EXPLORING TEACHERS' ATTITUDES TO IMPLEMENTING BLENDED LEARNING: A CASE STUDY

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DECLARATION:

In accordance with Rule G5.6.3, I hereby declare that the above-mentioned treatise/ dissertation/ thesis is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

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ABSTRACT

One of the many characteristics of the 21st century learner is that they are highly technologically skilled. This characteristic poses today's teachers with many challenges in order to teach these learners and create optimal learning experiences. It is evident that teachers have their own preferred teaching methods which they believe work best and some teachers teach the way that they were taught at school in ways that have become part of their habitus. Blended learning is a teaching method that can promote effective learning experiences in the 21st century learning environment.

This study focussed on teachers' experiences with blended learning and their current ideas on how learners learn optimally and whether the practice of blended learning changed their ideas of learning. Furthermore, the study determined the teachers' present technology acceptance and established teachers' personal views regarding the challenges that teachers face to teach 21st century skills, what they think 21st century teaching is about and new insights on dealing with these challenges.

Through experiencing blended learning teachers who made use of a textbook based teaching method made shifts not only to a blended approach, but also shifted their thinking away from what they prefer to what learners get out of the learning experience. Although challenges occur when using a blended teaching approach, their experiences with blended learning were mostly positive and they found learners to be more involved in the learning process. These outcomes created feelings of worthiness in the teachers since they create such positive learning opportunities for their learners.

Although the teachers made shifts, some teachers continue to have a fear of technology since they had not received adequate training to incorporate technology into their teaching approaches. It is crucial for the DBE and schools to provide teachers with opportunities to improve their technological skills in order for teachers to create opportunities for blended learning experiences for the 21st century learner.

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CHAPTER ONE

INTRODUCTION AND OVERVIEW

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1. INTRODUCTION

This is a case study where I explore teachers' attitudes to implementing blended learning. As a teacher and ex-learner in my current school, I have experienced and observed that over all these years most of my colleagues still teach in the same way and they still make use of the same teaching approaches as they did when I was a learner in their classes. This phenomena prompted the question whether or not the teachers in my school are aware of the possibilities of technology and what it offers to the current 21st century learner. Thus, I decided to investigate this concern through looking into how these teachers think 21st century learners learn best, what their current teaching approaches are, and specifically to the possibilities of using technology. I also probed why they use their approaches and whether or not they believe that they are catering for 21st century learning. We also discussed the possibilities of blended learning and as some had had no exposure to this, I included a workshop on blended learning after which they all committed to experimenting with this approach. In the course of the case study I was interested in whether there were shifts in their attitudes to incorporating technology and whether this could be used alongside traditional approaches.

As far back as the 19th century John Dewey (1915, 6) stated that ' … if we teach today's students as we taught yesterday's, we rob them of tomorrow'. Dewey's opinion still holds true for teachers who teach today's learners and who need specific skills to cope with living in the 21st century (Sawchuk, 2009). The literature highlights many challenges that teachers face when teaching 21st century learners.

The first challenge relates to the so-called 'generation gap'. McCrindle and Wolfinger (2014) explain that today's school-going learners, also described as Generation Z, are part of a generation that is global, social and technological. Those with means have never known a world without the internet or cell phones, and they are networked with social networks and many means of communication (McCrindle and Wolfinger, 2014; International Education Advisory Board, 2014; Palfrey and Gasser, 2008). As a result of growing up with modern

technology, 21st century learners are developing a different skillset to those developed by learners from the 20th century, of whom some are now their teachers (Sawchuk, 2009).

A second challenge that today's teachers are experiencing is to accommodate and promote the typical 21st century skills that generation Z (children born 1995-2012) learners have already mastered, largely outside of formal schooling, in the school learning environments that teachers have to create and manage. Friesen and Jardine (2012) reported on 21st century learners speaking out against out-dated teaching and demanding that schools must accommodate their learning needs. 21st Century skills reside in the three core competencies of life and career skills, learning and innovation skills, and information, media and technology skills (Florida, 2007; Partnership for 21st Century Skills, 2011). Scardamalia (2001) also reported that learners indicated that they want to learn via current media of their time and that they want to be engaged intellectually. Technology, specifically digital media, has transformed the way today's learners socialise, play and also the way in which they learn (Scardamalia, 2001). Florida (2007) stresses that schools must accommodate this information, media and technology-skills that many learners have already mastered. Sawchuk (2009) supports the notion that education systems should provide opportunities for learners to embrace 21st century learning, but he adds that teachers should be the catalyst. Friesen and Jardine (2012) expand this notion when they indicate that it would be expected of teachers to address these needs, even though they are operating in classrooms and schools designed for 20th century learning. The schools and teachers are faced with new demands in order to accommodate Generation Z. Teachers are in the front lines of the Generation Z learning migration into adolescence and the teachers often recognise that this group is different and therefore they will need different teaching and learning (Lenhart, 2010).

The third challenge which teachers then experience is to create a learning environment, using technology, which can accommodate 21st century learning (Friesen & Jardine, 2012). These envisaged learning environments often involve more learner-centred strategies and require teachers to step back and allow learning to take place without their hands-on direction (International Education Advisory Board, 2010). Teachers' beliefs about teaching and learning, and their previous experiences with technology will have an influence on whether or not they will develop, employ and promote the learning environments as required by learners (Balanskat, 2006). Teaching for learning is the primary focus of a teacher and his or her teaching beliefs are shaped in accordance with the teacher's philosophy on how learners learn. In order to facilitate the learning of the three core sets of 21st century skills, teachers will have to reconsider their current thinking about learning (Elmore, 2014). Elmore (2014) states that

the different ways in which different teachers affect learning, also referred to as modes of learning (Elmore, 2014), might also influence whether they will be willing to embrace learning technologies in the learning environment. It is evident from literature that changes in pedagogical practice, learner expectations, technology and demographics have already resulted in the development of different modes of teaching and learning, or modifying the more traditional approaches, in order to include a more dynamic interaction between teachers and learners (Learning and Teaching Services, 2014). Elmore's ideas provided a useful starting point to understanding teachers' attitudes to incorporating ICT and widening their teaching repertoires.

One way to create a technology-infused learning environment for the 21st century learner is to make use of blended learning, which combine technology and traditional methods. Blended learning environments can enhance learners' meaningful learning practicing 21st century skills (Zurita, Hasbun, Baloian & Jerez, 2014). Blended learning is defined as the combination of traditional teaching methods, digital tools and online education (Gulc, 2014; Bonk & Graham, 2006). However, this is a very narrow interpretation, and blended learning can be further, or better explained with the following conceptual model.
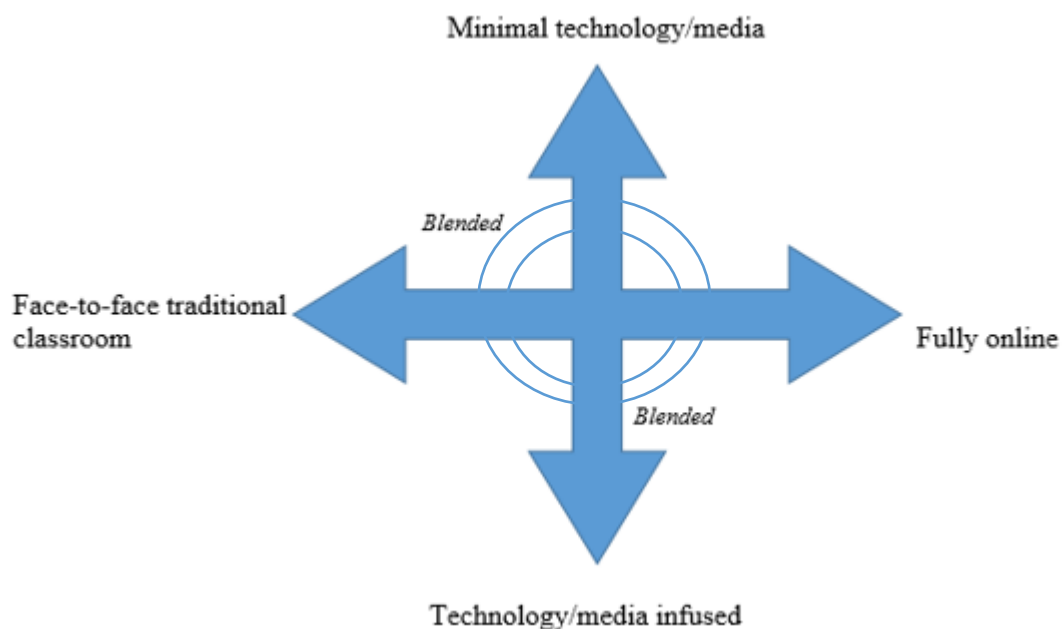
Figure 1: Broad Conceptualization of Blended Learning
Source: Picciano, A.G. 2007. Posting to the Official Website of the 2007 Sloan-C Summer Workshop held in Victoria, British Columbia

There are many possibilities for including technology and blending ICTs with traditional approaches which are explained later in this chapter. The last challenge faced by teachers is their willingness to change and embark on the process required to design and implement alternative learning environments. There are various reasons why people may be reluctant to change their old ways. Kanter (2012) explains that people resist change because they do not want to feel as if they have lost control. Teachers tend to like habits and their routines become automatic therefore any change can create the feeling of not being in control. This issue is of particular relevance in the South African context, where, according to Gennrich and Janks (2013), a strong sense of teacher habitus may hinder real change in practice. Change is also resisted when it makes people feel incompetent and often a change process will make people question their current skills. All stakeholders play a critical role during a change process and it is often the management and leadership during the change process that will determine whether or not the innovation will be characterised as successful (Fullan, 2007). The success of a change innovation depends on how the change is incorporated within the organisation and the steps which is used in order to implement the new innovation (Barber & Moushed, 2007). This challenge will have to be faced by both individual teachers, as well as the school management, when an innovation such alternative learning environments is attempted.

