study so that they could share their experiences regarding the effects of the inability to access information on their children. Usually, when learners are problematic or fail to perform in a certain subject, parents are urged by the school to intervene and to support their children (Lea, 2016:56; Weinstein *et al.*, 1991:334). In order to develop a sustainable framework that is not prescribed, all avenues regarding the teaching and learning of EMS had to be explored, so that we could make informed decisions collaboratively (Vincent, 2013:2; Weinstein *et al.*, 1991:344). Sound parental support fosters lifelong learning and a joint approach between the teachers and the parents can be formed, in order to deal with the problem (Ndamani, 2008:181). Parents' support influenced the success of developing the framework, because the learners appreciated their presence in the team as well.

d) EMS teachers

EMS teachers were included in the coordinating team because of their subject content knowledge and their experiences pertaining to the research question. As teachers who are teaching EMS, we come across situations in which progress, in terms of achieving the objectives of the curriculum, is hindered due to an inability to access information. The only real solution to the problem is getting people who are directly involved, to deal with the problem (Ndamani, 2008:178). Kincheloe (2012:5) supports the researcher's action to include teachers as participants, because teachers' role as researchers ensured that they could investigate what could be done about the problem and which actions could be implemented for developing solutions necessary for transforming their situation. The researcher agrees with Mertler (2013:23), that we sometimes need to shift our mind-set in order to bring quality and an improved approach to our classrooms.

e) Learning facilitator

The learning facilitator specialising in EMS was included because she is responsible for curriculum development, teacher development and coordination of resources that support teachers (Tsotetsi, 2013:147). The learning facilitator has experience as a teacher, holds a HOD qualification in commercial subjects and is a learning facilitator. The expectation was that she would advise the team on alternatives for improving curriculum practice development regarding the challenges facing the teachers.

f) Social workers

The social workers' role was important to the study, as they are qualified to deal with psychological aspects, in addition to fulfilling a role as parents. Expecting children who are at the adolescent stage to deal with technological equipment, such as cellular phones, can be a problem. The social workers assisted us with their knowledge and gave advice where necessary. The collaboration that is advocated by PAR allowed the researcher to engage them as participants to resolve our problem, even though they are not directly involved in classroom practice (Kincheloe, 2012:4).

g) School principal

The involvement of the school principal was important because of the extensive knowledge and skills he possesses. The school principal was able to address the challenges that the school faced through his participation in the study, that was participatory and collaborative (Johnson, 2011:78). The school principal's presence did not intimidate the parents or the learners, but instead, convinced them that the school has intentions to improve learners' performance by allowing the study to take place. One of the parents even commented that it is a good thing that the school principal is involved, so that we can all deal with the problem at the same level, as postulated by PAR (Baum *et al.*, 2006:856). Through his leadership skills, the school principal's presence ensured that the outcome of the framework improved classroom practice (Johnson, 2011:78).

h) SGB members

The SGB members who participated in the study volunteered because they felt that, as parents and as key characters in the performance of the school, they have to engage with other stakeholders to improve the performance of their children. SGB members play a massive role in ensuring that the policies that are developed are implemented, so that the goals set by the school can be achieved. Their participation in the study ensured that they were involved in ensuring that the challenges faced by the school are addressed thoroughly. Their role as policy developers of the school was important, because the use of cellular phones during school hours is not permitted.

Allowing the learners to use cellular phones in class would require the school policy to be amended, and permission to use the school Wi-Fi had to be approved by the SGB.

i) Research student

Participation by the fellow research student provided a guarantee that the researcher would have someone who could remind her about the research process. During the research process, the research student also gained experience regarding how to conduct research using PAR. Participation in the study was influenced by her willingness to share her experience and to acquire a sense of efficacy (Johnson,

2011:79). This empowered her and granted her the opportunity to critically focus on the outcome of the study.

4.4.2.3 *Code of conduct for the research team*

Our coordinating team came together as human beings with different behaviours and different experiences related to their social practices and norms, as well as different perceptions concerning their participation in the research team (Freeman, 2010:183). Due to the diverse environment that we were operating in, we were required to develop a code of conduct (Annexure F). It was necessary for our research team to establish our code of conduct together so that we all understood what is acceptable and not acceptable in the research team.

Based on a suggestion by Hancock *et al.* (1998:18) about the importance of setting the “ground rules” as a basis, we started by compiling our code of conduct, so that we all understand the ground rules and the manner in which we should conduct ourselves during the research period.

4.4.2.4 *The mission and vision statement of the research team*

In order for the participants to understand the intention of the research study, we engaged in an activity to develop a mission and vision statement for the team. Even though we were all keen to participate in the research study, it was not an easy thing to do, as it has to encompass the intention and the role of the research in transforming the classroom practice envisaged (Barrington, Carpenter & MacFeely, 2014:66). This exercise was important, because we needed to ensure that the participants were geared in the direction of achieving the objectives of the study (Madrigal-Sapungan & Sapungan, 2015:149). Our mission statement was, “creating an improved classroom environment through the use of cellular phones”. The vision of the team was to design a framework that justifies the use of cellular phones to improve classroom practice, so that all learners would be able to access information. Guided by our mission and vision, we were able to develop our strategic plan to enable us to address our priorities with the understanding of what the purpose of the study is (Table 4.1).

4.4.2.5 SWOT analysis

The team agreed to perform a SWOT analysis as a planning tool for our team (Table 4.2). The SWOT analysis assisted us with the environmental review and decision making towards realising our shared vision (Taplin-Lacey, 2014:13). Performing the SWOT analysis guided the participants to assess the environment regarding its strengths, reviewing areas of improvement (weaknesses), and exploiting its opportunities or using them to counter the threats (Tsotetsi, 2013:156). Performing the SWOT analysis helped us to prepare for the anticipated challenges that would hinder our progress during the research process and made us aware of the positive factors that would influence our success.

4.4.3 Phase 3

Having developed the SWOT analysis, we developed the priorities for the research process that we focused on. We did that by developing the strategic plan (Table 4.2).

This section explains the strategic plan that was developed.

4.4.3.1 Strategic plan – setting priorities

Having dealt with activities pertaining to Phases 1 and 2, we proceeded to set priorities that would assist us to address the objectives of the study. This strategic plan phase was necessary so that the team could set priorities for designing a framework for the use of cellular phones to improve curriculum practice in EMS classes. The action plan that we followed was based on the priorities agreed upon by the team after the brainstorming session. We agreed to focus on priorities that would drive us towards obtaining the five research objectives. We agreed on the following priorities.

Priority 1: Using electronic materials as resource materials

There are many resource materials that can be utilised in class, from posters, magazines and newspapers, to digital devices. Resources materials necessary for learning and teaching has evolved, and now the focus is on digital and technological devices (Briz-Ponce *et al.*, 2017:618). However, most teachers and learners are dependent on textbooks as resource materials (Hutchinson & Torres, 1994:315). This is evident because the learners raised concern that they experience a shortage of

textbooks. Moreover, some of the textbooks have limited information and that hinders learners' progress. They said, furthermore, that some of the activities in EMS require that they have their own textbooks, or a copy of the activity to complete the tasks.

In relation to the objectives of the study, it was deemed fit to prioritise the above challenge, since it concerns the need to cater for twenty-first-century learners through technology, as well as the need for teacher agency. In order to address the challenge, suggestions, such as downloading relevant material, as well as using activities that are not available in the textbooks at school through cellular phones were presented. To explore the idea of using e-books at school, would serve the same purpose as the traditional paper textbook that we are used to, with the difference that you access it digitally, the school principal and the administrative clerk were tasked to find the necessary information about e-books. The school principal contacted the publisher representative and later handed over the matter to the researcher, so that I could arrange with the representative further. The response from the publisher representative was that there are indeed electronic textbooks available for use. He explained that they were planning to present an information session to Mangaung schools situated in Bloemfontein. After the feedback was given to the entire team, one of the team members commented that it will be very good, since some of the schools in the Bloemfontein vicinity allow learners to use tablets in class instead of textbooks, similar to an initiative that had been implemented in Gauteng province.

Furthermore, since it was ideal for our learners and teachers to access information, and to enable the teacher to vary resource materials during the learning and teaching process, especially at schools that experience shortages of textbooks, the participants agreed to explore the use of cellular phones.

Priority 2: Lesson presentation

The teachers' concern was that some of them are resistant to using a teaching method that requires them to incorporate stimulating resources in class, and that are more learner-centred. The learners highlighted that they sometimes feel that EMS is difficult, because it requires them to reproduce information taught by the teacher, instead of being engaged in the lesson through the use of technological resources, because they enjoy working on them. A lesson with a teacher-centred approach was planned and presented, whereby the learners were taught about advertising a business. The team

members observed the lesson, so that they could make comments necessary for data generation. The second lesson was prepared and presented using a learner-centred approach. This was necessary so that the two lessons could be compared. The use of cellular phones was incorporated into the second lesson to show its contribution to transforming the learning environment. Three learners had cellular phones that were Internet compatible but the other two had to be paired with the others. This was beneficial as it promoted collaborative learning. The observations made were debated by the team members and later discussed for the purpose of reflection. The learners became excited when they were asked to use their cellular phones. The learners commented that their contribution to the lesson empowered them, because they were able to find answers on their own. It was seen that, when the lesson was learner-centred, the learners were able to use their skills while learning, and they were able to access information, subsequently leading to critical and high knowledge acquisition (Makoe, 2011:175).

Priority 3: Presentation – accommodating learner diversity in the classroom

The third activity involved support given to teachers for their development in dealing with the issue of teachers struggling to incorporate technological resources into the lesson. The team decided that the official from the district office in charge of inclusive education should be asked to present a lesson to the team, as well as to the entire school staff. The teachers needed to be developed so that they could keep abreast with changes taking place in education. The school principal requested the official to deliver the presentation. The focus of the intervention was to prepare the teachers and to assist them to understand the different learning styles and the resources relevant for stimulating and enhancing learning in order to cater for different learning styles. The official suggested that teachers adjust their teaching to an approach that incorporates resources that will stimulate learners and grant them the opportunity to participate during the lesson. In the past, most of the teachers preferred using a radio as resource material. Currently, we have many resources at our disposal for learning, for example, tablets, computers and cellular phones, that could be used to access information. She suggested, furthermore, that cellular phones can also be utilised to record lessons, so that learners can listen to the recording later. The presentation assisted the teachers who did not know how to incorporate different learning styles

into a lesson so that learners would find it interesting and informative. Learners who learn better with graphs, pictures and tables, can access visual material from their cellular phones.

In relation to the study, it can be understood that the teacher has the responsibility to create an atmosphere that is beneficial and conducive for every learner. To transform our classrooms, we need to implement different teaching strategies to try and accommodate the learners.

4.4.4 Phase 4

This section will explain how the strategic plan was monitored and how feedback given to the team, so that further planning could be executed.

4.4.4.1 *Monitoring and feedback*

In order to ensure that the strategies are successful, the people responsible gave us feedback. The feedback was necessary so that we could revisit our initial plan. The team constantly reflected on the actions that were envisaged to transform the situation. The reflection was necessary because it enabled us to plan for the strategy that yielded the best results for us as a team. The reflection phase continued during the research process, in order to measure our progress.

4.5 DATA GENERATION

Generating data involved the following steps.

4.5.1 Research setting

The school used as the research setting is situated in Motheo District, in Mangaung, Bloemfontein. The school is an intermediate school consisting of Grade R to Grade 9 learners. The school is classified as a Quintile 1 school, due to the high number of learners from disadvantaged areas who are enrolled. The school consisted of one principal, one deputy principal, four heads of department and 23 teachers. The school had an enrolment of 760 learners.

4.5.2 Instrumentation

This section will provide a brief discussion of how data was generated. The researcher informed the participants that data would be generated through our discussions when we attended the brainstorming session (Annexure E). The participants were also made aware that they are free to express their opinions using the language of their choice, because a study that operationalises PAR is liberating, empowering and educative for all of us (Koch & Kralik, 2009:11). The minutes of the meetings, which served as data, were written by secretaries elected for each meeting. We also observed two lessons and decided that the participants would take notes of the proceedings, so that they could share their opinions and experiences of the lessons.

Even though PAR is seen as an approach that does not have a research leader, due to its democratic processes that promote democracy and being coached by CER, we considered exchanging our roles during the research process, including the chairperson and the secretary position. We wanted to ensure that the participants are empowered and one person is not seen as the only one who has the skill and ability to perform the task. Later, for the purposes of gaining helpful and informed information, the minutes we recorded were used for data analysis.

4.6 DATA ANALYSIS

This section will entail the technique that was used for data analysis. The latter was important for ensuring that the objectives of the study are achieved. The researcher used CDA as advocated by Van Dijk. CDA can be attributed to the publication of Fairclough's *Language and Power* in 1989 (Rogers, Malancharuvil-Berkes, Mosley, Hui & Joseph, 2005:365). CDA is the most appropriate method to use, since it is suitable for educational research and for discourses between social structures (Rogers, 2011:1). CDA, as a tool for data analysis, emerges from critical linguistics, critical semiotics and, in general, from a socio-politically conscious way of investigating language, discourses and communication (Van Dijk, 1995:17). Data was generated through discourses between participants using language, therefore, CDA was preferred, as it aims to identify, through analysis of spoken words, the particular linguistic, semiotic and interdiscursive features of texts, which are a part of processes of social change, but in ways that facilitate the productive integration of textual analysis

into multi-disciplinary research on change (Fairclough & Wodak, 2005). The empirical data we generated demonstrated that we still experience marginalisation. This was evident, as some of the discourses displayed relational and social discourses, such as class and beliefs (Freeman, 2010:181). Therefore, CDA is relevant for our analysis, to point out the discursive viewpoints shaping our beliefs.

CDA was used to analyse data because, when an event has occurred, there are different ideological stances that are embedded in the report thereof. To show how we realised the objectives, actions and purpose of the study, we used language to communicate our ideas. According to Gee and Handford (2013:1), we do not just mean things with language, but we also do things with language. What transpired during the research process of this study relied on texts that required a distinct method of analysis (Atai & Mozaheb, 2013:16).

In addition, Van Dijk suggests that the use of the term CDA may be seen as a reaction against dominant linguistics, because some of its tenets are already found in critical theory (Van Dijk, 2015:466). The understanding that CDA can be traced back to the influence of Marxist as well as the Frankfurt School's critical theory, where the theoretical framework that coaches this research emerges, works to the advantage of researchers who have emancipatory and eradication of power struggles in mind (Wodak & Fairclough, 2004:40). In light of this, the analysis process confronted issues of language with the critical intention of uncovering inequalities of power through text (Wodak, 2013:308).

Given the emancipatory agenda of this study, which advocated social justice, hope, equality and peace (Moriarty, 2011:7), the use of CDA enabled us to discover and denounce discursive dominance of power depicted in our discourse (Van Dijk, 1995:24). Through CDA, the researcher is allowed to incorporate elements of context into the analysis of texts, to show the relationship between concrete occasional events and more durable social practices (Fairclough & Wodak, 2005). The researcher was able to analyse data critically, beyond describing the inequities and power relationships between participants, to interpreting and explaining them in order to show that the study was able to answer the research question and realise the objectives (Sekwena, 2014:76).

In order to investigate or reveal the hidden or otherwise less obvious relations of power exercised between discourse and societal structures of the texts of the data we generated (Wodak, 2013:304; Van Dijk, 1995:18), we used CDA's three dimensions as outlined by Fairclough for analysis, namely, text, discursive practices and social structures (Wodak, 2013:302). Again, CDA aims to explore the relationships between discursive practices, events and texts; wider social structures; relations and processes in order to investigate how such practices, events and texts arise and ideologically shape the relations of power and struggles over power (Bukhari & Xiaoyang, 2013:9, Taylor, 2004:435).

In relation to the theoretical stance of the theoretical framework that coaches the study, and based on the above discussion, it is clear that CDA was the relevant technique for analysis. With regard to CER, CDA allows a detailed investigation of the relationship of language to other social processes and of how language works within power (Taylor, 2004:435).

4.7 ETHICAL CONSIDERATIONS

In order to protect the participants in the study, important ethical issues were considered during the research planning stage. Guillemin and Gillam (2004:263) explain that procedural ethics, which usually involves seeking approval from a relevant ethics committee to undertake research involving humans, needs to receive attention. This is in accordance with the Declaration of Helsinki, as affirmed by Harriss and Atkinson (2011:819) that, before conducting research with human participants, research should be reviewed and approved by the appropriate committee. The researcher obtained ethical clearance number UFS-HSD2015/0650 and permission from the UFS Ethics Committee to conduct research (Appendix A). Thereafter, the researcher was able to ask permission from the FSDoE, to allow her to conduct research at a school, and permission was granted (Appendix B). The researcher presented the ethical clearance letter as well as the permission letter from the FSDoE to the school principal before commencing the study (Appendix C).

During the brainstorming session, a clear explanation was given to the participants about their role in the study and how the study would be conducted. Thereafter, informed consent and assent were obtained from the participants. The researcher

issued adult participants with consent forms to read and sign as an indication that they agreed to be participants in the study and to the conditions set (Appendix F). Since the Grade 7 learners are regarded as children (Morrow & Richards, 1996:93; Weinstein *et al.*, 1991:341), they were issued with consent forms that were signed by their parents or guardians, allowing them to be participants in the study (Appendix E). They also had to complete their assent form to accept their roles as participants (Appendix G) (Harriss & Atkinson, 2011:819; Morrow & Richards, 1996:94).