Barber and Moushed (2007) believe that today's teachers face, or will face, various challenges when they attempt to facilitate learning for the new generation. The 21st century learner might be a challenge for teachers since the majority of today's teachers were not trained to teach 21st century learners. Furthermore, Generation Z's technological skills, and the teachers' possible lack thereof, can also be experienced as a challenge by many teachers when they want to accommodate these skills in the learning environment. This will require change to be implemented and this creates a challenge for teachers since people tend to be reluctant to change. A possible solution currently mooted is for teachers to create learning environments that are technology-infused with acknowledgement of different Modes of Learning, with an emphasis on blended learning.

2. THEORETICAL FRAMEWORK

This section summarises the theoretical framework that underpins this study. Maxwell (1996) suggests that a theoretical framework is the system of theories and norms that supports and informs research. The research draws on the Socio-cultural theory. This theory emphasizes the interactions of people and their surrounding culture (Jaramillo, 1996). Parents, siblings and peers are responsible for helping the learners develop academically as human learning is considered a largely social process (Jaramillo, 1996). Therefore, the Socio-cultural theory, both in its understanding of the possibilities of blended learning and in its participatory research approach, is applicable to this case study. It recognises the social aspect in learning both for teachers and learners and the need for interaction and collaboration in learning. As my study recognises the importance of the *social* in motivating the 21st century learner to collaborate and engage, this socio-cultural underpins the following section on the 21st century learner. In addition, as this study focussed on teachers' attitudes to incorporating blended learning, the social elements of learning were recognised in the focus group interactions and blended learning workshop. These provided safe spaces to negotiate understandings and for teachers to scaffold and support each other in shifting to blended learning.

2.1. The 21st century learner

The difference between the learners of the 20th century and those we teach now are well known. In the 20th century learners were learning about technology, whereas in the 21st century learners are learning through technology. The 21st century generation can be defined as highly intellectual individuals who have an unbelievable sense of knowledge with regards to technology and these children are born into a world where technology is fluctuating and becoming everything around us. As mentioned, the term 21st century skills refers to three core set of skills such as life and career skills, learning and innovation skills and information, media and technology skills (Arora, 2010; Barr, Harrison and Conery, 2011; Florida, 2007). Teachers experience various challenges when attempting to create a learning environment suitable for 21st century learning. One challenge which teachers face is to create teaching methodologies that is relevant to 21st century learners since they did not receive training to teach this advanced generation (International Education Advisory Board).

2.2 Blended learning as a pedagogy for teaching, learning and assessment

One way to create opportunities to acquire these skills is to use blended learning as a pedagogy for teaching, learning and assessment. The word 'blended' is defined as combining two or more things together. Blended learning can be defined as the combination of face-to-face, traditional classroom methods and computer-mediated activities, whether it is online or not. Blended learning as a pedagogy combines the classroom and online education in various ways since it is further defined as a combination of face-to-face traditional interaction with a teacher in a school location, with additional instruction which is performed in an online learning environment that accompany digital content and teamwork with fellow learners" (Gulc, 2014). It can also be to simply integrate videos, blogs and other media into class work.

There are various reasons why blended learning is considered as an alternative teaching method which is encouraged in order to promote effective learning (Heick, 2013). It is explained that blended learning contains of programming which is designed in such a way that it reaches all modes of learning alike. It enables one to support learning that focuses on the best learning mode in order to achieve the specific outcome. Teachers can blend different modes of learning when teaching in order to achieve different learning outcomes (Elmore, 2014). One of the most recent blended learning models that addresses this is called 'flipping' (Picciano and Dziuban, 2007). 'Flipping' reinforces learner-centered learning, allowing the learners to master content in an individual way, at their own pace since learners engage in learning at home.

The aim of blended learning is to promote, develop and evaluate the combination of established ways of learning and teaching and the opportunities offered by technology in order to improve learners' learning and increased flexibility in how, when and where they study (Heick, 2013). The use of ICT within blended learning allows learners to access video of lectures, track assignments and progress, interact with educators and peers and review supporting materials such as PowerPoint presentations, clips, articles and many more (Picciano and Dziuban, 2007). Through incorporating ICT into the learning process it serves to facilitate a simultaneous independent and collaborative learning experience (Gulc, 2014). The internet also helps to develop learners' personal voices by providing them with platforms for collaboration (Tay, Lim, Lim and Koh, 2012).

2.3 Blended Learning Pedagogies possible with ICT

According to Cox and Abbott (2004) there are various effective educational practices with ICT which could be useful for teachers to form part of their educational framework if they are to integrate ICT effectively into the learning environment. There exists a need for teachers to understand the relationship between ICT resources and the concepts and processes in their learning area. Teachers should also be able to use their learning area expertise to select relevant ICT resources which will assist in meeting the specific learning objectives. They should be aware of the potential of ICT resources with regards to their role in challenging learners thinking (Cox and Abbott, 2004). Another effective pedagogical practice mentioned by Cox and Abbott (2004) is for teachers to develop confidence in using ICT resources in order to know how to plan lessons where ICT is used in ways which will challenge learners' understanding and promote greater thinking and reflection.

The use of ICT is changing teaching, learning and assessment in several ways (Reid, 2002). There is a belief that ICT can empower teachers and learners through changing teaching and learning processes from being teacher-centered to learner-centered. This change will lead to increased learning gains for learners, creating opportunities for learners in order to develop their creativity, communication skills, problem-solving abilities and higher-order thinking skills (Reid, 2002). It is evident that more substantial gains in learner attainment are achievable where the use of ICT is planned, structured and integrated effectively since they spend more time working at or practising the skills being studied and tested (Higgins, 2001). Knowledge, insight and critical literacy are also improved when ICT is incorporated into the learning the process.

2.4 Impact of ICT on teaching, learning and assessment

According to Balanskat (2006) the impact of ICT is well documented as ICT is used as a tool to achieve a wide range of educational objectives. These objectives are recognised as more modified learning, modernisation in teaching, planning and assessment procedures (Balanskat, 2006). With ICT, teachers are able to create their own material and thus have more control over the material used in the classroom than they have had in the past. It is evident that involving learners in the construction of beneficial material as a part of a learning exercise is a way to make school more meaningful for learners (Reid, 2002). ICT can enhance the way that

children discovery and validate foundations of information. It can support children in developing ideas, analysing information and obtaining high quality collaboration and communication (Brown and Davis, 2004).

2.5 Integrating blended learning across the curriculum

Internationally, blended learning are integrated by teachers across the curriculum and the curriculum has taken a new approach to ICT through allowing learners to engage with ICT inside and outside the school environment (Selwyn, Potter and Cranmer, 2010). In South Africa, blended learning is also integrated across CAPS through the implementation of an educational model called 'Spark'. 'Spark' one example of a blended learning model which is aligned with the South African National Curriculum and may provide the curriculum with additional depth for the benefit of both the academic staff and the learners (Brewer and Harrison, 2013). The integration of blended learning across the curriculum is not automatic or intuitive since there are skills that need to be developed to enable learners to accumulate the full benefits of a multi-modal blended curriculum. For any blended learning approach to work there needs to be a tutor who can develop the learner's skills and help facilitate their learning (Brown and Davis, 2004). Any integration process such as the implementation of blended learning across the curriculum requires the effective management of the change process.

2.6 Change management

Change management can be defined as the way people manage the process, tools and techniques of change in order to achieve a result. The success of change is not only measured by the outcome but it also lies within the implementation process and strategy of the initiative (Barber and Mourshed, 2007). Michael Fullan cited in Herold and Fedor (2008) views every stakeholder in the educational change as a change agent since he believes that there is vast potential for significant change through constructing alliance with other change managers.

Fullan (2007) proposed that there are four phases in the change process. The first phase is recognised as the initiation phase. This phase is underpinned in the idea of introducing something new. The second phase proposed by Fullan (2007) during the change process is the implementation of the idea (Rowley, 2007). During this phase three major factors affect the implementation of an initiative such as the characteristics of the change and the local and external factors which have an influence on the implementation.

The third phase is recognised as continuation. This is described as a decision about the institutionalization of an innovation based on the reaction to the change (Fullan, 2007). This reaction can be positive or negative. This third continuation phase depends on whether or not the change gets embedded into the structure of the school through policy, budget or the timetable (Barber and Mourshed, 2007).

The final phase recognised by Fullan is called the outcome phase and attention to certain perspectives on the change process may support the achievement of a positive or successful change outcome. One perspective which will promote a successful change outcome would be participation of every individual involved during the process at all times. Change starts with the contact which is made with the people who are involved in the change process and evolves along with the continuous interaction. The involved individuals must be addressed positively and they must be encourage to be actively involved since they are very important agents in and throughout the change process (Rowley, 2007).

3. STATEMENT OF THE RESEARCH PROBLEM

The problem which is identified is that teachers often function with a singular, typical 20th century orientated, mode of teaching and they are unaware of the possibilities of blended learning as a pedagogy.

4. RESEARCH OBJECTIVE

As noted earlier teachers face many challenges when teaching 21st century learners. This study focussed on exploring possibilities of blended learning with a group of teachers. This study also focussed on teachers' current ideas on how learners learn optimally and whether the practice of blended learning changed their ideas of learning. The study determined the teachers' present technology acceptance and ICT skill level. The study established teachers' personal views regarding the challenges that teachers face to teach 21st century skills, what they think 21st century teaching is about and new insights on dealing with these challenges. It was anticipated that the study might be able to suggest strategies to address these challenges which teachers face and how to manage the accompanying change process.

5. RESEARCH QUESTION

The main research question is:

What informs teachers' attitudes to Blended Learning?

The sub-questions which need to be asked to inform the central question are:

What are teachers' understanding of 21st century learning?

How do teachers experience using technology?

How can exposure to Blended Learning shift teachers' attitudes?

6. METHODOLOGY

The main goal of this study was to investigate the changes that primary school teachers undergo in their current teaching approaches when they adopt technology-infused blended learning. To serve this goal a research design approach was chosen to obtain the most insightful information possible with regards to the perceptions of teachers of incorporating a technology-infused blended innovation within their learning environments. I, therefore, decided to use a qualitative research approach since it would allow me to probe in depth with regards to the participants' opinions and experiences with ICT.

The qualitative research design for the study was informed from a constructive-interpretative paradigm: I was interested in how teachers adapt their preferred teaching approaches when they start teaching with technology in a blended learning environment (Henning, Van Rensburg & Smit, 2004:179). Interpretive approaches rely on naturalistic methods such as interviewing and analysis of existing texts. These methods ensure an adequate dialog between the researchers and those with whom they interact in order to collaboratively construct a meaningful reality (Angen, 2000).

Creswell's (1998, p. 61) definition of a case study, ... an exploration or in-depth analysis of a 'bounded system', fits well with this study that 'bounds' members of the target population since the researcher will be making use of grade seven teachers in one school. Stake (2005) argues that the researcher may not know in advance whether the individuals in a case study have some common characteristics. He also advises that the sole criterion for selecting cases for a case study should be the opportunity to learn, and that understanding the individual cases of the collective case study will lead to better understanding, and perhaps better theorizing, about a still larger collection of cases (Stake, 2005). Through using a case study it allowed me to gain in-depth understandings from my participants.

For qualitative fieldwork he promotes the drawing of a purposive sample, as oppose to random sampling advanced by science case study proponents. For this study the samples was drawn from the group of grade seven teachers at the school. Five teachers in the specific school were invited to take part in the study. These teachers were diverse in terms of race, gender, age, their number of years' experience and different levels of technology use. Participants was also selected according to the specific learning area which they teach to the grade sevens in order to ensure a variety of learning areas for the research study.

Data was collected according to the following timeline:

DATA METHOD	MOTIVATION FOR USING THIS METHOD
Open-ended Questionnaires (See Appendix E & F)	To determine the participants' present technology acceptance, position on the innovation adoption lifecycle and perceptions on 21st century learning and teaching.
Focus Group (See Appendix G)	To explore teachers' views on challenges they face to teach 21st century skills and their experiences of using technology. To understand their current teaching approaches.
Workshop (See Appendix H)	To demystify and develop technology-infused learning environments that incorporate blended learning.
Teacher Intervention	To allow teachers to try out developing and teaching a series of technology-infused blended learning lessons.
Visual representations	To establish the impact on participants initial perceptions on 21st century teaching and learning.

	To establish their experiences with blended learning.
	To explore their views on the challenges that teachers face to teach 21st century skills.
	To understand teachers' challenges and successes of using blended learning.

The data collected was analysed through organising the data and identifying main themes.

7. The sample

A collective case study involving five teachers from a school in the Eastern Cape Province of South Africa was undertaken. These teachers teach numerous subjects to numerous grades, including grade seven learners. As indicated earlier, these teachers were diverse in terms of race, gender, age, their number of years' experience and different levels of technology capability.

8. ETHICAL CONSIDERATIONS

I submitted and obtained ethical clearance from Nelson Mandela University's (NMU) ethics committee (See Appendix A). All material used for research purposes was kept safe and secure and for a limited period (five years) the anonymity and confidentiality of teachers, learners and schools will be ensured and data will be used only for research purposes (including possible future journal publication). The research participants' identities were kept confidential in the study as pseudonyms were used throughout the study. Permission from the Department of Education (See Appendix B), the principal of the sample school (See Appendix C) and the participants (See Appendix D) were obtained. I behaved ethically through respecting my participants' opinions and not sharing any personal information gathered from them.

9. DIVISION OF CHAPTERS

In the first chapter I introduced the study and gave a detailed overview of the study. In the second chapter I provide the reader with literature relevant to my topic. In the third chapter

I discuss the research methodology and the methods used in order to gather data. The fourth chapter provides the reader with the results and findings of the study and in the last chapter I share my conclusions of the study and provide recommendations.

10. CONCLUSION

Chapter 1 focused on the introduction to this research and offered the reader the theoretical framework, research problem, research objectives and research question that underpin this study. In addition it also acts as a blueprint of how the rest of this thesis will unfold. Some of the challenges which teachers experience when teaching 21st century learners were briefly mentioned. The importance of considering changes in learning approaches evinced by 21st century learners provided a basis to recognise the importance of teachers' attitudes to blended learning and how the implementation of blended learning can accommodate 21st century learners and their learning experiences.

CHAPTER TWO

LITERATURE REVIEW

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1. INTRODUCTION

As mentioned in Chapter 1, it is important for teachers to accommodate 21st century learners and their learning. Once teachers are aware of 21st century learners, their skills and how they learn, they can attempt to accommodate these learners by aligning their teaching practices with 21st century learners and their approaches to learning. The acquisition of knowledge or skills through teaching in the 21st century can be enhanced by the use of Information Communication Technology (ICT), more specifically technology infused blended learning. This chapter focusses on teachers' attitudes to blended learning as a recognition of 21st century learning and learners' practices. It further discusses how blended learning can be used as an effective teaching method to accommodate 21st century learning and the various pedagogies possible when blending. It also focusses on technology acceptance that current teachers have and their ICT level, and more specifically on the innovation adoption lifecycle of people. In addition, this chapter explores why people are reluctant to change.

1.1. Teachers' response to and use of ICT

Computers are used in schools worldwide to develop the knowledge and skills required for people to be able to operate in the 21st century information age. Education around the world have started implementing policies to encourage the use of ICT in the facilitation of teaching and learning. The South African government also recognised the role of ICTs in education since the South African White Paper on e-Education states:

> "As in other spheres of social and economic development, ICTs have the potential to improve the quality of education and training. It is for these reasons that Government has been quick to seize the opportunity presented by the practical benefits of ICTs to support teaching and learning in the twenty-first century" (South Africa Department of Education (SADoE), 2004, p.8).

The White Paper on e-Education (SADoE, 2004) states the following goal:

"Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013" (SADoE, 2004, p.10).

There are many factors that contribute to the successful adoption of ICT in schools. Flecknoe (2002) focusses on the openness of teachers to listen to learners and what they want out of the learning experience. Wilson-Strydom, Thomson & Hodgkinson-Williams (2005) found that the most commonly-noted reason for teachers not implementing technology-integrated lessons was the non-availability of computers in the learning environment. Furthermore, Kozma, McGhee, Quellmalz & Zalles (2004) reported that the insufficient technical support and training for using computers was a major barrier for teachers to implement ICT in their teaching. Granger, Morbey, Lotherington, Owston & Wideman (2002) recognised the time-limit which teachers have in order to prepare for technology-infused lessons.

In a study completed in South Africa by Hodgkinson-Williams, Siebörger & Terzoli (2007), a champion teacher was recognised in almost every school where working ICT facilities was evident. The respective champion teacher took the lead in the use, maintenance and management of these facilities and also took on the responsibility for maintaining the computers and sourcing technological help to teachers who were in need of it.

Teacher development and ICT literacy training are extremely important to the success of ICTs within teaching and learning (Hodgkinson-Williams, Sieörger & Terzoli, 2007). One of the challenges to ICT adoption and integration in schools was the lack of teacher training. In the study done by Hodgkinson-Williams, et al (2007) government school teachers complained that the SADoE made no application-based training available for in-service teachers. However a later study by Slay, Sieörger and Hodgkinson-Williams (2008) recounted the various forms of ICT training that the teachers in the study had experienced. What emerges is that training that teachers received a undergraduate level is often insufficient for the continuing evolution of ICT technologies and their potential for teaching and learning.

Another aspect which hinders teachers from incorporating technology into their teaching is teachers' willingness to change from the older methods of 'chalk and talk' teacher-centred teaching to that of learner-centred teaching methods (Richards, 2005). Teachers are unwilling to adapt their pedagogy to accommodate the meaningful use of ICTs in teaching and learning activities (Hodgkinson-Williams, Sieörger & Terzoli, 2007).

Numerous studies have been undertaken to investigate the use of interactive whiteboards (IWBs) in classroom environments in developed countries. In a study done by Slay, Siebörger and Hodgkinson-Williams (2008) it was found that teachers reported on the efficiency, flexibility, versatility of an IWB and the opportunity to access multimedia content, as well as the ability to manage the class more easily while using an IWB. According to Glover and Miller (2001) teachers view the efficiency of an IWB as a major advantage, referring to the ability to effortlessly access one resource after another from the board. Another benefit was the flexibility and versatility of the IWB as a teaching tool to allow teachers to support multiple needs within lessons (Miller & Glover, 2002). Another major advantage of an IWB recognised by Wood (2002) is the ability to face the class whilst teaching, which allows teachers to maintain class control and to be more in touch with the learners. In a recent study, of learners' perceptions on the use of IWBs in their classrooms, Wall, Higgins and Smith (2005) found that learners saw IWBs as effective tools for initiating and facilitating the learning process, especially when they were given the opportunity to use the IWB themselves. The learners also commented on the visual nature of the IWB, which they reported that it support concentration and attention.