The participants were assured of confidentiality and anonymity, as this is seen as the other concern of ethical guidelines (Morrow & Richards, 1996:95). The participants are mentioned in the data analysis through pseudonyms to protect their identity. They were assured of respectful and dignified treatment during the research process and the freedom to withdraw from the research study at any time should they feel like doing so. No remuneration was promised to the participants. The researcher explained to the participants that the discussions were to be recorded using a tape recorder (Guillemin & Gillam, 2004:263) and the recordings would be kept in a safe place that could only be accessed using a password. The researcher assured the participants that no one would have access to the data collected without their consent.

4.8 SUMMARY OF THE CHAPTER

The chapter displayed a literature review on the research design and the relevant approach to generating data. The discussion started with the research design. Then, a comprehensive description of PAR was provided, its origins and its objectives in generating the data required to design the framework for the use of cellular phones to improve the curriculum practice in EMS. In addition, the role of PAR in achieving the objectives of the study and the role of the researcher when generating data were discussed. In order to show how the research process unfolded during data generation, the reflective stages of PAR were discussed. Thereafter, a comprehensive discussion on how the intervention process evolved was given. Discussion about CDA that was used for data analysis followed. Lastly, the discussion ended with the ethical considerations for generating data. The next chapter will present the analysis of data generated using CDA to assist in designing the relevant framework for the use of cellular phones to improve curriculum practice in EMS.

CHAPTER 5: PRESENTATION, ANALYSIS, INTERPRETATION OF DATA, AND DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The aim of the study was to design a framework to show how the use of cellular phones can improve curriculum practice in EMS classes. The study intended to show that cell phones could be one of the ICT resources that can be incorporated in classes for the purpose of transforming our classrooms. In order to operationalise the aim of the study, this chapter will serve to orient the reader about analysis and interpretation of data, as well as presentation and discussion of the findings of the study. The data was generated empirically through the minutes of the meetings held with the participants, and then, its interpretation was organised in accordance with the five objectives of the study pursued, namely, i) To justify the need for a framework; ii) To identify the components of a framework; iii) To identify the threats associated with a framework; iv) To explore the conditions of a sustainable framework; and v) To provide evidence for a functional and successful framework. The five objectives were, furthermore, divided into subheadings that were formulated in correspondence with the literature and respective constructs drawing from the general aims of the South African curriculum as outlined in the NCS document.

Furthermore, each subheading will be discussed with reference to findings from previous research and theory. The extracts from empirical data were analysed to prove relevance to and influence on the formulation of the framework. The researcher then used CDA to develop the meaning of the text at the level of discursive practices and related social issues, to show the relationship between concrete occasional events and more durable social practices (Fairclough & Wodak, 2005). Furthermore, the empirical data is interpreted using CER as the theoretical framework of choice, to show how its principles relate to the challenges identified. Moreover, the researcher interpreted the empirical data by drawing on connectivism by Siemens, which focuses on a collaborative social interaction between individuals (Kop, 2011:20), to display its relevance to the study. Lastly, the researcher used the empirical data to check whether it correlated with or refuted the literature reviewed. In conclusion, a summary of the chapter will be presented.

5.2 JUSTIFYING THE NEED FOR THE FRAMEWORK

In addressing the first objective, the research team came together and uncovered challenges that would be addressed in order to transform the EMS classroom into a more fun-filled environment through the use of cellular phones. The challenges identified will be discussed below:

5.2.1 Absence of stimulating learning environment/uninspiring learning environment

The unique learners that are found in our classrooms learn best according to the manner in which the learning environment is set. This is because the learning process is dependent on their strengths, interests, abilities and learning styles (Ramos, Penalvo & Gonzalez, 2014:677). Mushtaq and Khan (2012:22) recommend that learners' performance improves when proper facilities are made available and the classroom environment is stimulating and conducive (Hannah, 2013:2). The researcher argues that the incorporation of mobile technological devices promoting personal learning environments results in a learning process that yields good results, and should be explored.

According to the NCS principles, a learning environment that is stimulating and inspirational can have a positive influence on the learners' performance, as opposed to one that stifles creativity and discourages an active and critical approach to learning, as justified by the general aims of the South African curriculum (DBE, 2011:5; Perminova, Sikaliuk & Lytvyn, 2017:89). The Draft National Policy for the provision and management of learning and teaching support materials refers to textbooks as the core LTSM, while other resource materials, such as mobile technological devices, are referred to as supplementary LTSM. Thus, the Draft Policy's intent was to ensure that learners are supported to acquire appropriate and relevant information through various formats.

The need for suitable resource materials in our classrooms is displayed by Georgia's Teacher Key Effectiveness System, and performance standard 2 of the Integrated Quality Measurement System Policy (IQMS) of South Africa. The two are linked because they encourage an environment equipped with resources that create

opportunities for learning processes that are free from barriers (Cornell & Mayer, 2010:1).

Nonetheless, uninspiring and unsuitable learning environments are still experienced in some schools, although there some resource materials, such as posters and computers, are being used (Paragraph 3.4.1.1). Teachers are expected to shift to new techniques of incorporating ICT to match the current curriculum demands (Noguera, 2015:47).

During one of the research meetings, the learners stated that some teachers rely a great deal on the use of textbooks, which are not available for every learner or lack some information. They said, furthermore, that they end up losing interest in the subject and they sometimes feel bored in class.

Ref [learner]: We sometimes need things that will interest us and that will help us understand what we are taught, instead of just reading the textbooks.

The spoken words, “we sometimes need things”, display the learner’s unpreparedness for being placed in a similar environment all the time. This shows that the learners have an interest in their learning process as individuals and not only in what they learn. The traditional practices of using textbooks as resource materials deprive them of the opportunity to tap into another space, of providing an interesting and exciting environment (Cabero & Barroso, 2016:45). This also suggests that there is a need for diffusing the power that is vested in the teacher, as the professional expert of the curriculum. The learners’ emancipation relies on the actions of the teachers when they are able to create an active and vibrant environment.

The discursive perspective is displayed in the participant’s comment, “instead of just reading the textbooks”. The feelings of discouragement are demonstrated because the approach in which a textbook is utilised is uninteresting to them. Moreover, the text suggests that they are not considered, because of the boring situation they find themselves in. This shows unequal distribution of power between the teacher and the learners, as well as between other resource materials they find interesting. The comment also brings out the point that teachers have the responsibility to create a stimulating environment that plays an important role when it comes to achieving an exciting, interesting environment that promotes an effective learning environment.

To justify the need for the framework further, some of the participants had this to say:

Mr K (parent): Re itumella gore bana ba rona ba tla dirisa di cell phone go ithuta, le fa ba rata go tlhola ba tshameka di game ka tsone ba sa e dirise for tiro ya sekolo

[We are glad that our children will be able to use cellular phones for learning purposes, although they have a tendency of playing games on it instead of utilising it for school work]

Mrs Mampho (SGB member): Di cell phone di tla dirisetswa information ha ba filwe tiro, le gone klaar ka mo claseng, eseng ba romelwe kgakala ko di library [pointing with fingers to show immediately and throwing her hand to show distance]

[Cell phones will be used to assist them with information when they are given tasks, immediately in class instead of sending so far to the library.]

From the social perspective, the spoken words, “assist them with information”, shows how the use of cellular phones in class will make an impact if someone is willing to accept a solution for the problem that needs to be addressed. Moreover, “will be used” justifies a need for incorporating cellular phones to transform the learning environment. Moreover, the learners would be empowered, as they would get involved. This will promote openness, which is advocated by Siemens’ learning theory, because the use of cellular phones will break barriers and create an exciting environment and learners will enjoy using it, particularly for games. Furthermore, the notion of bringing equality into the classroom is operational when cellular phones are used.

From the discursive perspective driven by the inequalities that are experienced regarding the lack of technological resources in some of the classes, the participant’s gesture, of pointing a finger, demonstrates the parents’ concern about the distance some learners have to travel to libraries to find information. This suggests that, although we are a democratic society, there are still situations that display social injustices because of the social imbalances and inequities experienced by some members of our society (Furman & Gruenewald, 2004:51).

Based on the above discussion, what literature suggests about addressing the challenge of an uninteresting learning environment, is that technological devices, such as cellular phones, promote openness, consequently breaking barriers of a traditional learning environment, because the learners enjoy using them (Osborne, 2013:3). A

stimulating learning environment is needed to address equality, and this is promoted by CER. Thus, the use of the framework promotes the eradication of social imbalances that do not cater for the diverse learners we have in our classrooms. In addition, the emancipation of learners and breaking of social injustices based on unfair distribution of resources, such as libraries, can be realised.

What interested the researcher is that learners had shifted their focus, from the traditional practice of depending on the teacher for information, and using textbooks as a resource materials, to the one of being independent. They are aware that using cellular phones has the potential to transform the learning environment to make it interesting. They were able to find information without the use of textbooks or help from the teacher (Paragraph 4.4.3.1).

Further research could investigate the effect of the transformation brought on by the use of cellular phones on the learners' performance.

5.2.2 Inability to enhance learners' investigative skills

Enhancing learners' skills to analyse, evaluate and synthesise is significant to our lifeworld. The expectation is that our curriculum should be able to produce learners who are able to address the challenges they are faced with. It was indicated during the research process that some topics in EMS require more than the recalling, understanding or application of knowledge required during the learning process. The teachers who fail to encourage an active and critical approach to learning, deny the learners the opportunity and the ability to creatively apply their research skills and high cognitive abilities in EMS (Paragraph 3.4.1.2). When teachers design lessons that involve distinguishing facts, making judgements and doing analysis, they are able to deal with the current demand of education that aim to empower learners (Maguth & Yamaguchi, 2013:81). It is clear that creating a platform for the learners to enhance their investigative skills develops their enquiring minds. During one of the intervention processes, the EMS teacher commented as follows:

Mr Kwena: These learners lose their creativity and interest when we teach them as time goes on. We need to give them something like investigation activities that will enable the learners to find information without the assistance of the teacher.

From the above extract, analysis of the spoken words, “we need to give them something like investigation activities”, displays the necessity for teachers to plan for activities that would enhance learners’ enquiring minds, as they would search for information on their own, without the assistance of the teacher. According to the teacher, the learners’ focus is not entirely dependent on the verbal practice clouding many classrooms, and what they are taught by the teacher.

The discursive perspective is displayed in Mr Kwena’s words, “lose their creativity and interest”, that suggests that the learners lose interest in the subject because lessons are not always appealing to the learners. The intention that the teacher has about the lessons might not always be achieved because of loss of focus on the lesson.

Based on the above discussion, it is clear that using activities that require learners to do analysis and investigation encourages an active and critical approach to learning. The ability of the teacher to present such activities displays the intention of the teacher to operate in an environment that reflects emancipation, which is advocated by CER, as the theoretical framework coaching the study. Operating in an autonomous and power-sharing environment that is displayed when learners challenge the activities given, is suggested to be necessary.

Justifying the need for investigative skills in EMS was also displayed by a learner’s comment, as follows:

Mami: We struggle because textbooks do not give all the information. When given tasks to investigate, we can use cellular phones.

Drawing from the extract above, the analysis of the spoken text, “When given tasks to investigate, we can use cellular phones”, displays the importance of using cellular phones to gather information needed for investigation activities. The learner’s comment shows that the teachers are able to give investigation activities, but then it also displays the learner’s need for resources with relevant information. This is displayed when the learner says that they sometimes struggle to get answers from textbooks. The learners need to be emancipated from the struggles they face regarding finding relevant information to complete their tasks. Moreover, the learner’s plea for using cellular phones shows us that they are now starting to move towards

greater use of technological devices on their own for learning purposes, which displays the freedom that is supported by CER.

What surprised the researcher is that teachers and the learners support the idea of tasks that stimulate creativity and that encourage an active and critical approach to learning. It is clear that such different types of activities were the building blocks for preparing learners to be compatible with the world.

5.2.3 The need for teacher agency

Teachers have the responsibility to organise their classrooms in a manner that will benefit the learners. In order to reach the objectives set by the CAPS document, any obstacles that might hinder the progress or the performance of the learners can be prevented or eliminated by the teacher. The literature states that one of the challenges experienced by some of the teachers is their resistance to changing their teaching approach to the approach that will accommodate the use of mobile resources (Paragraph 3.4.1.3).

In some instances, teachers perceive themselves as sources of information for the learners and they even prepare notes that the learners will study, thereby denying the learners the opportunity to apply their creative minds. The teachers do not realise that incorporating mobile resources prevents learners from becoming dependent on them. However, this can be attributed to the teachers' resistance to the use of technological devices in class.

During the intervention process, one of the team members commented that the EMS CAPS document requires that teachers prepare lessons that will enable them to reach the objectives that have been set, through the use of technological resources. This suggests that teachers have to move away from the perception that the learners have to rely solely on them for information, and must incorporate technological resources to improve their curriculum practice. This is evident from the extracts below:

Mr Lebs: Some teachers don't want to use technology because they have the fear of the unknown that cell phones will take over their work and replace them. They prefer using textbooks and even give notes of the content to the learners.

Ms B: Teachers should stop using top down approach as if they know everything.

Mr P: Some of the teachers don't have a clue how these cellular phones are used for education. We mainly use them for communication purposes.

Analysis of the spoken words, “they prefer using textbooks and even give notes of the content”, suggests that some teachers still conform to the traditional approach of passing knowledge that is found in textbooks to the learners. This action demonstrates that teachers still view themselves as powerful sources of information but this power can also be shifted towards cellular phones. They do not realise that they can dissolve their power when they make use of resources, such as cellular phones as cellular phones contain massive information. To deal with the effective way of using cellular phones, teachers be trained to do so. The comment made by Mr P gives clear evidence that not all teachers are trained to incorporate cellular phones in class. So, we need training that will capacitate teachers, more especially on the use of cellular phones.

The discursive perspective is displayed through Mr Lebs's words, “fear of the unknown that cell phones will take over their work and replace them”. Resistance to change is displayed by that concern. The notion of freedom and emancipation that are related to CER are not exercised.

The fear faced by the teachers that cellular phones might take over their work displays lack of knowledge that cellular phones will be used only as resource materials. The teacher is still needed as a facilitator, as suggested in Paragraph 3.1.1.3. In addition, it is clear that the teachers are not prepared to share their roles in class, thereby denying learners the opportunity to access the vast amount of information found on the internet through the use of cellular phones. The kind of training that is required to change the perception of the teachers regarding the use of cellular phones needs to address the challenge of being unable to plan the lessons and change their teaching approach, to one that is collaborative, learner-centred and accommodative regarding the use of cellular phones.

The social perspective suggests that teachers need to empower the learners and equip them with knowledge, because the capacity to know is more critical when shared with others. It is expected that teachers are able to empower learners through the use of many resources. Underestimating the power that cellular phones hold as a source of information creates a situation that does not address inequality and emancipation.

The above discussions are in agreement with the literature, because teachers have the responsibility to conduct their classroom in a manner that will benefit the learners and not deny them the opportunity to explore things. The emancipation and empowerment of learners, as advocated by CER, is always vital. Resistance to using cellular phones, for example, deprives learners of the opportunity to explore the information found on the internet. The teachers need to shift, from talking about democracy, to thinking and acting democratically, by allowing the use of cellular phones (Brough, 2012:364).

What surprised me, is that the teachers resist change because of fear to use cellular phones because they are not competent to do so. They see their role as the most important thing, rather than any other resource.

What interests me is what can be done to focus on strategies to enhance teacher competency to promote the agenda of democracy effectively in class.

5.2.4 Inability to encourage collaborative learning

The modern learning environment allows learners, who possess considerable skills and knowledge, to share it with other learners. This can be done through collaborative learning. Osborne demonstrates that allowing collaboration in class would yield much better results, because learners are able to complete tasks using their combined strengths. For example, completing a business plan for the market day project permits the learners to share information, use their skills effectively and support each other, as opposed to allowing them to perform it individually (Osborne, 2013).

The TELT White Paper states that creating an environment that is technologically rich, and an environment that permits learners to engage with each other allows them to collaborate to be the best they can be (Brown, Kregor & Williams, 2013:7).

The imbalances in our classrooms can be addressed with the help of collaborative learning, because we have diverse learners who should engage with each other (Paragraph 3.4.1.4). To engage the learners in class does not mean only concentrating on arranging their seating in groups. The teachers are required to plan for activities that will allow the learners to work collaboratively using technological resources, but some still practice individual teaching. The reason might be that some teachers lack

information on how collaborative learning is implemented, moreover, regard it as a waste of time. This is evident because, during one of the strategic planning sessions, one educator said:

Ms Lesego: We are expected to perform this collaborative learning since the OBE era but we are not trained how to do so and we have a lot of content to cover.

From the above extract, the text, “we are not trained”, confirms that the teacher’s doubts are caused by lack of knowledge on how to implement collaborative learning.

The teacher’s comment displays that there has been a gap since the era of the OBE curriculum, until this era of NCS. The teachers need to be empowered on implementing the collaborative approach. When the learners are organised in a manner that encourages openness, they are able to share information. Therefore, their contributions empower each other as much as their participation in the research empowers them, and gives them the opportunity to voice their opinions.

The teacher’s concern about the workload is displayed by the words, “we have lot of content to cover”, which suggests that the teachers focus on covering the prescribed content as the most important thing. It is no use to aim at covering the content while the teacher is unable to reach all the learners in the classroom. Moreover, the teachers need to be aware that they have to address inequality and diversification through the use of differentiated activities that cater for the unique, differentiated learners in their classrooms. According to one learner’s comment, some of the learners are exposed to discrimination because of their ability. His comment was:

Thapelo: Some of the teachers undermine us. They concentrate on learners who are able to perform well at school.

The use of cellular phones can encourage collaborative learning by making use of peer learning. Making use of different strategies to reach all the learners in class draws from connectivism, because interactivity and connectedness ensure that the learners are able to share the information gathered, instead of keeping it to themselves. Therefore, in some instances where the teacher is unable to reach the learner, the other learners can assist, more so that they make use of the information acquired from the internet.

Based on the above, the discussions are in agreement with literature that suggests that teachers view lack of knowledge for implementing collaborative learning and the capacity of the prescribed content as factors that hinder their progress in class. The importance of addressing this challenge is also in agreement with the principle of redressing the inequality of roles experienced in class, because collaborative planning obliges young people to communicate their thoughts effectively and engage in productive discussions. The power in the classroom should be spread amongst the learners, which can be realised when collaborative learning is implemented, because all the learners will be able to develop relationships with teachers and peers (Dowden, 2007:61).

What surprised the researcher is that teachers are aware that collaborative learning is an important aspect that cannot be left out when implementing the NCS curriculum. What interested the researcher is finding out about the role players' contributions to collaborative learning when implementing the NCS curriculum.

5.2.5 Inability to cater for twenty-first-century learners through technology

There is an expectation and hope that the children will use the knowledge, skills and competency acquired from learning EMS to be compatible with learners from affluent countries (DBE, 2011:8; Maguth & Yamaguchi, 2013:82). It is a major challenge for teachers to comply with new educational policies, such as the EMS CAPS document, that aims to provide education that is comparable in quality, credible and efficient for lifelong learning. During the intervention process, the teachers and the learning facilitator were in agreement that twenty-first-century learners need to learn through numerous resources at their disposal, so that school underachievement resulting from social injustice and educational imbalances is addressed (Furman & Gruenewald, 2004:51).

Just as organisations set their mission and vision statement as a measure to make all the role players understand the intention of the organisation, our coordinating team engaged in an activity to develop it (Paragraph 4.4.2.4). Our team understood that we are participants in the study, with the common goal of designing a framework that will assist to prepare learners for the twenty-first century. To justify the need to prepare the learners, the comment from the school principal was:

Mr P: It is a good thing to set the mission and vision statement to show that the school has intentions of producing competent learners who will use their knowledge and skills in the future.

Analysing the words from the extract, “intentions of producing competent learners who will use their knowledge”, shows that the intention of the education that is taught to the learners currently does not concentrate on knowledge only, but also on equipping learners with skills that are required in the labour world.

To build the young generation to be confident citizens who will participate in building the country, we believe that they have to be socially qualified to do so. Drawing from the principal’s comment, it is clear that the intention of the team or the school should be known to all the role players, so that there can be an understanding of their role in achieving the objectives set. The intention to emancipate the learners, as advocated by CER, has to be done collaboratively. Moreover, the youth will function in a free environment, because they are empowered through education.

Analysis of discursive perspective is displayed by the words “competent learners”, because our society’s perspective on education is that it has to produce good quality results. But then, what happens when the practices implemented by the teachers are not able to reach the learner to a certain extent and the learner struggles to achieve good results? This brings us to the realisation that our expectations about our results display some form of discrimination, that has to be addressed through the use of different strategies that will empower and emancipate less gifted learners. The discussion above led to the next discussion.

During the process of identifying the challenges justifying the use of cellular phones to improve curriculum practice, we realised that the EMS curriculum requires teachers who will not only concentrate on the curriculum outlined, but also explore strategies that will empower learners for a life-world that is complex (Chatti, Agustawan, Jarke & Specht, 2012:21; Roberts & Owens, 2012:5). This was attested by one of the subject advisors, when she said:

Mrs Blue: because we need to deliver lessons that are empowering, using technological resources with the internet will empower the teachers and the learners.

Analysis based on the text, “using technological resources with the Internet will empower the teachers and the learners”, suggests that the use of technological resources resulting in teachers achieving the outlined objectives set in the CAPS document, are acknowledged. According to CER, which calls for the empowerment and emancipation of individuals, the use of internet-based resources transforms the learners’ position to be compatible individuals when they learn using information from the internet. Even so, Mrs Blue’s comment reveals an attitude of teamwork, which is displayed through the use of “we” in her comment referring to the relevant individuals responsible for effective teaching and learning of EMS.

Regarding this from a social perspective, we know that some members of society view teachers as qualified professionals responsible for imparting knowledge to learners.

But, drawing from the words said by the subject advisor, “empower the teachers and the learners”, it is evident that the use of cellular phones is beneficial to both the learners and the teachers. We need to make society aware that knowledge is not only obtainable from teachers, but that it also resides in non-human appliances, such as cellular phones.

Based on the discussion above, it is clear that, to transform the traditional classroom that does not facilitate twenty-first -century learning, is not productive to the young teenagers who have to be compatible with the world. The kind of support needed for grooming compatible citizens who are able to address societal challenges efficiently includes the ability to make use of the information obtained from both the teacher and cellular phones. The use of cellular phones is needed as a mode for shifting power vested upon the teacher, as the custodian of knowledge, to the learners and the technological resources used.

What surprised the researcher is that, when cellular phones are not incorporated as resource materials, both the teachers and the learners are denied the opportunity to be empowered. The researcher also realised that twenty-first-century teachers are lifelong learners, because they also get empowered as they prepare real-life-situation activities for the learners. An area for further research can be to develop a strategic plan concentrating on the use of technological programmes related to preparing twenty-first-century learners in EMS.

5.3 IDENTIFYING COMPONENTS OF A FRAMEWORK

In the previous section, the justification for the anticipated framework was presented. During the intervention process, the team members identified the components to address the challenges discussed previously. This section presents a discussion of the components identified, and an analysis thereof, which is followed by interpretation of empirical data and findings.

5.3.1 Cellular phone applications

Lack of interactivity and teacher-centred presentations, where the teachers expect the learners to listen and to grasp knowledge, leads to a dull environment. During the intervention strategy, a SWOT analysis activity was performed. The challenges affecting the learning environment were mentioned as one of the weaknesses. The CAPS document advocates for teachers who are able to conduct their lessons in an environment that is stimulating, although there are still challenges experienced. It was suggested by some team members that we need to identify the solution to deal with the challenge, as it was suggested earlier that cellular phones could be integrated into the lessons to address the challenge. The members agreed that it is possible to use cellular phones to stimulate an uninteresting environment, because some of the countries saw it fit to incorporate cellular phones as one of the resources to stimulate the learning environment (Paragraph 3.4.2.1). Cellular phones have many uses and applications that can be used to transform a boring environment to become a stimulating one. A team member who is an expert on curriculum explained how these applications can transform the environment by saying:

Mrs Bee: instead of just listening to the teacher only, they can keep themselves busy by viewing pictures, recording any important information discussed in class, and also Google information that they have to find.

Textual analysis shows that the words from the extract above, “record any important information discussed in class, and also Google information that they have to find”, display how cellular phones could be a relevant strategy to deal with the challenge of an unappealing environment. It is clear that cellular phones have several uses in the learning process.

The words, “keep themselves busy instead of listening to the teacher only”, suggest that the use of cellular phones could make the learning environment a vibrant platform.

It also shows us that the teacher’s role of being the powerful vessel of knowledge can be transferred to the learner and cellular phones. Therefore, it becomes interesting for the learner, compared to the situation where they rely on the teacher only for information. The use of cellular phones would ensure that power is distributed between the teacher and the learners, because they are expected to use other applications on cellular phones necessary for learning.

From the social perspective, we are used to the situation whereby the teacher has to provide information to the learners. With the use of cellular phones to record any information they searched for in class for future use, the learners’ role will be transformed and they will be empowered to explore different educational opportunities for learning. This was evident, because one of the social workers suggested that the learners can even use cellular phones to perform investigations during the period when teachers are absent from school.

Based on the above discussion, it is evident that the applications found in cellular phones are very significant and important when it comes to transforming the learning environment into a vibrant platform. Learning is a process that requires learners to connect with their life-worlds and willingly work with other learners as a network. The use of cellular phones changes the learning environment, because cooperation and teamwork prevail.

What surprised the researcher is that the intention to transform the learning environment is not a difficult process, because the learners can operate various programs and applications installed in cellular phones that are relevant to make the environment vibrant.

5.3.2 Ability to enhance learners’ investigative skills

Conducting investigations is one of the skills that are developed in EMS in order to enhance learning. Some of the teachers are, unfortunately, not keen on the idea. The teachers need to be encouraged to move away from being perceived as the sources of information, to being facilitators who inspire the learners and create opportunities

for them to be innovative and creative and lead towards new ways of thinking and learning (Unwin *et al.*, 2017:4).

There is concern regarding the approach to learning that concentrates mainly on low order level of activities, and that needs to be changed. The learners need to be challenged through the use of activities focusing on high-order levels too (Liaw, Hatala & Huang, 2010:447). During one of the discussions, the learners were required to share with other learners the different media used to advertise businesses. This kind of activity created an opportunity for the learners to find information and share it with other learners in class, as opposed to being given information by the teacher and just being expected to memorise it (Stockwell, 2007:367). This action led to the following comment by a learner:

Mami: It becomes so easier and faster when we Google the information needed by the teacher.

Analysis of the spoken text, “it becomes easier and faster”, demonstrates that the strategy used when the learners were asked to find information was different from the usual strategy they are used to. It is clear that the learner observed the time spent when they were searching for the information. This suggests that the action performed is able to empower the learners and emancipate them from the usual struggles they experience when they are required to find information. Moreover, the learner was able to voice her opinion and her preferences through her participation in the study, which is not possible when the research is not using PAR as an approach.

Thereafter, the learners participated in the process of analysis of information and presentation of a short paragraph justifying their choice of the most suitable media for advertising their businesses. This was a suitable approach, implemented to stimulate the learners’ investigative skills (Paragraph 3.4.2.2). The common practice is that the teachers are the ones expected to impart knowledge and make choices for them. To the contrary, cellular phones assisted the teacher to transform the classroom to be a learner-centred environment. The strategy to enhance learner’s investigative skills was mentioned by one of the members, who is a learner, when he said:

Tshepang: re tla kgona ho di sebedisa when re filwe task ya go investigator or ha re filwe di project [smiling].

[We will be able to use them when we are given activities to investigate or when we are given projects [smiling].]

The gesture and the words uttered, “to investigate or when we are given projects”, from the extract above displays appreciation for the use of cellular phones, as the learner uttered the words with a smile on his face. The appreciation is brought by the fact that they will have a mobile resource at their disposal when given activities, such as projects. Cellular phones work as a tool that makes it possible for the teachers to vary their teaching strategies, so that they can achieve their intention of stimulating the learners’ high-order thinking through activities given. During the process of learning, the learners will have the power to complete high-order tasks on their own and be empowered as they gain knowledge. The appreciation also demonstrates that there is hope and a positive transition towards development on the use of technological devices.

Social perspective analysis suggests that the learner’s gesture of smiling displays that he realises that there is good coming from using cellular phones. Socially, the smile is the expression that shows his positive emotions. There are signs that there is hope for the learners to achieve better results, as they will be able to access information when they are given tasks.

Based on the discussions above it can be seen that the learners need learning activities that provide opportunities for them to explore complex cognitive tasks and to communicate with the real world. It can be seen that the use of cellular phones empowers both the learner and the teacher, encourages autonomy and enhances interaction between learners when they share information.

5.3.3 Professional development

As a large number of teachers still lack knowledge and the interest to use mobile technology for learning, they still rely on their traditional approach to teaching. The teachers are expected to operate in an environment where advances in technology have to be used as tools for learning and teaching (Lawless & Pellegrino, 2007:576). In comparison with traditional approaches, the digital environment creates the opportunity for the learners to demand the use of technological devices for their learning, because of the current developments that are taking place (Paragraph

3.4.2.3). One of the threats mentioned by a teacher when we conducted the SWOT analysis was that failure to incorporate technological resources during learning prevents learners from showing some independence in class, as their dependence on the teacher cannot be shifted to the resource material with internet. The teachers need to remove geographical barriers and be able to interact with the learners anywhere. This can be done through the use of cellular phones, since technology can make it quicker or easier to teach. One teacher's comment displayed how the use of a cellular phone can benefit both learners and teachers, when he said:

Mr Lebo: The incorporation of cellular phones into the lessons can assist us even when we want to make a recording of the lesson so that the learners can be able to access it later.

The above extract can be interpreted as a gesture of showing appreciation, because cellular phones will benefit teachers when they record the lessons. The learners will also benefit, as they will be able to access the lessons later. This practice will empower the teachers and the learners as they will have exposure to technological information. The effectiveness of professional development should not be limited to the perspective of teachers, but it should also take into consideration the impact on the learners. Power to access information will be spread amongst the teachers and the learners. In addition, the teacher's positive comment suggests that there is acceptance and a change of attitude towards the use of cellular phones.

The use of the word "us" demonstrates that the teacher takes ownership of the use of cellular phones. This shows that teachers acknowledge the benefit of incorporating cellular phones into their classrooms for self, the learners and the society. CER advocates for the importance of ownership by all members, and not individualisation. Since the policy on Continuing Professional Teacher Development (CPTD) was put in place in 2008, it is hoped that a more systematic and coherent way of providing teacher development and support will make valuable contributions to a more equitable and stable society (Sayed *et al.*, 2013:50).

From the above discussion, the researcher was surprised by the teachers' positive reaction and suggestion to use cellular phones. The teacher acknowledged the benefit brought by the use of cellular phones in class. The use of cellular phones contributed to teacher development, as well as at improving the accessibility of information inside

the classroom domain. Moreover, this integration may lead to a transformed pedagogic environment that is less power-oriented, yet powerful and empowering. The manner in which the learners accessed information was empowering and autonomous and promoted interactivity and connectedness during the process of learning. What surprised the researcher was the teacher's positive reaction towards the use of cellular phones, which demonstrated that the teachers need more training on the matter. The South African government should invest in training the next generation of teachers, as well as retraining of the current teaching workforce in the use of technology-based approaches, to allow a transformed educational environment.

What interested the researcher is the development of a structured course that would focus on equipping the current workforce with skills and knowledge to incorporate cellular phones into the classroom.

5.3.4 Maximum learner engagement

Emerging technologies have the ability to improve the learners' interaction and learning from one another in a non-threatening way. Based on the challenge highlighted by the team members regarding learner participation, what emerged during the discussion was that technology as a tool for teaching and learning has potential value to allow the learners to have maximum participation in class. During the lesson observation when cellular phones were used to search for information about advertising businesses, learner participation, positive learning experiences and a feedback were increased (Bozalek, Ng'ambi & Gachago, 2013:11). The learners used the internet to find the necessary information faster and easier. The activity created the opportunity for the learners to work as a team, because they were expected to complete the activity as a group. This led to comments made by some of the members who highlighted that the use of cellular phones is not only necessary for searching for information, but that it can assist teachers to have a collaborative learning environment that allows searching, connecting, collecting and creating (Paragraph 3.4.2.4). The school principal and the learning facilitator voiced their opinions as follows:

Mr P: because the textbooks do not provide the learners with all the information needed, we can see that when cellular phones are used to access information they also promote a good relationship between the learners as they work in groups.

Mrs Blue: Cell phones promote collaborative learning and the relationship between the learners and the teachers

From the above extracts the words uttered by the school principal, “they also promote a good relationship between the learners”, and the learning facilitator, “promote collaborative learning”, clearly justify that the use of cellular phones is vital for instilling good relations and a harmonious learning environment. Learners are able to share the accessed information and also demonstrate competency regarding investigative activities. When the learners work collaboratively, they are able to share the roles in the group, thereby distributing the power possessed by each group member.

Discursive perspective is shown in the words, “because the textbooks do not provide the learners with all the information needed”. The expectation is that the textbooks recommended for EMS should have adequate information for teaching and learning, but that is not the case, according to the learning facilitator. Even though a textbook is seen as a powerful resource for learning, we can’t depend on it entirely when we have to encourage an active and critical approach to learning.

Based on the discussion above, what surprised the researcher is that collaborative learning enhances the relationship between the learners and teachers. Completing the given tasks as a group enabled the learners to be empowered, as they demonstrated good relationship skills. Competent teachers striving to maximise learner participation and ensure that the educational imbalances experienced are addressed can engage in collaborative learning, because it creates an opportunity for a learning environment that is trusting, open, exciting, supportive and informative.

5.3.5 Preparing twenty-first-century learners through technology

The objectives of education have changed. It is no longer required for the teachers to teach the prescribed content in a manner that will test the learners' ability to produce knowledge and skills only, instead, they are expected to help learners acquire, among others, high levels of cognitive skills, problem-solving, the skill to learn new knowledge and apply that knowledge to new situations, such as projects, data responses, case studies, and so forth. Making use of content that prepares learners for the workplace and life-world makes learning become as much social as cognitive, as much concrete

as abstract, and intertwined with judgment and exploration, just as it is in an actual workplace (Lombardi, 2007:2).

To realise the objectives stated above, assessments that are comparable in quality and that support twenty-first-century learning and teaching are required (Paragraph 3.4.2.5). To assist teachers to reach the objectives easily, one of the suggestions is that the Department of Education needs to increase investment in technology in schools, so that schools that are not situated in urban areas can also manage to access information, because the learners have great interest in using technology (Lawless & Pellegrino, 2007:578).

In order to prepare lessons that will cater for twenty-first-century learners through technology, the teachers have to accept the use of a learner-centred approach that allows flexible learning. One of the teachers and one of the learners made the following suggestions regarding the use of technology to support twenty-first-century learning and teaching:

Mr Lebese: the learners have great interest in videos and pictures that they watch on their cell phones, eeh... YouTube, to be specific.

Thabiso: Yes, we do download videos of songs and other information on You Tube with our cell phones, so we can do that in class to find information.