According to a study done by Slay, Sieörger and Hodgkinson-Williams (2008) the learners also reported on disadvantages of the IWB. The most frequently cited disadvantage by teachers and learners was the lack of ICT skills among the teachers. The fact that in-service teachers do not have sufficient ICT skills is one of the largest ICT-related problems facing schools in the Eastern Cape (Department of Education, 2003). South Africa, as a developing country, are willing to develop benefits of using ICT technology, including IWB, to improve learner engagement and achievement. In the Eastern Cape Province, only 4.5% of all schools have computers for teaching and learning (Department of Education, 2003). Furthermore, the South African study by Slay, Sieörger and Hodgkinson-Williams (2008) illustrates the disruptive effects that technology can have when not fully understood or used optimally. Slay, Sieörger and Hodgkinson-Williams (2008) suggests sufficient training for teachers in order to equip them with the necessary skills to use these ICTs and ongoing support.

1.2. The 21st century learners

When defining today's learners', it is evident that they are different in various ways from previous generations and they have various characteristics which contribute to an unique

generation (Trilling and Fadel, 2009). These students are curious and therefore learners for life. They want input on their education and how they obtain new knowledge. 21st century learners don't know a world without computers and therefore are often very digitally literate. These learners believe that the future is about making a difference and demand freedom to explore their creativity which can lead to change. Being in connection with others at all times is what these learners demand, therefore they are characterised as good team players and effective collaborators (Trilling and Fadel, 2009).

21st century learners are characterised as learners who are very independent and who have an attitude that nothing is impossible, therefore they tend to thrive in a challenging atmosphere. They are increasingly aware of the world around them and are open to change processes.

According to the International Education Advisory Board (2010), 21st century children like to be in control and they like to make their own choices. This generation is group-orientated and are very social since they seek opportunities to identify with others and associating with peers even around the world. 21st century learners are inclusive since they are part of a diverse generation and are taught to be tolerant of all diverse orientations. These learners are characterised as practicing users of digital technology since they are surrounded by digital media and because of this access they naturally gravitate towards it. This generation also think differently from previous generations since they accept, adapt and make use of resources productively. They are characterised as risk takers and determined to achieve success but don't want to work too hard (International Education Advisory Board, 2010).

Fadel, Bialik & Trilling (2015) describe the 21st century learner in the following framework:
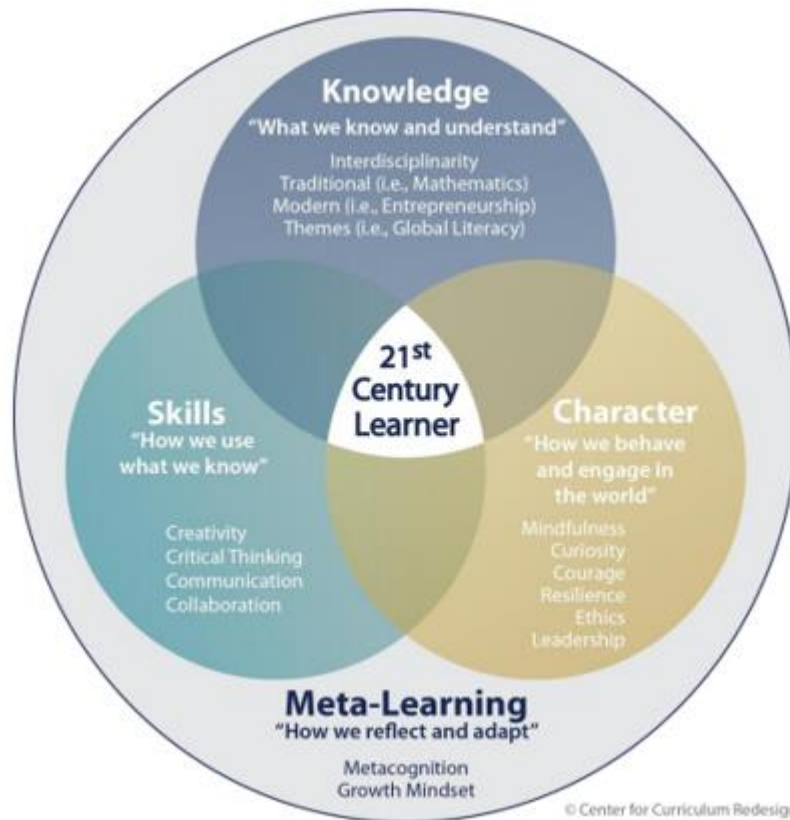
Figure 2: CCR Framework of the 21st century learner
Source: Fadel, C, Bialik, M, & Trilling, B. 2015. Four-Dimensional Education:
The Competencies Learners Need to Succeed. Stanford University.

The Centre for Curriculum Redesign (CRR) (Fadel, Bialik, & Trilling , 2015) aims to adopt a holistic approach in order to redesign the curriculum. Thus, developing a complete framework for the four dimensions of education: knowledge, skills, character, and metacognition (Fadel, Bialik, & Trilling , 2015). It is through this vision that the CRR acknowledges that the knowledge sphere should be built upon a balance of traditional and modern subjects, as well as interdisciplinary. Within a curriculum, skills and knowledge are interrelated. A learners' skills are used in the development of knowledge and in turn engagement with skills improve their knowledge base (Fadel, Bialik, & Trilling , 2015). The manner in which learners' engage with and behave in the world can be described as their character. The process of learning how to learn and self-reflection is fostered through metacognition. Thus, knowledge, skills, character and metacognition are the developmental dimensions in which a curriculum should be developed (Fadel, Bialik, & Trilling , 2015).

The Centre for Curriculum Redesign addresses the fundamental question of "WHAT should students learn for the 21st century?" and believe that once it is evident what students

should learn education can accommodate the process on how students learn best (Fadel, Bialik & Trilling, 2015).

As the world of the 21st century bears little resemblance to that of the 19th century, education curricula need to be redesigned for the four dimensions of Knowledge, Skills, Character and Meta-Learning. Adapting to 21st century needs means revisiting each dimension and the interplay between them. The unpredictable context which we face today requires a paradigm switch so that the goal of education is no longer only to impart information but to teach students to steer an ever-changing world. For this they will need versatility as a hedge against rapidly changing conditions, an increased capability to engage with complex challenges, along with a diverse set of competencies such as adaptability, increased collaboration between cultures, etc. towards the goal of a sustainable humanity through content individuals (Fadel, Bialik & Trilling, 2015).

According to Fadel, Bialik & Trilling (2015) traditional disciplines currently take up most of the available time and leave little space for newer subjects, branches and topics. As a consequence of the infinite amount of information that needs to be covered and the pressure of preparing for standardized tests, relatively few teachers are able to constantly provide the time needed to effectively integrate new learning goals into the curriculum. Fadel et al. (2015) suggest that we redesign curriculum to both broaden and deepen understanding and current content will need to be reconsidered. That process involves distilling each discipline to its core essential questions, and restructuring the information to highlight these concepts and meta-concepts as well as their processes, methods and tools.

In addition to learning content deeply, it is suggested that students need to apply knowledge using 21st Century skills namely: creativity, critical thinking, communication, and collaboration. However, skills are only one further dimension. In addition to skills, students will need to learn character qualities which enables them to engage effectively in the 21st century. Fadel, Bialik & Trilling (2005) states in order to deepen and enhance the learning in these three dimensions — knowledge, skills, and character qualities—there is an important additional fourth dimension needed for a fully comprehensive 21st century education: meta-learning (often called learning to learn—the internal processes by which we reflect on and adapt our learning). Furthermore, Fadel explains that it is not enough to covertly include this fourth dimension in all the other dimensions—its significance must be highlighted explicitly, so that we are constantly reminded to incorporate meta-learning strategies into the knowledge, skills, and character portions of our learning experiences, learning how to strive to improve no matter what goals we set for ourselves (Rubin, 2017).

1.3. 21st century skills

Today's students are digitally focused. According to Kharbach (2013) the average student spends at least four hours daily interacting with their digital gadgets. This digital culture which has infused our learners' life has brought about a set of changes to their learning habits (Kharbach, 2013).

Today learners require the mastering of several skills to be successful in a fast changing, digital society. Students today will likely have several careers in their lifetime, thus they will require various skills in order to be successful in the workplace. The term "21st century skills" is generally used to refer to certain abilities that promoters believe schools need to teach to help students thrive in today's world. These skills are also accompanying with deeper learning, which is based on mastering skills such as logical reasoning, complex problem solving and teamwork. Stepping into the 21st century, society has undergone an accelerating pace of change in economy and technology. These changes have an effect on the workplace and also on the demands on our education system which prepares learners for the workforce. These changes also demand different skills which enable people to be flexible and adaptable in different roles or in different career fields. In 2002 the Partnership for 21st Century Skills grouped these skills into three main groups (Pacific Policy Research Center, 2010).

The first group is learning and innovation skills. Learners must be able to communicate and collaborate since learning is a social activity, not only in schools, but also in workplaces and other environments. The communication and collaboration skills sets refer to the ability to communicate clearly and to collaborate effectively with diverse populations. In order to master learning and innovation skills individuals must be able to think critically and be able to solve problems effectively. Critical thinking and problem solving skills include the ability to reason effectively, resolve problems and to reflect critically on decisions and processes. Critical thinking is the ability to analyze, interpret, evaluate, summarize and synthesize information (Trilling & Fadel, 2009). The availability of advanced technologies in the 21st century allow us to access, manipulate, create, analyze, manage, store and communicate information. This critical thinking skill set endorses innovative thinking and the ability to work creatively with others. In a review of the interconnection between technology, learning and creativity, Loveless and Dore (2002) indicate how technology provide individuals with opportunities to be creative. Creativity can be nurtured by teachers and learning environments can be developed that encourage questioning and openness to new ideas. Hence, these

creativity and innovation skills can be developed with practice over time (Wegerif & Dawes, 2004).