Based on the text, “YouTube, to be specific”, suggests using YouTube as a form of finding information seems to be helpful for supporting twenty-first-century learning and teaching. The teachers and the learners have the opportunity to access a variety of information and also to share the downloaded information with others. This activity shows the power of cellular phones, which empowers learners to learn better beyond writing notes and listening to the teacher’s lecture (Laird, 2014:50).

Based on the above discussions, which are in agreement with the reviewed literature, we cannot ignore that teenagers are obsessed with using the internet via their cellular phones, because they can access information and do practical activities similar to the working environment. What surprised the researcher is that learners often express a preference for learning by doing rather than listening.

5.4 IDENTIFYING THE POSSIBLE THREATS ASSOCIATED WITH A SUSTAINABLE FRAMEWORK

After the discussion of the components of the framework, the team members held a discussion about the factors that might possibly hinder the implementation of the framework. In order to avoid any disturbance or setback, we needed to be aware of the hindrances, so that we could circumvent any threats embedded in the implementation of the framework.

5.4.1 Shortages of compatible resources and related costs

The South African education system has faced immense challenges, including lack of resources, that could improve the productivity of both teaching and learning in schools (Mdlongwa, 2012:2). In order to overcome the challenge of an unstimulating and boring environment that is clouded by a traditional approach to teaching and learning (Paragraph 3.4.3.1), a positive learning environment, through the use of cellular phones, is envisaged, although there are threats related to doing so. Our study focused on previously disadvantaged schools as well as schools situated in rural areas, where infrastructure is a challenge to the effective implementation of technological resources. When we conducted the SWOT analysis for our team, the members identified the possible threats that could hinder the implementation of the framework. In order for the strategy to be effective, the learners and the teachers needed to have cellular phones that are compatible with the anticipated applications necessary. Internet connection is also a factor that might hinder the progress. The threats suggested above were identified when the members were trying to justify that proper planning for a sustainable framework is required. The EMS teacher voiced her concern by saying:

Ms Lesego: Mare bothata e tlo go nna ha bana ba sena di cell phone or ba sena data.

[But the problem will be when the children do not have cell phones or data.]

Textual analysis based on the extract above made us realise that, although the teachers and the learners are hopeful of the transformation resulting from using cellular phones in class, not all the learners possess cellular phones. As said earlier,

proper planning is required, so that the teachers can conduct the lesson in a manner that will benefit all the learners.

This study intended to redress inequalities experienced, yet we still anticipated challenges when implementing the framework. When the teacher said, "the problem", it clearly demonstrated the negative factor that she decided to highlight, although it is as a result of identifying the possible hindrances. The inequitable distribution of resources in our society, such as money, created a gap between individuals, and we need to address the issues. Proper planning will not allow any negative factor to have power over the implementation of the framework, not even a shortage of cellular phones.

Based on the discussions above, it is clear that inadequate provisioning of resources, such as financial resources, lead to inadequate provision of resources in our society. This resulted in the necessary costs related to Wi-Fi, the model of cellular phones and data needed for connection being identified as factors threatening the use of cellular phones.

5.4.2 Minimal exposure to activities supporting high skills training and critical learning

The teachers need to be committed to creating opportunities for high skills and critical learning. Varying activities and incorporating technological resources can help the teachers to achieve that objective. Some teachers are still tied up in the belief that the learners have to learn from them, however, the EMS curriculum advocates that learners are not dependent on the teacher. During the discussion about strategies to enhance learners' investigative skills (Paragraph 5.3.2) one learner's comment on this issue made us aware that the learners are concerned about the type of activities given to them to enhance their performance in EMS. Exploring the different media for advertising a business, which is part of designing a business a plan, clearly allows the learners to show their creativity and ability to apply their acquired skills. Nonetheless, the learning facilitator mentioned a threat when she said:

Ms Nomonde: Some teachers still use the teacher-centred approach and concentrate on activities that require the learners to produce knowledge even though the NCS Policy Assessment Programme suggests activities like projects.

Textual analysis reveals that the teacher's choice of approach has a direct influence on the kind of activities given to the learners, and their attitudes to the lesson. The teachers who still prefer the teacher-centred approach will not notice the benefits brought by this framework, thereby denying the learners the opportunity to be empowered and becoming independent, and to express their individuality.

Discursive perspective is shown in the learning facilitator's words, "still use teacher centred approach". She wanted to highlight that some teachers do not agree with what CER advocates, that is empowerment and social justice in our society. We need to narrow the gap created by apartheid, through activities that promote empowerment and critical thinking.

Based on the discussions above, it is clear that teachers also pose a threat to the successful implementation of a framework. The teachers have to vary their activities, such that they include activities that promote low-order thinking as well as those promoting high-order thinking to enhance learners' investigative skills.

5.4.3 Teachers' attitudes towards professional development

Curriculum changes have instigated teacher training in order to help them integrate new resources into EMS. Competent teachers, who have the power to allow transformation to take place in the classroom, so that a sustainable well-being, equality and justice can take place, are needed. Since this framework sought to redress the imbalances experienced due to the destructive consequences of apartheid, there are still factors threatening the development of teachers. These factors include lack of theoretical and pedagogical substructures, lack of sustainable integration into formal educational contexts, and, particularly, lack of teacher support and training (Baran, 2014:29).

Designing a framework for the use of cellular phones is supported by Baran's recommendation that understanding the potential impact of mobile learning that is integrated across different disciplines becomes essential for addressing the learners' needs in class (Baran, 2014:30). We need teachers who understand that the times are changing and they need in-service training to conform to the changes (Paragraph 3.4.3.3). Most of the teachers lack the competency to incorporate technological resources into their lessons and some even resist implementing innovative strategies

to improve their classroom practice. The principal mentioned that, even though the Department is trying to organise workshops for the teachers, they are not compatible with the strategy suggested and some teachers regard these workshops as a waste of time. His comment was,

Mr Nthato: We are invited to all sorts of workshops but we've never had one where we are trained to use cellular phones as resource materials. Again the teachers' attitude towards technology is still negative.

Based on the above extract, it is evident that the teachers' attitudes play a vital role in the process of transforming the classroom. The principal's comment, that they never had the training, justifies that there are still teachers who lack competency to incorporate cellular phones in lessons.

The teachers' negative attitude towards technology hampers the smooth transition to a more vibrant and stimulating environment. The teachers might behave that way because they fear that their power will slowly be shifted towards the resources; although, the implementation of these resources will empower both the learners and the teachers.

What surprised me is that the Department has to increase its involvement in training teachers. The teachers need to be empowered so that they can work effectively in classroom.

5.4.4 Inactive participation and discipline

Teachers have to plan and arrange their classrooms in a way that will promote active participation and discipline. Inactive participation of learners during activities denies them the opportunity to take authority over their learning. During the lesson observation, when the learners used the cellular phones, we became aware that the learners' behaviour poses a threat to the smooth running of the classroom (Paragraph 3.4.3.4). One learner decided to find information about a certain song, claiming that their group had completed the given task. Unfortunately, the song started playing and that disturbed other groups. During the feedback session, when we discussed the shortcomings of using cellular phones in class, one learner commented about the incident as follows:

Meisie: Some people disturbed us with music and some didn't take part in the discussions. They just listened to what we were saying.

Textual analysis reveals that effective implementation of the strategy relies on the learners' active participation. The learner's concern is displayed by the words, "They just listened", and suggests that an unfair conduct occurred because some learners were passive during the discussion.

Discursive perspective was shown when some of the learners decided to focus on something else, instead of contributing to the completion of the activity that they were expected to complete as a group. The learners who were not actively involved, denied themselves the opportunity to make a meaningful contribution and voice their opinions, as well as to maintain connections needed to facilitate continual learning.

The discussions above suggest that the lack of active participation and lack of discipline during collaborative learning show that the learners lack commitment towards their learning. Respect and good relations, which are advocated by CER, were, unfortunately, not present. It is evident that the teacher did not plan the time properly, because some groups finished earlier and started to disturb others. There was a lack of rules needed to avoid disturbances, and good discipline is required.

5.4.5 Unsuitable learning environment supporting twenty-first-century learning

One of the reasons to incorporate ICT in education is to enhance teaching and learning practices, so that quality education can be produced. The ability of the teacher to transform the learning environment, to be more learner-centred and to be compatible with the rest of the world, is clouded by inequality and social injustice, which pose a threat to the implementation of the strategy. The government has made plans to increase access to affordable education and to provide resources, but the imbalances caused by apartheid cannot be easily addressed, as suggested by the SGB member.

Mr Kopano: Indeed the teachers are trying their best to develop our children but we have schools that still practice multi-graded classes in rural areas.

Based on the above, it is evident that the teachers' philosophy about changing the approach used in class is a determining factor. The SBG acknowledges that teachers' efforts are not visible, due to imbalances between schools in urban and rural areas.

The use of multi-graded classes which consist of learners in different grades but in one class, may deter effective implementation of strategies that seek to allow individualisation and empowerment for the learners.

5.5 EXPLORING CONDITIONS CONDUCIVE TO THE IMPLEMENTATION OF A SUSTAINABLE FRAMEWORK

The previous section highlighted the possible threats to the successful implementation of a sustainable framework to improve curriculum practice in EMS classes. The team members engaged in the discussion so that measures could be put in place to limit hindrances. In this section, the conditions for the successful implementation of the framework will be discussed.

5.5.1 Adequate access to resources

The idea of transforming the classroom into a vibrant and stimulating environment for learning requires compatible resources that use data to connect to the internet. During the planning sessions, we participated as a group to identify the possible threats, so that possible solutions could be suggested. Setting up of infrastructure to enable the schools to have internet access will assist teachers to incorporate cellular phones into their lessons (Paragraph 3.4.4.1). When the teacher suggested shortage of compatible cellular phones and data, the administrative clerk quickly raised his hand, and commented as follows:

Mr Zee: I don't really think that would stop the strategy to be implemented because at our school we have Wi-Fi connection, and the learners can work in groups like we saw during the demonstration.

We can clearly see that the Department of Education has invested in the use of technology in schools. Free Wi-Fi is installed, so that the learners are able to use the computer labs. There is evidence that the issue of empowering learners and teachers through the use of technology is prioritised, so that social imbalances can be addressed.

Allowing the learners to work in groups, so that they are able to share the use of cellular phones, creates an environment that is nurturing and facilitates continual learning.

During the process, when the learners complete the given activities, they are able to share the information and they become empowered.

Based on the discussions above, creating a vibrant environment requires proper planning by the teacher. The duration of the lesson and the number of learners who were able to bring compatible cellular phones to school were identified prior to the lesson. The school Wi-Fi was used for connecting to internet.

5.5.2 Various activities promoting critical thinking

Education has always had the responsibility to help students acquire research skills. As suggested earlier, when we dealt with possible threats that could hinder enhancing learners' investigative skills, minimal exposure to activities supporting high skills and critical learning were mentioned. We became aware that it is important for teachers to prepare the learners to gain quality knowledge and better preparations for formal assessments (Paragraph 3.4.3.2). For the purpose of this study, the activity that was given to the learners supported the objective of promoting high skills and critical learning, because the learners were given the opportunity to find, retrieve, apply knowledge and share the information. The subject advisor explained that the teachers cannot ignore the importance of the NCS policy, by saying:

Mrs Blue: Teachers will not experience challenges regarding suitable activities because the NCS policy document serves as a guideline that has to be consulted when preparing activities for the learners.

The subject advisor's advice serves as a reminder that we can make use of the policy document to avoid challenges. Clearly, some teachers' knowledge about EMS operation lies in the fact that they consult the policy document to assist them to improve learners' performance. The effective use of the relevant activities empowers the learners.

It is common practice that the teacher has to rely on the policy document, which serves as a guideline for the effective delivery of the curriculum. Although CER aims at demystifying power, we cannot overlook that the policy document is a powerful resource that contains information necessary for empowering teachers.

The discussions above confirm what was suggested by literature, that the policy document is one significant resource tool that has to be continuously consulted because of suitable, suggested activities that promote active and critical learning. Its role in the process of transforming the classroom and equipping learners with relevant knowledge that seeks to address the imbalances in the society, is vital.

5.5.3 In-service training

Teacher development is not only necessary for new teachers, but also necessary for experienced teachers. We are faced with rapid changes in technology. Some teachers possess qualifications relevant for the use of ICT. The teachers at the research site received training regarding the use of the computers and tablets at the mathematics laboratory. When they display a positive attitude, teachers accept that there are new developments that require adequate training, thus, it will be easy to transform the classroom environment (Paragraph 3.4.4.3). One teacher suggested that they can invite one teacher who has experience of the use of cellular phones in class while waiting for the department to conduct in-service training.

Ms Mampho: We can organise one teacher who will show us how to use cellular phones in class since we want this strategy to be implemented in our school.

The above extract displays a sense of urgency and preparedness on the part of the teacher. The spoken words clearly suggest that they should not always depend on the Department of Education for training, but they can rather involve other people. The positive attitude of the teacher shows that there is positive acknowledgement of the changes that will be brought by cellular phones. The principle of interactivity and connectedness is realised, because the experienced teacher will share the relevant knowledge.

Based on the discussions above, it can be concluded that teacher development does not lie entirely with the Department of Education. The discussion also confirms what is suggested in literature, that other agents can be consulted to address the issue of competency and empowerment.

5.5.4 Prior planning and setting of guidelines

It is evident that using cellular phones is preferred by some of the learners, because of its ability to promote collaborative application. Contrary to this, literature suggests that some of the learners prefer to use it for the purpose of individual learning (Liaw *et al.*, 2010:453). For the purpose of this study, we prefer to concentrate on the role of cellular phones to improve collaborative learning. When the learners work in groups, there are group dynamics due to diversity and challenges of behaviour. What transpired during the lesson observation, when inappropriate conduct issues were highlighted, it was evident that the teacher overlooked the fact that there is a need to set guidelines and rules, so that everyone can understand and practice good conduct in class. Even though there are classroom rules for each class, they do not include the incorporation of cellular phones. Moreover, the teacher did not consider time allocation for the task, because the other learners managed to finish ahead of others (see Paragraph 3.4.4.4). In order to circumvent the anticipated threat, the school principal suggested that the teacher should have considered the time allocated for the task, and the school policy and class rules should be adjusted to include the use of cellular phones in class. The suggestion was affirmed by the learner when she said:

Matumelo: Re tlhoka enough time to complete the activities and the teacher e nne ene o allocating nako ya go batla information.

[We require sufficient time to complete the activities and the teacher has the responsibility to allocate the appropriate time necessary for gathering information.]

Thereafter, related to the issue of classroom rules and school policy, the SGB member said:

Mrs Mampho: We have to really have a discussion with the other SGB members so that the school policy can be amended and the guidelines will help the teachers with discipline.

Both the above extracts justify that we cannot have a successful implementation of the framework if proper planning is not considered. The conditions in which this framework will be effective have to be considered. For example, the learner's concern about time allocated shows that proper time management could have prevented the learners from downloading music, instead of giving feedback to the class. Moreover, proper

monitoring is required, so that the teacher can stop the learners from defocussing on the specified topic.

The responsibility of amending the school policy and approval thereof lies with the school principal and the SGB members. Our study advocates for autonomy and openness, however, there should be limitations to avoid inappropriate behaviour.

Based on the above discussion, it was discovered that amended school policy and classroom rules, which include the use of cellular phones, will make life easier for everyone, because they would know what is expected and the limitations involved. Instilling good behaviour and respect cannot be ignored when we deal with diverse human beings, because some learners need time to do things, while some are fast learners who like overpowering others. The implementation of proper guidelines ensures that individuals are protected against those who are power-oriented.

5.5.5 Environment supporting twenty-first-century learning

There is agreement between writers that the new era is defined by rapid knowledge development that is more personalised and explicit, as well as knowledge-pull model for learning (Chatti *et al.*, 2012:21). The research team had a discussion about using learning activities that include complex, cognitive, high skills and social processes that are necessary to enhance interaction with the world around us. The best teachers know that they should emphasise a higher order of thinking and problem-solving activities that are not restricted to the classroom. Setting up activities that provide better information about the learners' critical thinking is vital (Paragraph 3.4.4.5). Regarding this matter, the administrative clerk said:

Thabiso: The learners need to be exposed to the kind of activities such as investigations or research type that will prepare them for tertiary level.

Textual analysis based on the words uttered by Thabiso, "exposed" and "investigations or research type", made us aware that, in order to prepare twenty-first century learners, the teachers need to allocate relevant activities that will grant them an opportunity to seek for information. The empowerment of learners is not only based on their school performance, but also focus on the skills that they acquire during the learning process.

A social-structure perspective is displayed by the words uttered by Thabiso, “prepare them for tertiary level”. We can understand that the learners are not only expected to achieve good results at school, but that they should also acquire skills for future purposes. Since twenty-first-century learning involves technology, the learners will practice the skills during the process of finding information. This also shows that there is good anticipation that learners will continue with their studies after school.

Discursive perspective is shown in what Thabiso is suggesting. When he said, "prepare them for tertiary", it was rather worrying, because it is not certain that all the learners will end up at a tertiary institution, although every parent hopes that their child will obtain tertiary qualifications. We realise that our study addresses the issue of power that is seen to be undermining those who will not be able to attend tertiary institutions after they obtain Grade 12. The skills that the learners acquire while they are still at school is valuable for their everyday life.

Based on the discussions above, we understand that, for teachers to prepare twenty first-century learners, they should give activities that will equip the learners with skills. Acquiring skills to investigate will emancipate the learners and free them from a situation of being uninformed about certain issues that affect them.

5.6 PROVIDING EVIDENCE FOR A FUNCTIONAL AND SUCCESSFUL FRAMEWORK

This section will present a discussion regarding the indicators for a functional and successful framework.

5.6.1 Transformed working environment

This framework will not only enhance the development of learners, it will also enhance the development of teaching instruction by teachers. Teachers are able to work faster and to achieve the objectives of EMS efficiently, as outlined in the policy document (Mdlongwa, 2012:4). The success of this pursued framework will be evident when teachers are able to face the challenges experienced and emphasise the capacity for innovation and collaborative learning and enhance the technological environment. This was confirmed by the principal, when he said:

School principal: This strategy will benefit everybody, including saving the teachers time because they complain that EMS curriculum is too much.

Textual analysis is based on the principal's comment, "will benefit everybody". As the person who has managerial experience and who understands that time is very important, the principal favours the use of this framework, because it will bring positive development to everybody who uses it, including teachers. The words uttered show that the principal does not exclude himself from the individuals who will benefit, because he is not power-driven.

Social-structure analysis revealed that a principal is perceived by many people as a person who has power and authority in the workplace, but his role as the participant in this study made him part of the group that would benefit from the use of the framework, thereby emphasising the issue of equality, which is something that is advocated by CER. For the purpose of this study, the principal's involvement was due to his experience, and not for him to show his authority in the team.

Based on the above discussions, it is understood that the success of the framework is based on its ability to save the teachers' time when they deal with the EMS curriculum, and the empowerment of individuals.

5.6.2 Ability to enhance role-playing

It is important that the classroom environment should not only concentrate on acquiring knowledge, but also on skills that promote togetherness. We understand that the learners are diverse and that they learn uniquely, but having them in one group can assist them to learn from one another (see Paragraph 3.4.5). When the learners are given the chance to participate during the learning process, they feel excited and stimulated. Collaborative learning presents the learners with an opportunity to show the skills that they acquired during their lifetime. For instance, the empowerment notion was seen when some of the learners who demonstrated good leadership traits were selected as group leaders, and those with good reading and writing skills were selected as presenters in the group (Dold & Chapman, 2012:515). During the process, when we were discussing the intervention strategy, the social worker said:

Ms. Maiso: People, did you notice Thadiso excitement when he was told that he is the group leader? The others were also very keen to perform their roles.

The use of the words, “excitement”, and “keen to perform their roles”, shows the positive feeling displayed by the learners who are given different roles. CER promotes empowerment, which will prevail when the learner gains leadership skills when performing the duties of a group leader. The positive feeling also shows that the learner acknowledges working together with other learners, and his contribution to the group. The preparedness of the other learners displays that the learners enjoy being part of the learning process.

In our society, the usual conduct or practice is that, when an individual is given the task of being a group leader, that gives the individual power to control the other group members. Inequity is discouraged by CER, since power has to be shared between members of the group and they have to treat each other with respect and dignity. It might be that the learner thought that the position for group leader is superior to the others.

Based on the discussions above, the researcher realised that the role played by the different group members depends on the ability of the teacher to promote collaborative learning, so that the classroom environment can be transformed into an exciting environment, as opposed to the usual setting where the learners are viewed as recipients of information. Participating in the group gives the learners the opportunity to develop their different skills. The discussion brings out the notion of empowerment and emancipation, because of the feeling displayed.

5.6.3 Content promoting empowerment

When the learners are able to access information that is not available in their textbooks or not presented by the teachers, they become empowered and independent and they are encouraged to be lifelong learners. The empowerment that is brought by the framework is not only limited to the learners, but the teachers are also presented with the opportunity to transform the classroom using a learner-centred approach. The use of the relevant content that will be beneficial to the learners cannot be overlooked. To show the importance of the relevant content, one of the participants, who is an SGB member and teacher, explained how the anticipated framework would be beneficial to the school:

Ms Mampho: This strategy will help us because we have to produce learners who gain knowledge that they will use in future. They are taught about entrepreneurship and investigations at an early stage. Again, their peers and other schools will know that our school keep up with the current technological developments.

Analysis of text based on the words, “gain knowledge”, suggests that the learners will benefit from the framework. The knowledge and skills acquired from the content of EMS will help those who are aspiring entrepreneurs. Empowering the learners at an early stage is important, as it will emancipate them from the negative power of oppression in their communities through starting new businesses.

Within social structures in our society, there is an expectation that the school should prepare children for the future. Based on the extract, the words, “our school keeps up with the current technological developments”, shows that the school does not want to find itself left behind. We become aware that what is said by the speaker shows the power that the school will gain from the successful implementation of the suggested strategy that promotes twenty-first-century learning.

Based on the above discussion, it can be concluded that the implementation of the framework will bring general improvement to society. The intention to empower the learners will be attained. Drawing from CER, we can understand that, in order for the future youth to deal with social injustices and imbalances, the kind of acquired skills and knowledge that promotes decision-making will empower them.

5.7 SUMMARY OF THE CHAPTER

This chapter illustrated how the use of cellular phones can either foster or inhibit the empowerment of learners and teachers. The chapter dealt with the presentation, analysis, interpretation of data, and discussion of findings towards the use of cellular phones to improve curriculum practice in economic and management sciences classes. The study aimed to develop a framework using the five objectives that are set to answer the research question. The research process was successful regarding the attainment of the objectives. The empirical data was generated during the meetings and the minutes documented, and later interpreted using CDA. CDA enabled the researcher to interpret data that was generated, because the focus was on the spoken texts. The researcher also managed to present the findings to show how the

discussions based on the empirical data correlate or refute the literature reviewed. The next chapter will, then, present findings, a summary and recommendations of the study. Finally, it will present the framework promised.

CHAPTER 6: THE USE OF CELLULAR PHONES TO IMPROVE CURRICULUM PRACTICE IN EMS CLASSES: FINDINGS, RECOMMENDATIONS, SUMMARY OF THE STUDY AND PRESENTATION OF THE FRAMEWORK

6.1 INTRODUCTION

The aim of the study was to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. This chapter will provide a summary of the findings, make recommendations and present the proposed framework. It will also provide a brief background of the study and the challenges leading to the designing of the framework, and outlines the problem statement that resulted in the aim of the study and research question. Thereafter, the objectives that guided the structure of the study will be presented. The chapter will, then, describe the findings related to the challenges justifying the need for the framework for the use of cellular phones to improve curriculum practice in EMS classes. It will, furthermore, present a report relating to the findings on the components of a framework, and conditions and indicators for successful implementation of the framework. Then, the value, limitations thereof and a summary of the study will be presented. Finally, the intended framework will be presented.

6.2 BACKGROUND OF THE STUDY

The study aimed to design a framework for the use of cellular phones to improve curriculum practice in EMS classes. There is a need for this framework, because teachers need to transform and adapt their teaching practices to improve the learners' performance, as per contemporary demands and policy directive. The South African education system is shifting towards twenty-first-century practices, which involve the classroom incorporating new technologies that excite learners (Khomokhoane, 2011:15). It emerged that some teachers still use a teacher-centred model in classrooms, as opposed to the learner-centred model that allows the infusion of technological resources (Jhurree, 2005:471; Tsotetsi, 2013:35). Thus, the researcher was motivated to design a framework, due to the need identified to adapt a teacher-centred curriculum practice in favour of a learner-centred approach, by focusing on imparting knowledge to learners through the use of cellular phones. Moreover, it was to show that teachers need empowerment for integrating technology into the

classroom, that would result in a stimulating learning and teaching environment (Dowden, 2007:79).

In response to the challenges identified in the study, cellular phones, which are well suited to finding information, can be utilised, since the learners find the cellular phones interesting. To demonstrate the need for the anticipated framework, a literature review was based on challenges experienced in South Africa and other countries (Paragraph 3.4.1).

6.3 THEORETICAL FRAMEWORK

To understand the conditions leading to discourse in the study, a theoretical framework that was collaborative, was operationalised to achieve the objectives of the study. The lens created a critical consciousness that fostered, rather than suppressed, critical thinking and social interaction between participants (Giroux, 2018; Nkoane, 2012:100; Tshelane, 2013:415). The researcher carried out this study while consciously acknowledging issues of power dominance and oppression experienced in our societies, and injustices that occur during the research process (Koshy, 2009:2; Nkoane, 2012:98). The research facilitator and the participants had equal status in the study and they were respected for their contributions (Habermas, 2006:413; Nkoane, 2013:397). Therefore, the success of this study was based on the fact that all the participants were actively involved, because of the equal power they possessed in the study.

6.4 PROBLEM STATEMENT

Learners are unable to perform well in EMS economics because of their inability to access information from other resource materials. This is seen as a challenge. It seems that the majority of learners who reside in rural or poor areas have little or no exposure to an inspirational environment that could enrich their education. The resource materials that are mostly suggested for use in the classroom are either outdated, flawed or unavailable.

6.4.1 Research question

Based on the above discussion, the study answered the following research question:

How can the use of cellular phones improve curriculum practice in EMS classes?

6.4.2 The aim of the study

The study aimed to design a framework for the use of cellular phones to improve curriculum practice in EMS classes.

6.4.3 Objectives of the study

To respond to the research question of this study, which aimed to design a framework for the use of cellular phones in EMS classes, the following objectives were addressed:

- a) To justify the need for a framework to improve curriculum practice using cellular phones in EMS classes;
- b) To identify the components of a framework to improve curriculum practice using cellular phones in EMS classes;
- c) To identify the threats associated with a framework to improve curriculum practice using cellular phones in EMS classes;
- d) To explore the conditions of a sustainable framework to improve curriculum practice using cellular phones in EMS classes; and
- e) To provide evidence that the framework to improve curriculum practice using cellular phones in EMS classes will be functional and successful.

6.5 FINDINGS AND RECOMMENDATIONS

This section presents the findings and recommendations of the study as they emerged from the literature and during the analysis process in Chapter 5. They are as follows:

- a) Absence of stimulating learning environment;
- b) Inability to enhance learners' investigative skills;
- c) The need for teacher agency;
- d) Teachers' inability to encourage collaborative learning; and
- Inability to cater for twenty-first-century learners through technology.

6.5.1 Findings and recommendations related to justifying the need for a framework

This section presents the findings and recommendations for further research related to the challenges identified for justifying the need for a framework.

6.5.1.1 *Absence of stimulating learning environment*

This study examined the importance for a stimulating learning environment. It emerged from other studies that a stimulating learning environment has a positive influence on the learners' performance, as opposed to one that stifles creativity and discourages an active and critical approach to learning. The need for the teachers to create a stimulating learning environment is influenced by the content to be taught, the type of resources at the teachers' disposal and the diverse learners with different learning styles (Paragraph 3.4.1.1).

The literature reviewed reveals that a learning environment that is shaped by learners' background has a profound influence on children's learning and, consequently, on their chances in life. Furthermore, it reveals that learners need to attach their life experiences to their learning, which is possible when teachers create opportunities for effective learning.

The findings of the study reveal that the learners shifted their focus, from the traditional practice of depending on the teacher for information and the textbook as a resource material, to one of being independent. It was revealed during the study that the teachers rely a great deal on the use of textbooks, but that did not appeal to the learners. The learners found the practice old-fashioned and uninteresting, as the teacher would reading to them from the book. The study, furthermore, found that learners enjoyed using cellular phones for games and pictures. This is in agreement with what literature confirms, that the use of cellular phones will create new ideas and explore learners' own creativity when acquiring knowledge, skills and competencies during the learning process, even when there is a lack of textbooks or any other resource materials (Paragraph 3.4.1.1).

A recommendation from the study is that the effect of the transformation brought by the use of cellular phones on the learners' performance should be explored thoroughly to encourage its proper use in education.

6.5.1.2 *Inability to enhance learners' investigative skills*

The expectation is that the curriculum that is implemented should be able to produce learners who are able to recall, understand and apply the knowledge and skills acquired during learning, although it is not always the case. The discussion based on literature reviewed reveals that teachers lack the abilities to apply differentiated teaching strategies together with differentiated activities to enhance learners' investigative skills (Paragraph 3.4.1.2). From the study, it emerged that learners and teachers support the idea of using different types of activities that stimulate and encourage an active and critical approach to learning. If that is not done, learners are denied the opportunity to apply high cognitive skills. Moreover, they are denied the opportunity to deal with the current demands of education (Paragraph 5.2.2). The study reveals, furthermore, that learners lacked emancipation, due to intense use of textbooks by the teacher. For instance, Mami revealed that textbooks are unable to provide them with adequate information for investigative activities. Thus, learners find themselves trapped in a situation of inadequate, insufficient and irrelevant information. In relation to the findings of the challenge, there were no recommendations for further research.

6.5.1.3 *The need for teacher agency*

The teachers need to adapt to the young generation's demands, by providing support and learner engagement and by stimulating of high-level thinking. From the literature reviewed, it emerged that some limitations, such as teachers' negative attitudes and unpreparedness to incorporate cellular phones into the lesson, has had a negative influence, to the point that some teachers resist adapting to current demands and expectations of our curriculum (Paragraph 3.4.1.3). The findings of the study reveal that some teachers resist change because they fear that cellular phones would take over their role as class teachers. Some teachers perceive themselves as important vessels of information (Paragraph 5.2.3). This was evident, because comments by the principal and EMS teacher reveals that teachers are challenged by intense use of the

top-down approach. Therefore, they view themselves as powerful sources of information. The school principal testified that not all the teachers had received training in effectively incorporating cellular phones in class.

Recommendations from the study for further research are to focus on strategies to enhance teacher competency, and effectively promote an agenda of democracy in class.

6.5.1.4 *Inability to encourage collaborative learning*

Collaborative learning is important, because it is sensitive to social justice and the learners' human rights (Paragraph 3.4.1.4). It emerged that collaborative learning is a measure for ensuring that learners do not become passive recipients of knowledge and skills from the teacher. Collaborative learning is able to improve the learners' interaction and learning with one another in a non-threatening way. This can be realised when teachers create opportunities to engage learners, as active participants, during the learning process. Therefore, the use of technological resources is necessary, because it has the potential to create a learner-centred learning environment. The literature reveals that, in cases where high enrolment is experienced, it became difficult to arrange learners into groups.

The findings of this study reveal that teachers are aware that collaborative learning is an important aspect that cannot be excluded when implementing the NCS curriculum. In addition, it reveals that the use of cellular phones is not only necessary for searching for information, but that it can assist teachers to create a collaborative learning environment (Paragraph 5.3.4). This was demonstrated when the teacher planned an activity during the research process, where a textbook was the main resource material. Some of the learners had textbooks, but one learner did not have one. Instead of sharing with the other learners, the learner just listened to the teacher and ended up losing focus on the lesson itself. The teacher could have suggested that the learner share a textbook with another learner, to avoid the learner being left behind during the learning process.

Recommendations for further research are to find out about role players' contribution to collaborative learning when implementing the NCS curriculum.

6.5.1.5 *Inability to cater for twenty-first-century learners through technology*

Preparing twenty-first-century learners to be compatible for the work environment is very important. The literature reviewed reveals that teachers still struggle to deliver lessons in a manner that could cater for empowering twenty-first-century learners. This study reveals that cellular phones are needed as resource materials, because they possess the ability to empower both teachers and learners. It was also realised that teachers are lifelong learners.

Recommendations for further research can be to develop a strategic plan concentrating on the use of technological programs related to preparing twenty-first century learners in EMS.

6.5.2 Findings and recommendations related to the identified components of a framework

This section will highlight the findings and recommendations related to the identified components of a framework.

6.5.2.1 *Cellular phone applications*

In order to address the challenge related to absence of stimulating learning environment, the literature suggests that stimulating resources for learning and teaching should be incorporated into the classroom (Paragraph 3.4.2.1). Using cellular phones was deemed necessary, with the understanding that it has the potential to transform the learning environment into a vibrant platform. Suggestions emerged for using cellular phones that have cameras and other software features, that may be used during learning and teaching. The findings of the empirical data reveal that using cellular phones is not a difficult process, because of the various programs and applications installed in phones, which the learners operated on their own. Thereby, the learning environment was transformed into a vibrant platform. During the intervention process, it was revealed that the teacher could allow the learners to record any important information discussed in class. Moreover, they used Google to find information they needed (Paragraph 5.3.1).

Recommendations for further research were not identified by this study.

6.5.2.2 *Ability to enhance learners' investigative skills*

To address findings mentioned above, literature reveals solutions, such as using cellular phones to promote independence from the teacher (Paragraph 3.4.2.2). Moreover, cellular phones could be used for downloading notes. Moreover, it was revealed that conducting research using the internet was preferred, because of its ability to support multitasking. The study revealed that learners require activities that provide opportunities that enable them to explore complex cognitive tasks. To improve the pace of finding information, a faster device is needed. This was evident when Tshepang acknowledged that, when cellular phones are used, it would be easier and faster if they used Google. Thus, it would assist them to complete project type form of assessments (Paragraph 5.3.2).

Recommendations for further research were not identified by this study.

6.5.2.3 *Professional development*

The solution to the challenge discussed above is, according to literature, professional development. It was necessary to create several initiatives to deal with lack of training and incompetency of teachers to incorporate cellular phones in class (Paragraph 3.4.2.3). Because of teachers' resistance to adapting to the use of technological devices in class, literature reveals that professional development could play an important role. Professional development is necessary, because other technological changes may be experienced too.

The findings of the study reveal that the South African government should invest in training the next generation of teachers, as well as retraining of the current teaching workforce, in the use of technology-based teaching approaches, to encourage a transformed educational environment.

A recommendation for further research is that a structured course that could focus on equipping the current workforce with skills and knowledge to incorporate cellular phones into the classroom should be developed.