The second group, called life and career skills, focuses on the ability of individuals to work effectively with diverse teams, be open-minded to ideas, set and meet goals, manage projects effectively and being responsible to both one's self and the larger community. Leadership and responsibility skills are needed in order to cope in the 21st century. These skills include the ability to work with the interest of the larger community in mind and to build on the strengths of others to reach a shared goal. One also requires skills in order to be productive and accountable in life today. In order to be productive and accountable one must be able to set and meet goals, prioritize, manage time, work ethically and cooperate with others.

To be successful in a career in the 21st century social and cross-cultural skills are very important. These involve the ability to present oneself professionally and to respect social and cultural differences. Understanding cultural and social differences and using those differences to develop new ideas and new solutions to problems are increasingly important in the workplace (Partnership for 21st Century Skills, 2011). The Partnership for 21st Century Skills argue that learners should be able to interact effectively with others, conduct themselves in a respectful and professional manner, work effectively in diverse teams, respond open-mindedly to different ideas and values, and be able to work effectively with people from a range of social and cultural backgrounds.

The last group is known as information, media and technology skills. Information literacy is the ability to know when information is needed and to have the ability to locate, evaluate and use the required information effectively. Information literacy skills include the ability to access information efficiently, assessing information critically and using information creatively. Andretta (2005) argues that these literacies form the basis for lifelong learning and they are common to all disciplines and should be to all learning environments in the 21st century.

The literature on 21st century media skills argues that it is essential for individuals to be able to access and understand media. 21st century media skills also refer to the ability of individuals to effectively produce and deliver media products and learners needs skills in evaluating and producing representations in a variety of media. Increasingly high in demand is digital literacy since one need to master the use of digital and communications technology. Digital literacy is defined as the ability to use information and communication technologies to find, assess, form and communicate information, requiring both intellectual and technical skills. In the 21st century technological literacy is demanded as a skill to be mastered, due to

the fact that everything in the world revolves around technology. As far back as the end of the 20th century Gilster (1997) identified that web technologies already started replacing the television, telephones and newspapers as the primary means by which people were informed, connected and entertained. In supporting digital and learning literacies teachers should attempt to design flexible learning opportunities, review how technologies are integrated into the curriculum, support students to make use of technologies and to develop effective strategies for learning with technology.

1.3 21st century learning

Kharbach (2013) identifies the 21st century as the Life Long Learning Era. With the advance of technology a new educational system started and learning is now endless. This is evident in the development of home schooling, distance education, adult education, learning centres, educational television and videos and computer-based learning software. Many of these seeds will affect the learning of children, but many others will affect people of all ages, as learning becomes a lifelong enterprise.

Due to the complexity of the learners present in the learning environment, learning is also changing and demand new methods to accommodate learning in the 21st century. According to the Pacific Policy Research Center (2010) ICT is transforming how we learn and the meaning of social relationships. Today, success lies in being able to communicate and use information to solve problems and in being able to command and expand the power of technology to create new knowledge. According to Rich (2010) 21st century learning is "learner-driven". Learners now learn differently since the Internet is releasing intellectual energy that comes from our desires to have a voice and to participate. Learning is now equipped with powerful tools which allow learners to obtain and create knowledge more quickly (Rich, 2010).

21st century learners prefer to use technology to study in their own time and don't necessarily want to sit in a classroom to learn (International Education Advisory Board, 2010). These learners require learning environments where they can use technology to complete tasks in creative ways and they have a need for alternative methods to complete tasks. 21st century learners prefer to learn collaboratively since they want to learn with others and share what they have learnt with their peers. Rich (2010) further describes 21st century learning as unlimited. Learners are no longer limited by the information available in libraries, they now search the Internet for information and have unlimited information almost immediately. Since ICT has

always been part of their lives they expect it to support their learning and to be part of their learning experiences.

To create effective learning environments for these digital learners is challenging. Teachers are challenged daily to create opportunities for learners to develop the skills required in order to cope with life as we know it today. Computer-generated tools and open-source software create borderless learning environments for learners. Education is no longer one-size-fits-all or confined to the classroom. Teachers can use technology to create an engaging and personalised learning environment to meet the emerging learning needs of this generation (Rich, 2010).

Teachers of 21st century skills will need to be experts and have expertise in teaching the same 21st century skills that they are encouraging their students to excel in (Pacific Policy Research Center, 2010). Teachers will have to communicate and collaborate with each other and with students, become flexible with managing new classroom dynamics, be able to support independent student learning and be willing to adapt their teaching styles to accommodate new pedagogical approaches to learning.

The Partnership for 21st Century Skills (2009) defines 21st century learning environments as "the support systems that organize the condition in which humans learn best – systems that accommodate the unique learning needs of every learner and support the positive human relationships needed for effective learning. Therefore, 21st century learning environments are the physical spaces, tools, and learning communities that encourage and enable learners and teachers to attain the skill-sets that the 21st century requires. The Partnership for 21st Century Skills is of the opinion that 21st century learning environments should create learning practices, support and physical environments that will support the teaching and learning of 21st century skill outcomes. These learning environments should enable learners to learn in real world 21st century context and allow equitable access to quality learning tools, technologies and resources.

Cornell (2002) argues that 21st century learning needs to take place in contexts that promote interaction and a sense of community that enable formal and informal learning.

Life today requires competencies and knowledge in the context of fostering cooperative learning. Learners learn socially and through cooperating with one another. Inquiry learning create unique ways for students to share what they have learnt with one another (Kuhlthau, Maniotes & Caspari, 2015). The emerging ICTs change the way we learn. Information technology has an impact on education and also change the way that we learn.

The Partnership for 21st Century Skills (2009) argues that all 21st century initiatives must focus on both core academic subject mastery and skills outcomes. The Partnership for 21st Century Skills (2009) recommend a developing teacher professional development program and workshops that focus specifically on 21st century skills instruction and providing professional development opportunities into teacher standards.

Supporters of 21st century skills favour student-centered methods like problem-based learning and project-based learning which allow students to collaborate, work on authentic problems and engage with community (Silva, 2008). According to Andreas Schleicher in Fadel, Bialik & Trilling (2015) the reason for why we find it challenging to rebuild school curricula around the 21st century world is that we lack an organizing framework that can assist in prioritising educational competencies.

1.4 How teachers can accommodate 21st century needs

Trilling and Fadel (2009) found five key findings that may help guide and reshape learning to meet the needs of the 21st century learner. They suggest that teachers create more authentic learning experiences, since 21st century learners need more real-world problem solving opportunities in a suitable environment. Teachers should allow mental model building, since these learners should be provided with opportunities to be involved in situations that incorporate new experiences which will change their views over time. It is important for teachers to create lessons that have an emotional connection to what is being learned and to create more personalized learning opportunities for learners. Trilling and Fadel (2009) suggests that teachers embed social learning into lessons where learners learn from each other. They also suggest that teachers incorporate online communication within the learning environment.

In order for teachers to accommodate the needs of the 21st century learner, teachers too need to develop some crucial skills to fit in the 21st century educational paradigm and to adequately prepare today's students for their future (Trilling & Fadel, 2009). Trilling & Fadel (2009) suggest that teachers share and model the use of current internet tools, participate in professional networks, assist learners as they build their learning networks, provide sufficient learning opportunities for learners to become digitally literate and inspire every learner to be quality digital global citizens.

Scott (2015) suggest specific pedagogies and perspectives that will offer learners the best opportunities to acquire competencies and skills needed to successfully navigate a complex

and uncertain future. One of the perspectives is to renew the focus on quality. In order to achieve the goal of highly competent and committed teachers using active pedagogies, government must ensure that there is an adequate supply of well-trained and motivated teachers and school leadership, improve teachers' training and offer sufficient professional development opportunities.

Teachers' need to foster participation within a 21st century learning environment (McLoughlin & Lee, 2008). In the 21st century, learning and social interaction is encouraged through participatory learning. Potential school-entering learners, and current learners, are already exposed to a peer-participation. Through this participation, learners are able to collaboratively, and socially, identify new developments regarding social networks and the impact on her personal improvement. It is evident that teachers should be experimenting with social networks to engage and provide new opportunities for the learners in a 21st century learning environment (McLoughlin & Lee, 2008). McLoughlin and Lee (2008, p.9) highlight that it adds a "further dimension to participative learning by increasing the level of socialization and collaboration with experts, community and peer groups, and by fostering connections that are often global in reach".

Scott (2015) suggests that teachers personalize and customize learning. As people learn in a variety of ways and may take multiple pathways to skills acquisition, education must be reorganized around each 'learner's journey' (Leadbeater & Wong, 2010). Twenty-first century education will require more personalized learning with an emphasis on supporting creativity. Scott (2015, p.12) stress that "personalization has implications for what, how and where we teach". Personalization occurs through collaboration, provides for more rapid sharing of innovation and good practice, and quickly captures information about learners' aptitudes and progress.

Furthermore, it is important for teachers to emphasize project and problem-based learning within the learning environment. McLoughlin and Lee (2008) highlight that students receive opportunities to direct and manage their own learning process and cite evidence about the effectiveness of giving learners control over and responsibility for their learning. This is the main concept behind project and problem-based learning and is central to twenty-first century pedagogy. With project and problem-based learning, students learn by designing and constructing actual solutions to real-life problems.

Collaboration and communication is another 21st century trend that shifts learning from teacher-centred settings to collaborative ones where students communicate. Collaborative learning is the intentional grouping and pairing of learners for the purpose of achieving a

learning goal. Collaborative learning is a broad term for a variety of educational approaches involving joint intellectual effort by learners, or learners and teachers together. In most collaborative learning situations, learners work in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product (Scott, 2015).

The 21st century learner needs to be engaged and motivated, since research emphasizes the importance of the teacher's role in motivating learners and finding ways for them to build intrinsic motivation. According to Malone and Smith (2008) motivation is based on developing the interest of learners, maintaining their involvement and encouraging confidence in their abilities to perform a specific task. Teachers can foster learning and motivation by ensuring that success is recognized and praised. Scott (2015) also suggest that teachers should foster motivation by clarifying the purpose of lessons with learners and sharing their long-term learning goals.

Scott (2015) argues that innovation and creativity are very valuable competencies in knowledge societies. Creativity is deeply social, with most creative insights typically emerging from collaborative and creative circles. In the 21st century teachers must be courageous in their pursuit to disrupt conventional wisdom and development of a learning environment that encourages learners to improvise and be innovative above rote learning (Scott, 2015). Scott (2015) argue that learners' are not being taught to create knowledge. Learners' have the misconception that knowledge is static and complete and in order for them to become an expert, they must consume knowledge rather than produce it. In the 21st century "the ultimate goal of learning is to stimulate learners' capacities to create and generate ideas, concepts and knowledge (McLoughlin & Lee, 2014). A 21st century teacher will play a key role in helping learners recognise and develop their creativity by encouraging, identifying and fostering creativity in the learning environment.

It is important that teachers employ appropriate learning tools within the learning environment which will ensure the accommodation of 21st century needs. The transformation of pedagogy goes beyond the idea that new technologies will produce new forms of learning and new competencies. While technological developments play an important role in learning and can create new and unprecedented opportunities, technology alone cannot ensure a successful learning experience (Davies, Fidler and Gorbis, 2011). There are many different instructional tools available to teachers to stimulate learning and help learners create new knowledge in collaboration with their peers. Teachers can use instructional tools such as strategic questioning, capitalizing on learners' interest in mobile technologies and making the most of social media.

In order to accommodate the needs of the 21st century learners teachers need to design relevant and real-world learning activities. Learning activities that are designed to connect student experiences to real-world problems will transform their focus. The Partnership for 21st Century Skills (2007, p.11) echoes this point: 'when students realize the connection between what they are learning and real-world issues that matter to them, their motivation soars, and so does their learning'.

1.5. Blended learning

Technology and ICT forms an integral part of learning in the 21st century. Blended learning is the process used within learning environments describing how technology can complement existing teaching practices. The concept of blended learning has been around for a long time, but its terminology was not firmly established until the start of the 21st century. Since blended learning is a continuous emerging field there are currently many different conceptualizations of what it means to "do" blended learning. According to Staker and Horn (2012) blended learning occurs within a formal education program. Teaching and learning, in a blended learning environment, includes an online delivery of content and instruction and allows learners to have some control over the time, place and pace of instruction. Furthermore, instruction can be delivered in a supervised environment or in an unknown, distant location (Staker & Horn, 2012).

Through the combination of traditional teaching methods and online digital media, blended learning classrooms are created. Thus, a new and enhanced learning experience is provided. Blended learning requires the physical presence of teachers and learners, where learners have some control over time, place, path, pace and completion. Classroom practices are combined with computer-mediated activities regarding the content which is covered and how it is delivered. Researchers suggest that there are models which teachers can use in order to blend within the learning environment. These models can also be blended together and teachers use some, many, or even all of these models in order to create blended experiences (Stein & Graham, 2013).

The terms "blended" and "mixed-mode-instruction" are often used interchangeably in research literature. Currently the term mostly involves the combination of Internet and digital media with established classroom forms that require the physical co-presence of the teacher and students (Stein & Graham, 2013).

According to Caulfield (2011) blended instruction is more appealing than only using face-to-face or online teaching since it taps into learners' digital habitus. These blended methods can also result in high levels of learner achievement. By combining digital instruction and one-on-one face time, learners can work individually with new concepts and the teacher can circulate and support learners who may need assistance. The use of ICTs when blending have been found to improve learners' attitudes towards learning. A classroom environment that incorporates blended learning requires learners to demonstrate independence in order to reach goals. Blending is successful when technology and teaching inform each other (Caulfield, 2011).

1.6. Models of blended learning

Blended learning is the compiling of many types of learning method and tools such as traditional learning and computer-assisted learning (Aboukhatwa, 2012).

In South Africa, Spark Schools, is one model that has been developed to help encourage and support the implementation of blended learning in schools and classrooms. Spark Schools recognises that teachers are heavily burdened with numerous tasks that. They believe that with the help of computers, these teachers could be facilitated in overcoming this burden (Brewer and Harrison, 2013). The Spark education model is aligned with the Curriculum Assessment Policy Statements of South Africa. What makes this model unique is its extensions that provide additional depth for teachers and learners. With the use of the Spark education model in a South African classroom, a basic skill-based lesson can be conducted in the following manner: the teacher will introduce the new concept, using guided practices often referred to as your traditional teaching methods. The learners will then be given the opportunity to engage with the new concept in the Learning Lab; an online-based activity or exercise. Using the online practice will provide learners with an extension and review of the concept. The benefit lies in the efficiency of computers; learners will receive immediate feedback. During the Spark model learners spend the majority of their day learning in a classroom environment, interacting with their teacher and peers, while the Learning Lab will be reserved for practice of concepts taught (Brewer and Harrison, 2013). Thompson (2016) explains six models identified by educators which can be implemented which promotes blended learning.

1.6.1. Face-to-face Driver Model

This model is closely related to a typical school structure. Only certain learners will participate in any form of blended learning within the classroom. The use of this technology in the classroom and with this approach provides struggling learners or learners working above their grade level to progress at their own pace.

Schools have found that this model is helpful in engaging English Language Learners (ELL). ELLs are not incapable of understanding a concept but struggle because they are not native speakers.

1.6.2. Rotation Model

The rotation model is a form of blended learning that requires learners to rotate between different stations on a fixed schedule. The learners will either work online or face-to-face with the teacher. In this model, learning labs and traditional classrooms can both be utilised. Intelligent adoptive learning software can be incorporated along with traditional teaching strategies. This is valuable in the classroom environment as the learners will become more active and will challenge themselves to work harder and push themselves to learn more than they have been introduced to in the classroom.

1.6.3. Flex Model

This model of blended learning works well with schools who are supporting large numbers of non-traditional or at risk leaners. The course material is primarily delivered online, with teachers' being available onsite to provide support as needed. However, learning is predominantly self-guided. Learners learn independently and practice the new concepts in digital environments. This approach is incorporated into schools who aim to address learners behavioural, academic and socio-economic challenges. In these schools, learners spend a large chunk of time on computers in a learning lab, under the guidance of a certified teacher. The teacher is available to provide assistance, help with learners reading and writing and led small-group work.

1.6.4. Online Lab Model

As schools faces increasingly tighter resource constraints, the online lab model of blended learning is a viable option for helping students' complete courses. In this model

students learn entirely online but travel to a dedicated computer lab to complete their work. Adults supervise the lab and allow students to work at a pace and in a subject area that suits them without affecting the learning environment of other students.

1.6.5. Self-Blend Model

Popular in high schools, this model of blended learning give students the opportunity to take classes beyond what is already offered at their school. These individuals will attend a traditional school environment and will also choose to supplement their learning through online courses which are offered. In order for this model of blended learning to be successful, students must be highly self-motivated.

1.6.6. Online Driver Model

In this model, learners work remotely and all course work is delivered online. The online platform is capable of providing a path of communication between the learner and the teacher,

to provide a level of support. The Online Driver Model is ideal for learners who require a high degree of flexibility and scheduling independence.

Furthermore, there are many variations to blended learning models. Christensen (2017) recognises the Flipped Classroom, where the traditional relationship between class time and homework is flipped. In a flipped classroom, learners are required to learn online course work and lectures at home; while the time spend in the classroom focuses on guided practice and projects. As a result, the classroom environment moves beyond the delivery of traditional teaching methods. In this blended learning approach, face-to-face interaction is mixed with independent study via technology. Students watch pre-recorded videos at home, then come to school to do the homework armed with questions and at least some background knowledge (Bishop & Verleger, 2013). The concept behind the flipped classroom doubles student access to teachers–once with the videos at home, and again in the classroom, increasing the opportunity for personalization and more precise guiding of learning. In the flipped classroom model, students practice under the guidance of the teacher, while accessing content on their own (Bishop & Verleger, 2013).

1.7. Blended learning benefits

Many beneficial aspects are experienced when blended learning is incorporated within the learning environment. In blended learning environments students get familiar with the other students culture which opens a door for further interaction in the learning environment. Blended learning provides students with equal opportunities and success depend on the intellectual capacity and emotional motivation of the learner (Usoff & Khodabandelou, 2009).

Blended learning is preferred over a traditional lecture format, and promising data emerged to challenge teachers' traditional approach to teaching (Alaneme, Olayiwola, & Reju, 2009). Blending not only offers us the ability to be more efficient in delivering learning, but more effective and studies show that improvements occurred in pass rates. In a study done by Alaneme, Olayiwola, & Reju (2009) students preferred a combination of both traditional and the e-learning methods of teaching and stated that blending promotes effective learning. Blended learning enhances the curiosity of the students and there is an increased student satisfaction with the mode of instruction compared to traditional formats (Usoff &

Khodabandelou, 2009; Melton, Graf & Chopak-Foss, 2009; Chen, Clement C & Jones, 2007; Singh ,2003).