6.5.2.4 *Maximum learner engagement*

Literature reveals that cellular phones afford learners the opportunity to engage with each other for educational purposes, using phone features. The study reveals that collaborative learning enhances the relationship between learners and teachers. This became clear during the lesson presentation when cellular phones were used to access information. The learners used one cellular phone in their group to complete the activity. In addition, collaborative learning redresses the imbalances experienced. For instance, the learners are able to shift their dependence from the teacher to their peers.

Recommendations for further research were not identified.

6.5.2.5 *Ability to cater for twenty-first-century learners through technology*

From the literature reviewed, the solution that emerged to address the challenge discussed above entails that teachers must design problem-based and simulated activities that require the use of technology (Paragraph 3.4.2.5). This study reveals that teacher competency plays an important part in this regard. Teachers need to understand the NCS policy in order to operationalise it, by assisting the learners to acquire, among other skills, high levels of cognitive skills, problem-solving abilities, skills to apply the knowledge acquired, and data handling.

6.5.3 Findings and recommendations related to possible threats associated with a sustainable framework

This section will present the findings and recommendations and possible threats that were identified as impediments to a sustainable framework.

6.5.3.1 *Shortages of compatible resources and related costs*

There are some inferences that would impede the successful incorporation of stimulating resources, more importantly, the use of cellular phones. The literature reviewed reveals that inadequate provisioning of resources, such as financial resources, pose a threat to incorporating the relevant stimulating resources into the classroom (Paragraph 5.4.3).

Findings that emerged from the study reveal a shortage of compatible cellular phones was a threatening factor, due to inadequate provisioning of resources. Based on the fact that the study was conducted in an impoverished environment, it was evident that lack of resources would be one of the threats to our operation. This was demonstrated during one of the meetings, when the learners had to use their cellular phones to demonstrate how information can be accessed quickly. One of the learners did not have what is referred to as a smart phone that is internet compatible. In addition to that, during the SWOT analysis discussion, it emerged that an internet connection is also a threatening factor. The participants revealed that buying data is expensive and sometimes it is depleted, because they have to share it with other family members.

6.5.3.2 *Minimal exposure to activities supporting high-level skills training and critical learning*

From the literature reviewed, it emerged that disallowing and prohibiting learners to use cellular phones at school denies the learners the ability to obtain information. In addition, lack of exposure to technological devices, as mentioned above, is one of the impeding factors (Paragraph 3.4.3.2). The findings from the study reveal that teachers also pose a threat to addressing the challenge. This was identified when it was revealed that some teachers are unable to design activities that enhance learners' investigative skills (Paragraph 5.4.2). For instance, Ms Nomonde highlighted that, in her experience as a learning facilitator, some teachers are unable to use different assessment techniques when they prepare assessments.

Recommendations for further research were not identified.

6.5.3.3 *Teachers' attitudes towards professional development*

The intervention strategies mentioned in Paragraph 3.4.1.2 reveal that successful implementation relies on teachers' attitudes towards the use of technology and development. In addition, a lack of national policies to promote the use of cellular phones emerged. The study reveals that some of the teachers still resist implementing innovative strategies to improve their classroom practice, not because they do not want to, but due to a lack of training (Paragraph 5.4.3). This was established from Mr

Nthato's comment, when he said that they had never been invited to a workshop related to the use of cellular phones.

6.5.3.4 *Inactive participation and discipline*

The literature reviewed reveals multitasking as one of the factors that might hamper the effective use of a framework (Paragraph 3.4.3.4). This study reveals that effective implementation of the strategy relies on the learners' active participation (Paragraph 5.4.4). This was evident when Meisie told the team that, during the lesson that was observed, some of the learners disturbed them with music and some did not participate during the discussion (Paragraph 4.4.3.1). Inactive participation and lack of discipline during the activities demonstrate lack of commitment towards the learners' learning process.

6.5.3.5 *Unsuitable learning environment for supporting twenty-first-century learning*

The literature reviewed reveals that inappropriate use of technological devices hinder the learning process that is intended to cater for twenty-first-century learners (Paragraph 3.4.3.5). It emerged that the older generation of teachers are struggling to adapt to a learner-centred approach that promotes the use of compatible technological devices. From this study, it emerged that the teachers' philosophy about changing their teaching approach is a factor threatening the successful implementation of the strategy (Paragraph 5.4.5). Moreover, conditions, such as multi-graded classes, have a negative impact on achieving the subject objectives.

6.5.4 Findings and recommendations related to conditions conducive to the implementation of a sustainable framework

This section will present the findings and recommendations related to conditions conducive to the implementation of a framework.

6.5.4.1 *Adequate access to resources*

To circumvent the threats they had identified, the team recommended that measures be put in place to limit such hindrances (Paragraph 5.5.1). The study reveals that

creating a vibrant environment requires proper planning by the teacher. The teacher informed the learners that they were to participate in a lesson and cellular phones were to be used as resource material. The teacher decided to arrange the learners in groups. This ensured that all the learners had access to cellular phones. Moreover, an environment that nurtures and facilitates continuous collaborative learning prevailed. Relevant to the issue pertaining to lack of data, it was revealed that the particular school had Wi-Fi installed by the FSDoE for the purpose of maths laboratory. Those involved made use of it for connecting to internet.

6.5.4.2 Varied activities promoting critical thinking

To circumvent the identified threats the study recommends that teachers gain appropriate skills to develop activities promoting critical thinking. In addition, the use of policy document was mentioned. The subject advisor advised teachers to constantly to make use of NCS policy as a guideline for assessment.

6.5.4.2 In-service training

The recommendations to circumvent the threatening factors included training for the teachers. The recommendation was put in place when in-service training programmes were put in place. The recommendations that emerged (Paragraph 5.5.3) suggest in-service training, which is in agreement with the literature reviewed. However, one of the SGB members suggested that the school organise a teacher from another school to display to how cellular phones can be incorporated as resource material, instead of waiting for the FSDoE to organise training.

6.5.4.3 Prior planning and setting of guidelines

Conditions recommended to circumvent the threats identified include setting guidelines and rules so that everyone is aware of good conduct (Paragraph 5.5.4). Moreover, proper planning was not put in place, as the teacher should have realised that too much time was allocated for the activity. The teacher overlooked that the class consisted of diverse learners with different abilities and characters. This was evident, because some of the learners completed their activity and started disturbing others. Therefore, the teacher should have exercised proper control and continued to monitor the learners while they completed the activity.

6.5.4.4 *Environment supporting twenty-first-century learning*

Literature reveals that rapid transition of the learning environment is needed to match twenty-first-century learning. This rapid transition includes utilising relevant content and activities that are compatible to the life-worlds of learners.

This study reveals that teachers also require skills to enable them to plan and conduct their lessons in a manner that will equip the learners with skills, subsequently emancipating learners from situations of being uninformed about global aspects affecting them (Paragraph 5.5.5).

6.5.5 Findings related to evidence for a functional and successful framework

This section will present the findings related to evidence for a functional and successful framework.

6.5.5.1 *Transformed working environment*

The literature reviewed reveals that a successful framework is able to assist the teacher to face challenges experienced regarding the use of cellular phones (Paragraph 5.6.1). This study reveals that this framework had a positive influence on the teachers' time spent on implementing the EMS curriculum. This was evident when the learners were given a chance to search for information on their own. The teacher was saved the trouble of organising notes for the learners.

6.5.5.2 *Ability to enhance role-playing*

This study reveals that the role played by the different group members depends on the ability of the teacher to promote collaborative learning, so that the classroom environment can be transformed into an exciting environment, as opposed to the usual setting, where the learners are viewed as recipients of information. The use of PAR in this study helped us to set up a collaborative environment in which everyone was respected, free to voice their own views and participate in solving the collective problem.

6.5.5.3 *Content promoting empowerment*

The literature reviewed reveals that the empowerment brought by the framework is relevant for the learner and the teacher. The teachers are presented with the opportunity to transform their classroom into a vibrant and interesting one for learning.

This study reveals that the implementation of the framework will bring general improvement to education and to the society.

6.6 VALUE OF THE STUDY

The study was intended to design a framework seeking to understand how the use of cellular phones can assist to improve curriculum practice in EMS classes. The design of the framework encouraged collaboration and teamwork amongst the participants. Any teachers, with the intention of creating a collaborative, vibrant learning environment and enhancing their teaching and learning approach, is at liberty to put the framework into practice. Furthermore, the study also has significant value in the research field, because of its collaborative and transformative agenda. Inviting different role players to participate in this study cultivated collaboration that was needed to address the common problem.

6.7 LIMITATIONS OF THE STUDY

The findings of this study are not reliable or objective and cannot be generalised in any way, as this study was conducted at one school. However, at schools where similar challenges are experienced, under similar conditions as those of the school used in the study, the findings of this study could be used.

6.8 PRESENTATION OF THE PROPOSED FRAMEWORK

This section will present the anticipated framework that is aimed at addressing the objectives of the study (Paragraph 1.5). Below are the stages followed to design this framework. The self-reflective steps of PAR were followed, because of the collective and reflective nature of PAR.

6.8.1 Phase 1: Preparation

This section will explain how the design of the framework evolved.

6.8.1.1 *Planning stage*

The situation caused by challenges related to the learning environment, which had a detrimental effect on learners' attainment and knowledge acquisition, influenced the researcher to undertake the study. The collaborative research approach used was relevant, because all the role players in education were needed to participate in the study. The planning stage was important, because the type of data that was required to address the research question relied on the participants' knowledge, skills and experiences.

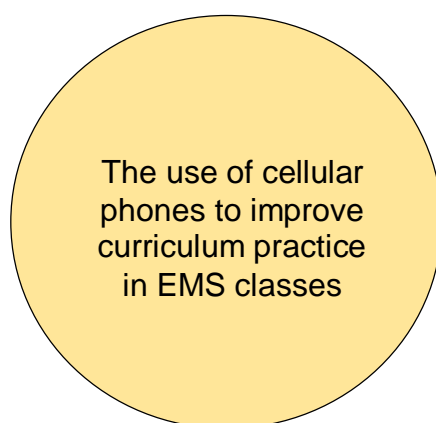


Figure 6.1: Research title

Figure 6.1 shows the research title, which the researcher initiated at the beginning of the research process. As an emancipatory researcher collaborating with the participants, it was necessary for the researcher to realise emancipation through the interaction between the team members. Therefore, different stakeholders were invited to participate in the study. The PAR approach enabled participants to collaborate together as a team. They came together to answer the research question in pursuit of the research objectives, as stated in Paragraphs 1.4.1 and 1.5 respectively. The next step was to profile the participants.

6.8.1.2 *Putting the team together*

The three different focus groups participated in the study. The research process evolved in a manner similar to the PAR cycle (Annexure A). The three focus groups

collaborated and worked together to address the research question. The focus groups consisted of learners, community members and school-based professionals. These participants were referred to as the coordinating team. They showed an interest in the research title and the research question before the research process commenced (Annexure D). The participants included EMS teachers, subject advisors, social workers, parents of Grade 7 learners, SGB members, Grade 7 learners and the school principal.

6.8.2 Phase 2: Implementation stage

This section will explain how the second phase of the research process unfolded. The researcher organised an information session to allow the participants to meet each other.

6.8.2.1 Information session

During the information session, the researcher explained the research title, research question, research problem statement, data generating process, research approach and ethical considerations. The PAR approach that was used for generating data was also explained during the session. Thereafter, the participants had to introduce themselves to make each other aware of their roles in the study.

6.8.2.2 The mission and vision statement of the research team

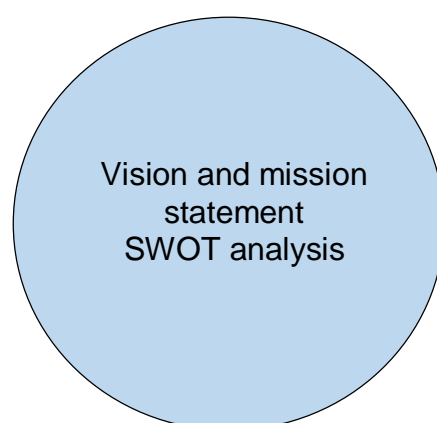


Figure 6.2: Process of developing the mission and vision statement, as well as the SWOT analysis

The exercise was necessary, because the coordinating team had to understand the intention of the research study. In order to do so, participants engaged in an activity to develop the mission and vision statement of the team. This exercise was important, because participants needed to ensure that they were geared towards achieving the objectives of the study.

6.8.2.2 *SWOT analysis*

The team agreed to perform a SWOT analysis as a strategic planning tool. The performance of the SWOT analysis guided the participants to assess the environment to determine their strengths, review areas of improvement (weaknesses), and exploit its opportunities or use them to counter the threats. The SWOT analysis gave the team the opportunity to develop the priorities that the team focused on.

6.8.3 Phase 3: Intervention



Figure 6.3: Strategic plan

The SWOT analysis developed earlier assisted the team to develop a strategic plan. The priorities that assisted the participants to address the objectives of the study were identified. This strategic plan phase was necessary so that the team could set priorities for designing a framework for the use of cellular phones to improve curriculum practice in EMS classes. The strategic plan presented a breakdown of all the activities that the team intended to perform in pursuit of a common vision (see Table 4.2). This plan showed the following:

- a) Activity to be performed;

- b) People involved in the activity;
- c) People responsible for performing or facilitating the activity;
- d) Duration of the activity; and
- e) The monitoring strategy.

6.8.4 Phase 4: Monitoring and feedback



Figure 6.4: Monitoring and feedback

During the research process, the team had to monitor and reflect on its plans, as the last phase of the process. Those responsible had to update the team regarding developments in the activities to which they were assigned. The school principal, the administrative clerk and the researcher gave the team feedback regarding the issue of e-books. After the lesson demonstration was presented, the team came together to discuss their observations. The presentation from the inclusive education section was also discussed by the coordinating team. The team used the discussions and feedback to constantly reflect on its initial plans. The reflection phase continued during the research process in order to measure progress. It would not have been possible to realise the objectives of the study if the team did not reflect on its plans. Finally, the team was able to address the research question by following the framework shown in Figure 6.5.

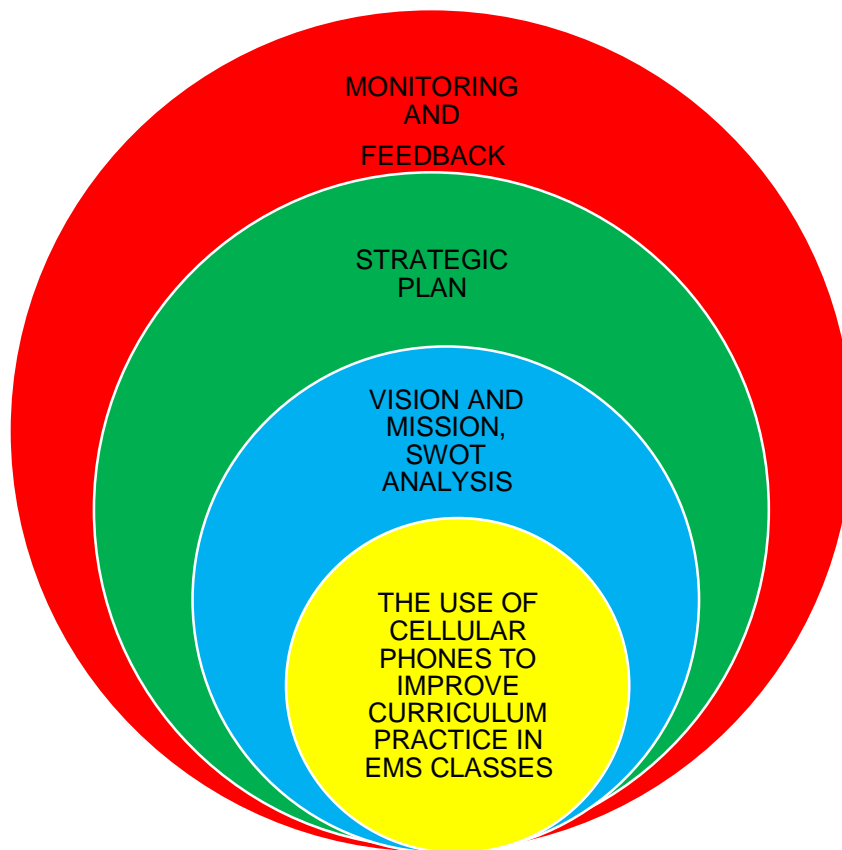


Figure 6.5: Framework

6.9 CONCLUSION

The study aimed to design a framework for the use of cellular phones to improve curriculum practice in EMS. The successful design of the framework relied on the approach that was utilised in this study for generating data. The participants addressed the common problem collaboratively as a team. During the process, the principles of CER, as the theoretical framework that coached the study, were observed. Freedom, empowerment, democracy, peace and equity were observed, because it was understood that the participants agreed to take part consciously and be aware of their roles.

6.10 SUMMARY OF THE CHAPTER

Chapter 6 dealt with a summary, and the findings and recommendations of the study. A brief background of the study, as well as theoretical framework, were given. The problem statement, the research question, the aim of the study and its objectives,

leading to the successful design of the framework, were given attention. Thereafter, the findings and recommendations related to the objectives of the study, were given attention. Finally, the proposed framework was presented.

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UNIVERSITY OF THE
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FORTH RIVER

30-Mar-2016

Department: School of Higher Education Studies (Bloemfontein Campus)

Yours faithfully

Shen.

Dr. Juliet Ramohai

APPENDIX B: REQUEST TO CONDUCT RESEACH IN A FREESTATE DEPARTMENT OF EDUCATION SCHOOL

Cell no. 0725973996

10232 Modimogale Street

Email: lefetep@gmail.com

Rocklands Location

BLOEMFONTEIN

9323

15 April 2016

The Director

Strategic Planning, Policy Development & Research

Free State Department of Education

Private Bag X20565

BLOEMFONTEIN

9300

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN SCHOOL

TO WHOM IT MAY CONCERN

I am currently registered student for Master's Degree at the University of Free State.

I would like to ask the Free State Department of Education to grant me permission to conduct a study (research project), at Mabeoana Intermediate School in Mangaung from 12 May 2016 until 12 July 2016.

The research title is:

The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.

The purpose of this study is to show how the use of cellular phones can be used to improve curriculum practice in Economic and Management Sciences classes.

For the purpose of this research, I will use two focus groups, namely, adults and learners. I hereby ask permission for the following stakeholders who will be referred to as co-researchers: school principal (Mabeoana Intermediate School), Grade seven EMS teacher (Mabeoana Intermediate School), EMS Learning facilitator from Motheo District, not fewer than nine Grade seven learners (Mabeoana Intermediate School), parents or care-givers or guardians of the involved Grade seven learners, and two governing body members (Mabeoana Intermediate School).

I will conduct two separate meetings, for the adults and for the learners together with their parents.

The purpose of gathering with co-researchers will be to enable me to gather data through the minutes of meetings that will be held with the coordinating team. The EMS educator is expected to conduct two lesson simulations together with the Grade 7 learners involved in the research project. The participation of the co-researchers will be entirely voluntary and co-researchers are under no obligation to take part in the study. Co-researchers will be permitted to excuse themselves at any point and stage of the study. Co-researchers will not be remunerated for their engagement in the study.

The school will benefit from the study as the intention is to engage relevant stakeholders to formulate the strategy to improve the learning and teaching practice. The co-researchers will share knowledge and give their views contributing towards the research project. Upon the completion of the study, I undertake to provide the Department of Education with a bound copy or CD of the full research report.

Yours sincerely

Innocentia Puleng Lefete

APPENDIX C: APPROVAL LETTER TO CONDUCT RESEARCH IN A FREE- STATE DEPARTMENT OF EDUCATION SCHOOL

Enquiries: BN Kitching
Ref: Research Permission; IP Lefete
Tel: 051 404 9283 / 9221 / 082 454 1519
Email: bnkitching@gmail.com and B.Kitching@edu.fs.gov.za



REPUBLIC OF SOUTH AFRICA
Department of Education
FREE STATE PROVINCE

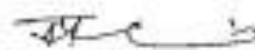
MRS IP LEFETE
10232 MOENMOGALE STREET
ROCKLANDS, BLOEMFONTEIN, 9323

Dear Mrs Lefete

APPROVAL TO CONDUCT RESEARCH IN THE FREE STATE DEPARTMENT OF EDUCATION

1. This letter serves as an acknowledgement of receipt of your request to conduct research in the Free State Department of Education.
Research Topic: The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.
2. Approval is herewith granted to conduct research in Mabeana School in Motheo District.
3. Target Population: 9 Grade 7 EMS Learners, Principal, 2 SGB Members, EMS Educator, 9 parents / guardians of Grade 7 learners, the EMS learning facilitator.
4. Period of research: For three months from the date of signature of this letter. Please note the department does not allow any research to be conducted during the fourth term (quarter) of the academic year.
5. Should you fall behind your schedule by three months to complete your research project in the approved period, you will need to apply for an extension.
6. The approval is subject to the following conditions:
 - 6.1 The collection of data should not interfere with the normal tuition time or teaching process.
 - 6.2 A bound copy of the research document or a CD, should be submitted to the Free State Department of Education, Room 319, 3rd floor, Old CNA Building, Charlotte Maxeke Street, Bloemfontein.
 - 6.3 You will be expected, on completion of your research study to make a presentation to the relevant stakeholders in the Department.
 - 6.4 The ethics documents must be adhered to in the discourse of your study in our department.
7. Please note that costs relating to all the conditions mentioned above are your own responsibility.

Yours sincerely


DR JEM SEKOLANYANE
CHIEF FINANCIAL OFFICER

DATE: 19/05/2016

APPENDIX D: LETTER TO THE SCHOOL PRINCIPAL

Cell no. 0725973996

10232 Modimogale Street

Email: lefetep@gmail.com

Rocklands Location

BLOEMFONTEIN

9323

Date: _____

The School Principal

Mabeoana Intermediate School

6591 Jonga Street

Phahameng

9315

PERMISSION TO CONDUCT RESEARCH

Dear Sir

I hereby request the school principal of the above mentioned school to grant me permission to conduct a study (research project). The research will take place after school hours.

The research title is:

The use of cellular phones to improve curriculum practice in Economics and Management Sciences (EMS) classes.

The aim of the study is to design the framework for the use of cellular phones to improve curriculum practice in Economics and Management Sciences (EMS) classes.

The following stakeholders who will be referred to as participants will be involved in the generating of data necessary to design the framework: school principal, Grade seven EMS teacher, EMS Learning facilitator, social worker (not allocated for the school), Grade seven learners (not fewer than nine), their parents/care-givers/guardians, Higher Learning Institution lecturer and two governing body members (including one teacher).

The following activities are anticipated for gathering data:

- Two simulated EMS lessons of 45 minutes each conducted after school hours. One lesson will be conducted without the use of cellular phones and the one lesson with the cellular phone incorporated as the resource material.
- Minutes of meetings held for discussions will be recorded for further data analysis.

As the school principal and also member of the School Governing Body, I would like you to be part of the coordinating team for further discussion on the matter. Furthermore, the other two SGB members will be requested to be part of the research team.

The participation to the research is entirely voluntary and the participants are under no obligation to take part in the study. Participants will not be remunerated for their engagement in the research. The participants will be permitted to excuse themselves at any point and stage of the research. The information gathered through minutes of meetings will be treated as confidential and participants will not be exposed to any risk. Thereafter the information will be destroyed.

I believe that the school will benefit from the study as the intention is to involve the relevant stakeholders to improve the manner in which learning and teaching are done. Involvement of the learners in the research is necessary because our learners need to be equipped with skills and information that will enable them to compete with the entire world.

Yours sincerely.

Innocentia Puleng Lefete

APPENDIX E: CONSENT LETTER TO PERMIT THE CHILDREN TO PARTICIPATE IN THE STUDY

RESEARCHER: IP LEFETE

Email: lefetep@gmail.com

Cell no: 0725973996

SUPERVISOR: Dr. M D Tshelane

Email: tshelanemd@ufs.ac.za

Tel: 051- 401 9589

University of the Free State

BLOEMFONTEIN

9300

Date: _____

Dear parent

I hereby request your permission to allow your child as an Economic and Management Sciences Grade 7 learner to take part in the research project. The research title is:

The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.

The purpose of this study is to design the framework for the use of cellular phones to improve curriculum practice in Economic and Management Sciences classes. I would like your child to participate in this research because he/she will be able to contribute with other participants about cellular phones use in an attempt to enhance their learning and encourage maximum participation in class.

The following is expected of your child:

- **Participate in the two simulated lesson presentations to be conducted by the EMS teacher after school hours. Each lesson is estimated to be 45 minutes long. In one simulated lesson, the learners will be using cellular phones as resource material.**
- **Should your learner be chosen as a representative in the task committee as well, he/she will be part of the co-researchers assisting in the analysis of data.**
- **The analysis of data will be approximately six meetings of ninety minutes long.**

The research will take place at Mabeoana Intermediate School after permission to conduct the study has been granted by the Free State Department of Education. The participation to the

study will be entirely voluntary and your child is under no obligation to take part in the research. Your child will not be remunerated for their engagement in the study. Should an issue arises which makes your child uncomfortable, you will be permitted to excuse your child at any point and stage from the study.

The information gathered will be treated as confidential and participants will not be exposed to any risk. I will use coding and pseudonym will be assigned to participants for this study. If you experience any unhappiness regarding the way the research is conducted, please feel free to contact my supervisor (indicated above), or contact me directly. The information gathered will be locked in a safe place until the study is completed. Thereafter the information will be destroyed.

Yours sincerely.

Innocentia Puleng Lefete

APPENDIX F: CONSENT FORM FOR THE ADULT PARTICIPANTS

CONSENT FORM FOR THE PARTICIPANTS IN THE STUDY

RESEARCHER: I P LEFETE

SUPERVISOR: Dr. M D Tshelane

(UFS-HSD 2015/0650)

Tel: 051- 401 9589

Email: lefetep@gmail.com

University of the Free State

Cell no: 0725973996

Date: _____

Dear _____

I hereby request your permission to take part in the research project. The research title is:

The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.

The aim of this study is to design the framework for the use of cellular phones to improve curriculum practice in Economic and Management Sciences (EMS) classes. I would like you to participate in the coordinating team because you will be able to share views with other participants about cellular phones use in an attempt to enhance learning and encourage maximum participation of learners of EMS class.

You will also be able to engage with other participants while gaining information and knowledge.

The following activities are anticipated for gathering data with the coordinating team:

- Two simulated EMS lessons of 45 minutes each conducted after school hours. One lesson will be conducted without the use of cellular phones and the one lesson with the cellular phone incorporated as the resource material.
- Minutes of meetings.
- Five series of meetings will be held that will be 45 minutes long.

The participation to the study will be entirely voluntary and you are under no obligation to participate in the research. You will not be remunerated for your engagement in the research. The information gathered will be treated as confidential and participants will not be exposed to any risk. Pseudonym will be assigned to participants for this research. If you experience any unhappiness regarding the way the research is conducted, please feel free to contact my supervisor (indicated above), or contact me directly. Should an issue arises which makes you uncomfortable, you will be permitted to excuse yourself at any point and stage from the research. The information gathered will be locked in a safe place until the study is completed. Thereafter the information will be destroyed.

Yours sincerely.

Innocentia Puleng Lefete

CONSENT FORM FOR THE PARTICIPANTS

Please fill in and return this page. Keep the letter above for future reference

TITLE OF RESEARCH PROJECT:

The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.

RESEARCHER'S NAME: Innocentia Puleng Lefete

DETAILS OF THE PARTICIPANT

SURNAME : _____

NAME : _____

CONTACT NUMBER: _____

APPENDIX G: ASSENT FORM FOR THE LEARNERS

Please fill in and return this page for future reference.

I hereby accept the invitation to participate in the research project as the Grade 7 learner.

TITLE OF RESEARCH PROJECT:

The use of cellular phones to improve curriculum practice in Economic and Management Sciences classes.

RESEARCHER'S NAME: Innocentia Puleng Lefete

DETAILS OF THE PARTICIPANT

SURNAME: _____

NAME: _____

CONTACT NUMBER: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are as explained by the researcher to my parent/ care-giver or guardian.
- I give the researcher permission to make use of the data generated, subject to the stipulations she has indicated in the above letter.

SIGNATURE: _____ DATE: _____

APPENDIX H: ATTENDANCE REGISTER TEMPLATE

DATE: _____

NO	NAME	SURNAME	SIGNATURE
1.			
2.			
3.			
4.			
5.			
6.			
7.			
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20.			

Table 4.1: Strategic plan for priorities

Activity	People involved	Person responsible	Duration	Monitoring
Varying the resource materials	Textbooks publishers	School principal, administrative clerk and team coordinator	1 hour	Minutes of the meeting
Lesson presentation	The research team	EMS teacher and the learners	1 hour 30 minutes	Minutes of the meeting
Presentation on inclusive education	An official from inclusive section, the school staff, research team	School principal and the Subject advisor	1 hour	Minutes of the meeting

TABLE 4.2: SWOT analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Willingness to share information amongst the participants. The participants bring their knowledge and experience to the study. • Most of the learners possessed cellular phones. • Our team have varied skilled, knowledgeable and qualified participants. • The teenagers enjoy working with technological equipment. • The school has Wi-Fi that will help with connectivity. 	<ul style="list-style-type: none"> • Some of the cellular phones are not internet compatible. Lack of resource materials to assist the learners with information. • Punctuality of members when attending the meetings. Learners who tends to disturb other learners due to lack of concentration.

<ul style="list-style-type: none"> Freedom to view our own opinions in any language of their choice. 	
<ul style="list-style-type: none"> OPPORTUNITIES <p>Internet access that helps with information.</p> <p>Wi-Fi access during school hours can enable the learners to complete their activities while still in class.</p> <p>The willingness of all relevant stakeholders to participate in the research process. A transformed learning environment that empower both the teachers and the learners resulting from the use of cellular phones.</p> <p>The EMS content is designed to equip learners with lifelong experience.</p> <p>The use of cellular phones is beneficial to everyone since it can be used anywhere, even in rural areas.</p> 	<ul style="list-style-type: none"> THREATS <p>The other learners may steal other learners' cellular phones.</p> <p>Lack of discipline. Some learners may decide to deviate in class and use the cellular phones for other reasons.</p> <p>There is cyber bullying that is experienced by teenagers. Some teachers still prefer teacher-centred approach in class that decrease active participation of learners in class. Wi-Fi costs may have a negative impact on the school's overheads.</p>

ANNEXURE A: STAGES OF PAR (REFLECTIVE SPIRAL)

Figure 1: The cyclical and spiral process of participatory action research

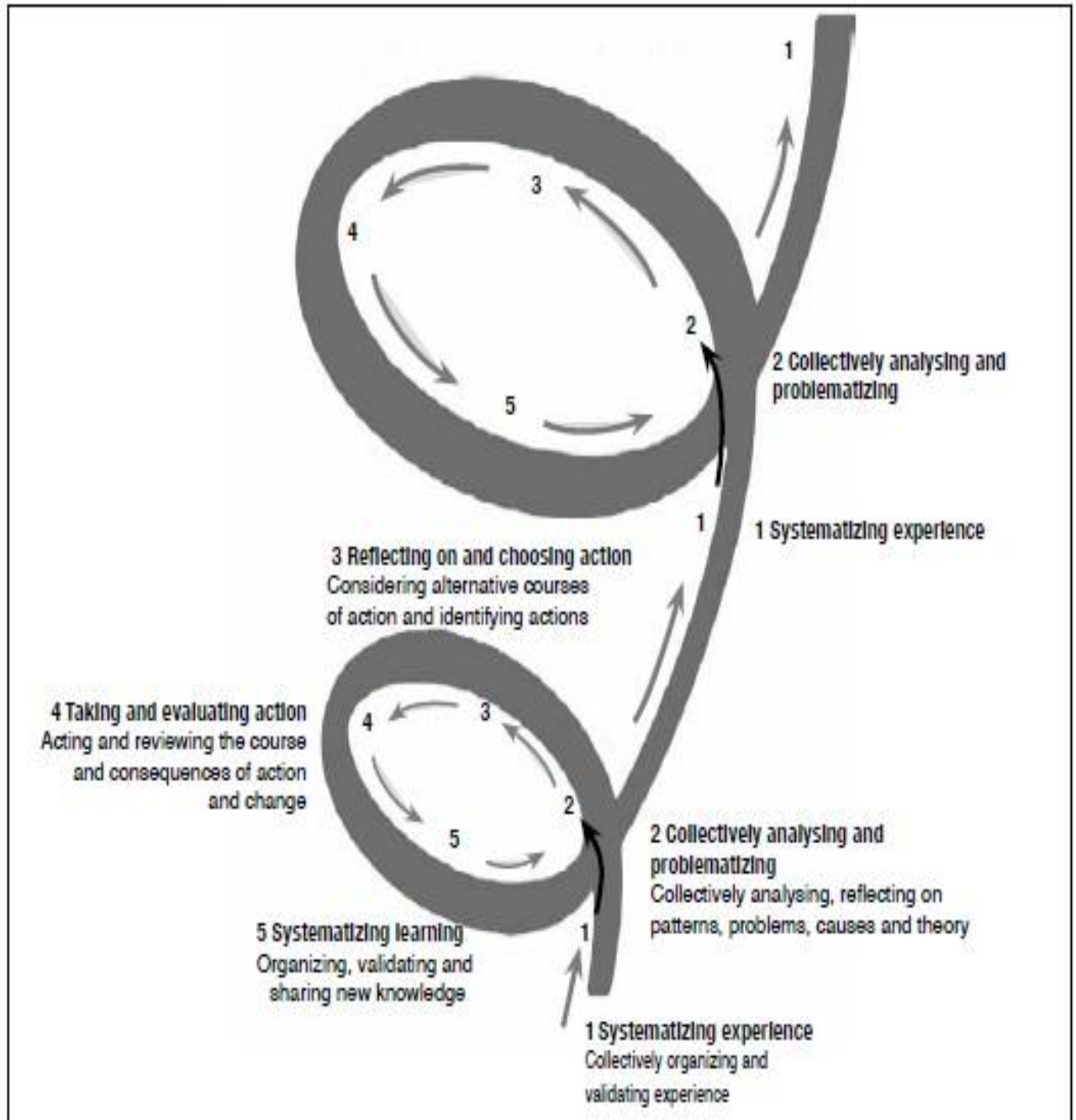


Figure: The cyclical and spiral process of PAR

ANNEXURE B: FRAMEWORK FOR THE STUDY

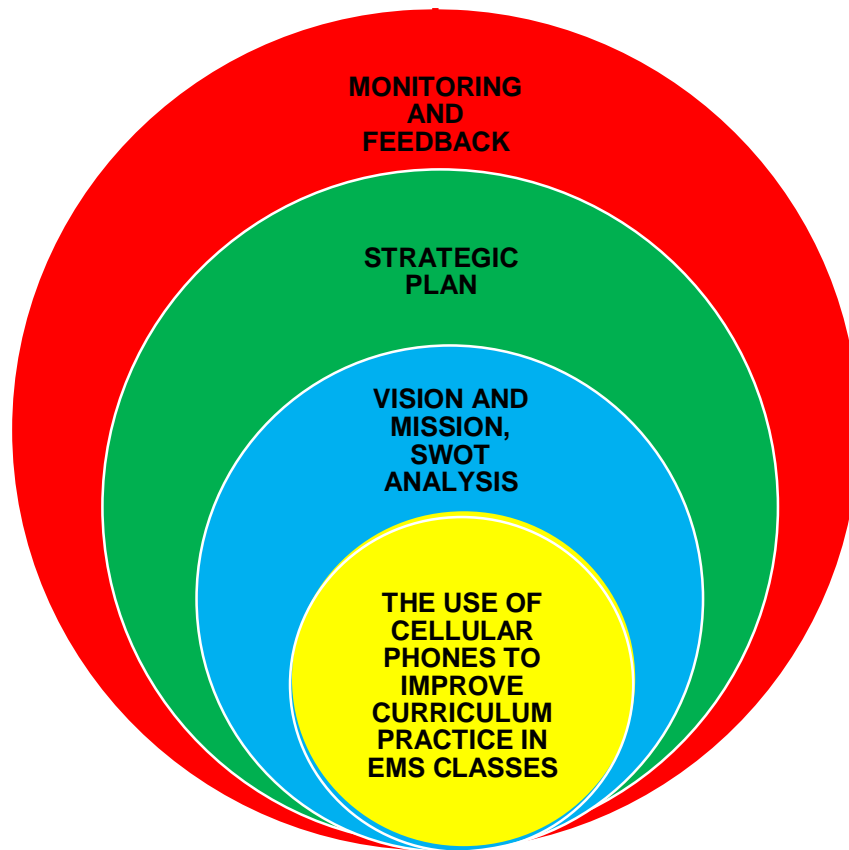


Figure: Framework for the study

ANNEXURE C: INVITATION TO THE FORUM

RESEARCHER: I.P. LEFETE

Email: lefetep@gmail.com

Cell no: 0725973996

SUPERVISOR: Dr. M D Tshelane

Email: tshelanemd@ufs.ac.za

Tel: 051- 401 9589

University of the Free State

BLOEMFONTEIN

9300

DATE: 01 June 2016

Dear parent

I hereby request permission for your child who is in Grade 7 at Mabeoana Intermediate School, to attend the meeting for the purpose of the research. You are also invited to accompany your child as we intend to elect the coordinating team that include parents.