By bringing the unique features of online and face-to-face learning environments together, blended learning uses the best of both in order to address the different needs of students. Blended learning creates a flexible environment in which students are engaged in their own learning experiences and in which social interactions between peers and teachers are unrestricted by time and location (Bonk & Graham, 2006). Burgon and Williams (2003) suggest that student engagement and successful learning outcomes are increased for students in blended learning environments.

According to a 2010 study from the U.S. Department of Education, blended learning classes produce statistically better results than traditional classes. A possible reason could be due to the flexibility and individualisation of learning experiences provided in a blended learning classroom. Thus, teachers are able to capitalize on the time they dedicated to the facilitation of learning.

Patterson (2016) identifies seven important benefits of blended learning namely flexibility, effectiveness, efficiency, cost effectiveness, personalisation, extended reach, and accommodating all learning styles. Blended learning is extremely flexible in nature. The teacher is able to evaluate the different concepts and topics and assess their complexity and determine the appropriate level of attention they will require. Complicated topics can be presented in the classroom, while simple subject matter, and revision, can be made available online. The online component increase flexibility and convenience regarding how and when learning takes place. Furthermore, blended learning has the proven potential to enhance both the effectiveness and efficiency of meaningful learning experiences.

1.8. ICT infused learning environment

ICT have become commonplace entities in all aspects of life. Over the last twenty years, ICT and the uses of ICT have drastically changed, thus forcing change upon teaching practices and procedures (Adu & Olatundun, 2013). In the past, education was viewed as a socially oriented activity and it was thought that quality education was only achieved through strong degrees of personal contact with learners. At present, the education system has undergone a number of changes over the last few year. These changes are due to government policy changes regarding ICT in schools as well as developments in pedagogical practices. Consequently, schools and teachers need to adapt, refine and upgrade their technological skills.

The rapid increase in technology has also created a number of management issues for school principals and management teams (Adu & Olatundun, 2013).

ICT education, and the mastery of basic ICT related skills, can now be regarded as important as reading, writing and numeracy. ICT, encompasses more than computers and computing related activities. Computers play a significant role in modern information management, however, other technologies and systems also comprise the phenomena of ICT (Adu & Olatundun, 2013). In South Africa, one of the tools available when implementing ICT into the learning environments is the use of a Learning Lab. A Learning Lab resembles the physical nature of a school computer lab. However, the computers are used to access, concept relevant, web-based learning software. The implementation of a Learning Lab will complement the classroom environment. A Learning Lab reinforces the concepts and topic being taught in the classroom and provides repetition learning. Each learner should have access to their own workstation in order to capitalise on the ability to accommodate and focus on learners' individual needs and skills practice (Brewer and Harrison, 2013).

ICT increases the flexibility of delivery of education so that learners can access knowledge anytime and from anywhere. It can influence the way students are taught and how they learn as now the processes are learner driven and not by teachers. This in turn would better prepare the learners for lifelong learning as well as to improve the quality of learning.

According to Adu & Olatundun (2013), easy access to learning has been one of the most important contributions of ICT in education. ICT allows for learners to browse e-books, sample examination papers and access old test and examination papers. Furthermore, learners have access to a wider variety of communicative resource such as mentors, experts, researchers, professionals and peers, both locally and world-wide. The flexibility and easy access to resources has significantly improved learners access to information and provided them with many more opportunities than in the past (Young, 2002) cited (Adu & Olatundun, 2013).ICT is a new field of learning and will require the development and use of a new skillset in order to be successful. However, these new skillsets have not overshadowed the importance of critical thinking, research and evaluation skills, but instead, heightened them as learners are increasingly exposed to higher volumes of information (New Media Consortium, 2007).

Teaching and learning have changed through the use of ICT. In education, ICT is a tool that can provide many potential opportunities. With the rapid increase of technology in daily life, it is impossible to imagine a learning environment that will not support the use of ICT. Learners in the modern society are regarded as the digital generation; constantly surrounded

and exposed to widespread diffusion and use of ICT. Thus, there is a need for education to remain relevant and accessible to learners (New Media Consortium, 2007).

Adu & Olatundun (2013) are of the opinion that ICTs can improve the quality of education in several ways. ICTs can be a transformational tool. The use of ICT can shift the focus of the classroom from a teacher-centred to a learner-centred. Teachers and learners in an ICT enabled classroom, have access to new teaching and learning strategies and changes the way things are done in the classroom. Improving the teachers efficiency and influencing the access to information, and the way information is retained by learners with different learning styles and requirements. Challenging and authentic content can be provided throughout the learning process through the use of ICT tools such as videos, television and multimedia computer software that combine text, sound, and colourful moving images. Lessons are also elevated with the use of ICT tools, for example interactive radios and the use of sound effects, songs, dramatizations, comic skits, and other performance conventions are compelling tool that will encourage participation by learners (Adu & Olatundun, 2013).

According to Brewer and Harrison (2013), the use of ICT in the learning environment provides academically strong learners the opportunity to progress without being held back while academically weak learners are provided with additional support. As a result, the classroom is inclusive and no learner is left behind. Furthermore, learning is enriched through automation, adaptive repetition and computer aided activities. Brewer and Harrison (2013) recognise that teachers can also benefit from ICT in the classroom and learning environment. They believe that teachers can focus on developing effective lesson plans, while assessment and learning is facilitated through ICT tools such as a Learning Lab.

Feedback provided in a study done by Adu & Oltundun (2013) stated that parents recognised that their children were more motivated when they were given the were taught in a blended learning environment. The parents, in the study, were of the opinion that a monotonous traditional classroom, where the teacher stands in front and recites the work from a textbook, was ineffective in captivating and compelling the learners attention.

Communication technology, computer networks and information technology grown exponentially over the past few years and it is predicted to continue to grow in the future. This growth has seen changes to the broadband communication services and telecommunication spheres of ICT, creating new possibilities and uses for technological tools which can aid teaching and learning (Majumdar, 2006). Communication and computer integration has opened up education to the world. Education systems are now equipped with the tools needed to

integrate, enhance and interact with each other regardless of geographic distance. In this manner, learning objectives can be successfully achieved regardless of the physical distance between the teacher and the learner. Not only does geographical location no longer hinder education but with the increasing ease, power and diversity of ICT, teachers and learners have access to multiple worlds beyond the classroom. Furthermore Majumdar (2006) is of the opinion that with the use of ICT, the nature and processes of the learning environment will be changed to support a new learning culture based on interactivity, flexibility and convenience. Learning, in an ICT –based environment, provides learners with opportunities to access, extend, transform and share ideas and information in multiple communication manners. Learners are able to share resources, spaces, create collaborative learning principles and create and challenge critical thinking processes. Creative thinking and problem-solving can now be discusses, debated and evaluated from multiple perspectives and with access to high quality resources and information, thus enhancing the process and the solution to a problem. Thus, the role of the teacher should be to master ICT skills and implement ICT to enhance their pedagogical practice (Majumdar, 2006).

ICT can be incorporated into the learning environment in various ways. The educational argument for the use of multimedia in the classroom is enhanced as it directly corresponds with the natural information processing abilities of human beings. Our eyes and ears, in conjunction with our brain, form a processing system whereby meaningless data is transformed into valuable information. Thus, when using multimedia to enhance teaching and learning practices, it is important to ensure that the choice of multimedia is appropriate and that the learning objectives will be successfully achieved (Majumdar, 2006).

Majumbar (2006) recognises the strong link between distance learning and telecommunications. This is valuable as it has yielded new solutions to old problems. Innovative educational resources and learning practices have been developed; for example e-learning and online education practices. This promising outcome has seen the development of systems that are able to link up teachers and learners, regardless of geographic locality. In these models and systems, the teacher is forced to focus of developing and practicing a good learner-centred pedagogy and the continuous use of relevant and appropriate ICT resources that go beyond the walls of a traditional classroom. Thus, e-learning encourages teachers to develop a teaching and learning philosophy that is based on "learning about, with, and through all electronic media across the curriculum to support the learner (Majumbar, 2006)". A teacher in

the e-learning classroom will also recognise the benefits, namely: any time learning, anywhere learning, asynchronous interaction and group collaboration.

An increasingly popular tool being used by teachers and in education is blog or web logs. According to Majumbar (2006) a blog is a web page made up of usually short, frequently updated posts. There are many blogs available which have been developed by a collaboration of people based on a specific topic or mutual interest. The information presented in a blog is only limited by the imagination of the writer. There are a number of ways in which a teacher can use a blog. Blogs can be content-related, networking, personal knowledge, instructional tips for learners, course announcements, course readings and appropriate links. Learners themselves can also take part in the writing of a blog. Each class can set up a class blog where they work collaboratively. They can post reflect writing, assignments, e-portfolios and shared reading and other resources (Majumbar, 2006).