The title of the research is: **The use of cellular phone to improve curriculum practice in Economic and Management Sciences (EMS) classes.**

Take note of the following details:

Time: 8:30 am

Day: 12 June 2016 (Sunday)

Venue: Grade 5 B classroom at Mabeoana Intermediate School

AGENDA

1. Opening and purpose of the forum.
2. Presentation of the study.
 - 2.1 Research title.
 - 2.2 Background of the study.
 - 2.3 Research problem and research question.
 - 2.4 Data generating process.
 - 2.5 Question session.
3. Buy-in to the research problem and elects for the coordinating team.
4. Closure.

The research study aim to design the framework to improve curriculum practice through the use of cellular phones. Your child's, as well as your participation will contribute towards developing the framework while you will be sharing information with other participants.

Your attendance will be highly appreciated.

Yours faithfully

Innocentia Puleng Lefete

ANNEXURE D: AGENDA AND MINUTES OF THE FORUM

DATE: 12 June 2016

VENUE: Mabeoana Intermediate School **AGENDA**

1. Opening and purpose of the forum.
2. Presentation of the study.
 - 2.1 Research title.
 - 2.2 Background of the study.
 - 2.3 Research problem and research question.
 - 2.4 Data generating process.
3. Question session.
4. Buy-in to the research problem and elects for the coordinating team.
5. Closure.

MINUTES:

1. Opening and purpose of the forum.

Ms [REDACTED] who was the chairperson of the day opened the meeting and welcomed everyone present. She further explained the purpose of the forum and highlighted the matters for discussion as per agenda above. She thanked the members for their attendance and explained that they are free to participate in the meeting in any language of their choice.
2. Presentation of the study by Ms [REDACTED] (research facilitator)
 - 2.1 Background of the study.

Ms [REDACTED] outlined the background of the study to the present members. She emphasised the need for using technological devices in class for the purpose of learning and teaching.

First, she explained that the curriculum that is implemented in South Africa currently require teachers to make use of technology to enhance their teaching.

Secondly, she referred to the learners' performance that is not satisfying due to the challenges that the learners face. She explained that the formal assessments done in EMS sometimes require the learners to display their ability of critical thinking and researching. Then the issue regarding the inadequate allocation of resources in poor schools was mentioned. Lastly, Ms [REDACTED] highlighted the issue of preparing learners for the life world by creating learning opportunities that will enrich them with skills and knowledge that is compatible to other countries.

Ms [REDACTED] emphasised that the study is conducted as part of her studies and not as part of her work, although the FSDoE has granted her permission to do so.

2.2 Research title.

Ms [REDACTED] presented the research title to the present members and gave a brief explanation of the title. The research title is as follow:

The use of cellular phones to improve curriculum practice in EMS classes.

She explained that teachers need to use cellular phones in class to assist the learners to learn better.

2.3 Research problem.

Ms [REDACTED] presented the research problem and thereafter the research question.

2.4 Data generating process.

Ms [REDACTED] briefly told the members that PAR will be used as the approach for generating data because the study is collaborative and empowering. Furthermore, she justified the use of the approach by explaining how team work can yield best results in an organisation.

3. Question session

- Ms [REDACTED] allowed the members to pose questions regarding anything related to the study. Mr [REDACTED] who is the SGB member acknowledged

the potential of the study towards improving the performance of the learners. He further emphasised that the schools should not wait for the department to provide them with resources, instead the school need find strategies that will help to address the challenges they have.

- Mr [REDACTED] enquired about the type of cellular phones to be used for the purpose of learning so that he can buy it for his grandson.
- The chairperson's response to the above question was that the study does not force the parents to buy their children cellular phones as yet as this is just a study that will help us to design the framework.

4. Buy-in to the research problem and elects for coordinating team

- The members agreed to continue with the research question initiated by the research facilitator.
- The chairperson gave the members the opportunity to elect the coordinating team that will work closely with the research facilitator during data generating period. Some of the members volunteered and some were elected by the present members.
- The coordinating team consisted of the following elects:

The team comprised of 19 members, inclusive of myself as the research facilitator, the school principal of the school involved, two EMS teachers, Subject Advisor for EMS, two Social workers, three SGB members, three parents, five Grade seven learners and a University-based student for Masters.

5. Closure.

The chairperson suggested the date for the next meeting- 22 June 2016 and thanked the members for their cooperation and attendance. She then declared the meeting closed.

ANNEXURE E: PRESENTATION OF THE BRAINSTORMING SESSION MEETING

DATE 22 June 2016

RESEARCH TITLE

- The use of cellular phones to improve curriculum practice in Economic and Management Sciences (EMS) classes

RESEARCH QUESTION

- How can the use of cellular phones improve curriculum practice in the EMS class?

RESEARCH PROBLEM

- The inability of learners to perform well in EMS economics due to their inability to access information is seen as a problem.
- Naidoo et al. (2013:84) state that South African children have little or no exposure to an inspirational environment that could enrich their education, consequently little learner participation and cooperative learning takes place.

DATA GENERATING PROCESS

- 2 Focus groups: learners and adults
- The coordinating team consisting of Grade 7 learners, parents, school principal, SGB members, EMS educator, social workers, administration clerk, learning facilitator, co-student and the research facilitator.
- Data is generated through the minutes of the meetings that will be held (discussions)
- No questionnaires, interviews, or structured questions

RESEARCH APPROACH

- Use Participatory Action Research (collaborative and emancipatory)
- Uses people as part of the research (form part of the society)
- People are regarded as participants in the research process and not as objects that are researched
- Formulate a common problem and own it as the community
- Opportunity to make the difference through your own voice
- All participants are important because of their experiences.

ETHICAL CONSIDERATIONS

- No remuneration or payment for being participant
- Information will be treated with confidentiality, locked away in a safe place and will be destroyed at the end of the research
- Professional conduct
- Free to leave the team at any time
- Proper names will not be used for research purpose
- Parents or guardians are allowed to remove or excuse their children from the research team
- Permission to record the proceedings where necessary

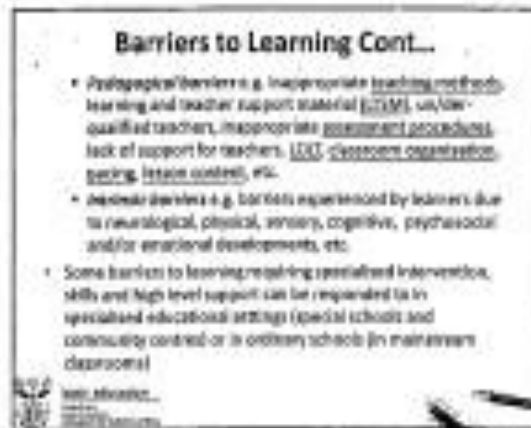
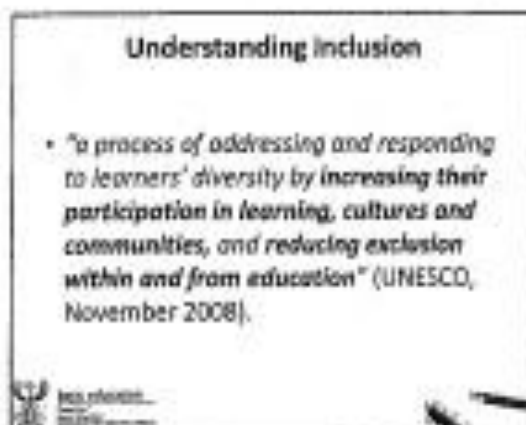
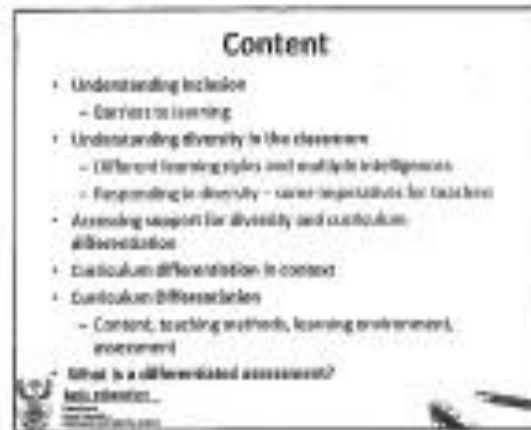
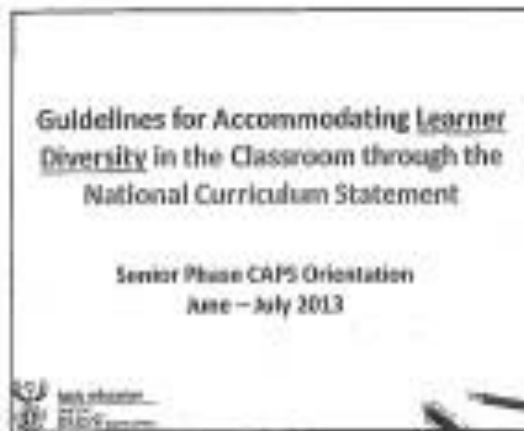
Way forward

- Preparations for the next meeting
- Completion of consent forms by parents/guardian of the learners
- Completion of consent forms by learners
- Completion of consent forms by other participants

ANNEXURE F: CODE OF CONDUCT

- Time and day of the meeting: Saturdays at 15:00
- Duration for the meeting: forty five minutes to one hour.
- Behavioural aspects or conduct during the research meeting: Participants should treat each other with respect and dignity.
- Late coming should be avoided.
- Participants should show commitment to the study.
- Participants should send apology to the research facilitator for being late or absent for the meeting.

ANNEXURE G: GUIDELINES FOR ACCOMODATING LEARNER DIVERSITY



Barriers to Learning cont....

- CAPS training therefore responds to and seeks to reduce PEDAGOGICAL barriers to learning (curriculum and assessment). Other programmes/interventions take care of the other categories of barriers – ensuring inclusivity is “everybody’s” business and requires an integrated approach!!

RESOURCE LIST

Sub1	Me 10-840 Me 840000	001-8880000/00004	001888000 000000000
Sub2			
Sub3			
Sub4			
Sub5			
Sub6			
Sub7			
Sub8			
Sub9			
Sub10			
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Sub12			
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Sub100			

Responding To Diversity

<ul style="list-style-type: none"> •Language •Culture •Ethnicity •Social- personality/behavioral/individual and factors in general •Behavioral factors in general 	<ul style="list-style-type: none"> •Recognizing bias and/or stereotypes against certain learners •Treating and respecting each learner as an individual •Assessing use of second language that undermines certain groups •Examining bias regarding and making of assumptions about learner experiences.
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Responding To Diversity

<ul style="list-style-type: none"> • Ability • LEARNING STYLES and/or MULTIPLE INTELLIGENCES, etc 	<ul style="list-style-type: none"> • Build a collaborative network of experts • Identifying who needs what of learners during lesson / programme design • Creatively evaluating methods of teaching and assessing • Assessing learning methods, technologies and strategies • Creating opportunities for all learners to participate in the learning process
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Why the Guidelines?

- **Premise:** there is learner diversity in any given classroom be it in ordinary or special school.
- **Frame of Reference/philosophy:** Inclusivity
- **Response/approach:** Curriculum
Differentiation.

Different Learning Styles and multiple Intelligences

Visual	Language
Auditory	Logical-mathematical
Kinesthetic	Spatial
Tactile	The Arts
	Social-Interpersonal
	Intrapersonal-General
	Naturalistic

MULTIPLE INTELLIGENCES

Intelligence	Characteristics and associated activities
Logical-mathematical	Use of numbers, logic, and symbols. Activities include: problem-solving, logical reasoning, and mathematical operations.
Visual-spatial	Use of visual images, space, and shapes. Activities include: drawing, painting, and using visual aids.
Verbal-linguistic	Use of words, language, and symbols. Activities include: reading, writing, and speaking.
Physical	Use of the body and physical movement. Activities include: sports, dance, and physical education.
Interpersonal	Use of social skills and interaction with others. Activities include: group work, role-play, and social interaction.
Intrapersonal	Use of self-awareness and reflection. Activities include: journaling, self-reflection, and personal growth.
Naturalistic	Use of nature and the environment. Activities include: gardening, hiking, and outdoor education.

CURRICULUM

- Curriculum is one of significant barriers to learning –
 - Content
 - Language
 - Classroom organization
 - Teaching methodologies
 - Pacing
 - CTM
 - and assessment

Differentiating Content

- Modifying content and presenting it at varying degrees of complexity
- Why Differentiate content?
 - To provide access to learning
 - To provide success experiences to all learners
 - To motivate learners and build their self-esteem
 - To promote effective learning for all learners
- Levels of Differentiating content (Multi-level teaching – p.11):
 - Abstractness
 - Complexity
 - Variety

Differentiating the Learning Environment

- Purpose:
 - To ensure that the learning environment is as conducive and as stimulating as possible for all learners
- The learning environment is two-dimensional and differentiation should happen sometimes simultaneously in both:
 - Psychosocial – psychological and social factors with a bearing on motivation, wellbeing, and ability to perform effectively
 - Physical – classroom space, arrangement of furniture, noise level, etc. etc., classroom layout, resources etc.
- Differentiating the learning environment means paying attention to psychological, social and physical factors p. 13-14

Differentiating Teaching Methods

- Purpose:
 - To ensure responsiveness to different levels at which learners operate
 - To maximize participation of learners in learning activities
- Aspects of teaching methodologies that we Differentiate:
 - Learning materials
 - Methods of presentation
 - Learning activities
- Lesson organization (p. 15-17)

DIFFERENTIATING ASSESSMENT

- Rethinking the conservative practice of assessing all learners using same assessment tasks at the same time
- Using assessment approach and plan that's flexible and accommodative of a range of learner needs
- How to assess in a Differentiated way (p. 20-26):
 - Allow for different styles of intelligence
 - Allow for oral and written assessment tasks
 - Give multiple choice options
 - Allow questions requiring short answers for certain learners
 - Focus on positive aspects of learning of the learner
 - Apply incentives – praise, extra time, rewards, audio-visual equipment
- Chapter 3 of the Assessment Protocol makes provision for learners functioning at different levels

LETTER FROM LANGUAGE EDITOR

Joan Heterema

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Date: 8 July 2018

TO WHOM IT MAY CONCERN

This is to certify that I have duly edited a dissertation for a Master of Education in the Faculty of Education at the University of the Free State: *The Use of Cellular phones to improve Curriculum Practice in EMS Classes* by Lefela Innocentia Poleng

I have a BA majoring in Latin and English from the University of Pretoria, Honours in English Language and Literature from Unisa and Troisième Degré in French from the Alliance Française. Throughout my 37-year fulltime career and the more than twenty years since, I have been involved with the process of writing English, editing English or lecturing in the field of Media Studies, English for Journalism and Business English at various tertiary institutions (Tshwane University of Technology, Boston College, Damelin College, Rosebank College and College Campus) as well as editing documents and theses for students at universities throughout the country.

I have also served for the past ten years as a judge of corporate publications for the prestigious annual competition of the Publications Forum of South Africa.

Yours sincerely,



J A Heterema

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Declaration

4 March 2019

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Dissertation: The use of cellular phones to improve curriculum practice in economic and management sciences classes

I confirm that I edited this dissertation, and audited the references. The student accepted or rejected my proposals for changes.



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