1.9. Current teachers' technology acceptance

Technology acceptance can be defined as the users willingness to use technology for specified tasks. Information technology has significantly increased in education and the role it plays has changed, however, there is still a high level of resistance among teachers (Hu, Clark & Ma, 2003). Acceptance researchers have focused their research on understanding the factors that have influences the adoption, or lack thereof, of technology in educational settings. Researchers are particularly interested in how the integration of technology into the classroom setting will foster learning and advance learners problem solving skills. At present, 21st century curriculum policy developers are set on incorporating ICT as part of educational reforms and preparing teachers for these changes, as they are the major enforcers of technology in the classroom (Schlechty, 2001). The use of ICT in the classroom has relied heavily on the acceptance of the teacher. Martin (2000) explains how lack of teacher acceptance of technology has made the development of technology projects impossible. The main reason for this is because the teacher is both the gatekeeper and information delivery system in the classroom. Thus, the outcome, i.e. the level of technology present and used within a classroom is based on the teachers' personal acceptance (Lim & Khine, 2006). Research done by Timothy (2009) found that the level of technology in an individual classroom is directly related to the teachers acceptance of technology. Timothy (2009) also shares how other factors such as teachers' social, demographic, and personal characteristics influence their technology acceptance within

an classroom environment. Bayhan, Olgun and Yelland (2002) found that teachers' low confidence levels and lack of professional development opportunities also substantially influence a teachers' acceptance of technology. Personally, teachers experiences and exposure to technology and ICT products throughout their life will also be an important factor when assessing their acceptance. Galloway (2011) accurately describes how technology in education cannot be integrated with a generation of non-computer-users. Teachers are more inclined to use computers and approach ICT with a positive attitude if they perceive computers as useful.

The institutional and structural characteristics; including professional training opportunities, access to computers in school, technical support and providing all teachers with computers, of the educational setting will impact on the technological integrations in the classrooms (Aypay, 2010). Timothy (2009) shares how educational technology is not only dependent on the classroom integration but is largely based on the human beliefs and behaviours regarding computer use for teaching and technology.

In a study done by Holdon, Ozok & Rada (2008) they found that, presently teachers have become more accustom to using technology for personal instructional reasons, such as class preparations, than for the learners presentation and interactions. The big debilitating factors for the lack of technology in the classroom is time, training and preparation. Teachers are aware of the benefits that technology holds when used in the classroom and to improve a learners experience, however they are yet to find ways of adequately improving in-class activities

1.10. Everett Rogers' innovation adoptions lifecycle

Diffusion of innovations seeks to explain how, why, and how fast new ideas are accepted. Rogers (1962) argues that innovation is communicated over time within the social system of the participants. The diffusion of innovations theory origins are varied and span multiple disciplines but its basis lies in the fundamental ideology that adopting a new idea, regardless of the obvious advantages, is difficult. New ideas are spread based on four elements, namely, the innovation, communication, time and social systems. The process is dependent on the humanity. Rogers identified personality traits that will be valuable in helping organise how people accept a new innovation. Innovations begin with innovators. Innovators make up 2,5% of the social system population and young individuals with high social class, financial lucidity, very social, willing to take risks and have contact with scientific sources and other innovators. These innovators are comfortable with successfully cope with uncertainty and failure. Their

role is to introduce innovations into the social system and act as gatekeeper in the flow of information in the social system (Rogers, 1962).

Early Adopters make up 13,5 % of the social system population. These individuals make up the second fastest growing category of individuals who adopt innovations. Early Adopters uphold high opinions and become leaders in the social system. The role of this group is to be advisories and provide information regarding other innovations. They are aware of the need to change and are comfortable with new ideas and change. As with the innovators, Early Adopters are of a young demographic, uphold higher social status, are financially fluid and from advanced educational backgrounds. They tend to be more discrete about their choices and maintain a central communication position within the social system (Rogers, 1962).

Early Majority Category succeeds the Early Adopters. Individuals in this category make up 34% of the social system. These individuals take varying degrees of time in adopting innovations. Early Majority individuals are primarily slower in their adoption of new innovations. Individuals in this category are above average social status, have contact with Early Adopters, but very seldom hold positions of leadership in the social system (Rogers, 1962).

Late Majority are the next category within a social system. The 34% of individuals that make up this category are classified according to their scepticism about innovation, below average social status and little financial lucidity. Individuals in this group are highly sceptical of new innovation, even after majority of society has adopted the innovation. Adoption of innovations are usually as a result of peer pressure or economic necessity as opposed to a personal motivation or desire for change. An innovation must have strong social acceptance and support in order for Late Majority individuals to value them as desirable. Individuals in this category have few resources which influences their uncertainty of innovation, thus eliminating uncertainty will help in making Late Majority individuals feel more comfortable with adopting innovations (Rogers, 1962).

The last category is the Laggards. Sixteen percent of the social system are Laggards and will be the last to adopt an innovation. Individuals in this group have no opinion and will not hold leadership positions. The individuals are identified according to their advanced age, low social status, low financial fluidity and have contact with only their family and close friends. Laggards focus more on tradition and are highly sceptical of change. They are also the hardest to motivate to adopt innovations. These individuals demonstrate high resistance towards innovations and as a result a lengthy amount of time is needed to create awareness and overcome risk aversion. Laggards' vulnerable economic situation pressurise their access to

resources. Resultantly, the individual and the system is to blame for their lack of innovation adoption (Rogers, 1962).

Openness to new innovations is linked to an individual's habits and the amount of effort needed to change their ideas, and in education, teaching practices (Gennrich and Janks, 2013).

1.11. Reluctance to change

There are various reasons why people are reluctant to change their old ways. According to Kanter (2012) resistance to change is a result of peoples' need to maintain control. Automatic habits and routine are favoured by the people and change causes feelings of lost control. This is in concurrence with Pierre Bourdieu's theory of 'habitus'. According to Navarro (2006), Bourdieu recognises the concept of 'power' as being culturally and symbolically created. The main reason is due to 'habitus' or socialised norms or tendencies guiding human behaviour and thinking. Habitus is described as "the way society becomes deposited in persons in the form of lasting dispositions, or trained capacities to think, feel and act in determinant ways, which then guide them (Navarro, 2006)". Habitus are socially created patterns that are endured and transferred from one context to another. However, these patterns can shift with specific contexts and over time (Navarro, 2006). Shifts in habitus are unconsciously reproduced and occur "without any deliberate pursuit of coherence" (Navarro, 2006). The idea of change is resisted when people feel as if the change will question their current skill and feelings of incompetence creep in. Participants will also resist change when it requires more effort and work. In order to attempt to successfully implement innovation in the school environment, all participants need support. The success rate of the change is dependent on the incorporation of the change within the organisation and the process used to implement change and innovation (Barber and Moushed, 2007). Another important factor to consider when implementing change is the management of the change process. The management of the change process is critical and will determine the success or failure thereof (Fullan, 2007).

2. CONCLUSION

It is evident that today's teachers face various challenges in order to stay relevant in this ever changing education climate. The 21st century learner now challenges teachers since they have been categorised as a new generation and teachers have not been well-equipped or

trained to manage this new generation of learners. Generation Z's technological skills have become an ever-growing challenge for teachers since these skills must now be accommodated within the learning environment. A possible solution may be for educators to create a learning environment that is technology-infused with acknowledgement of different Modes of Learning. This will require large changes which will be another challenge for teachers to overcome as many people, by nature, tend to be reluctant to change. One of the biggest changes would be the use of blended learning in the classroom environment.

It is clear from the literature reviewed, that 21st century learners need to be equipped with three core skills in order to be successful in their education. As a result, teachers need to adapt and become innovative in their approach to teaching. Teachers can make use of ICT-based blended learning as a pedagogy in order to assist learners in their acquisition of these skills. This approach is valuable as it is evident that ICT can have a positive impact on teaching, learning and assessment. However, teachers have, and will continue, to experience various challenges in order to create a learning environment that will accommodate 21st century learners and learning. ICT tools and methods need to be blended into and across the curriculum and within schools. The successful implementation of ICT tools and methods, into blended classrooms and across the curriculum, will be heavily dependent on the effective management strategies and implementation plan used when changes are made.

CHAPTER THREE

METHODOLOGY

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1. INTRODUCTION

The literature in the previous chapter explored teachers' need to implement 21st century teaching methods in order to accommodate 21st century learning. This suggests that 21st century learning methods would benefit these learners and one of the teaching methods that can be implemented in order to accommodate 21st century learning is ICT-based blended learning. This chapter focusses on the methodological aspects of the research process that underpinned my study in order to explore ICT-based blended learning, namely a qualitative research design.

The rationale for my choice of a qualitative research design is offered to the reader as well as the process I followed in obtaining the sample for the five Intermediate Phase (IP) teachers that constituted the participants of my study. In addition, the chapter explains the data collection process and strategies that I employed to generate qualitative data. Issues regarding validity and reliability are also discussed.

2. PARADIGM

The term paradigm has been understood differently by various researchers. "A paradigm is thus a comprehensive belief system, world view, or framework that guides research and practice in a field" (Willis, 2007, p.8). According to Taylor and Medina (2013) the participants view of reality and their internal or external knowledge framework encompasses a paradigm. A paradigm is an overview of the type of knowledge generated from participants, the justifying reasons behind it and approaches used in generating the knowledge.

Furthermore, educational research can be categorised into various paradigms based on the policies and practices of education. Thus, theories of teaching and learning, curriculum and assessment and professional development should be considered in the selection of a paradigm (Taylor & Medina, 2013).

2.1.INTERPRETIVE PARADIGM

According to Taylor and Medina (2013) the interpretive paradigm is humanistic and arrived in educational research during the late 1970s. The aim of this paradigm is to understand other cultures by learning to 'look through their eyes'. Researchers in this paradigm focus on the perceptions and experiences of participants based on their view of the world (Creswell, 2003, Yanow & Schwartz-Shea, 2011). The participants' experiences will be used to construct and interpret the data gathered and provide the investigator with the required understanding (Thanh & Thanh, 2015). According to Willis (2007), the interpretive paradigm is socially constructed through understanding a particular context as it is presented by the participants.

Interpretive knowledge is developed throughout an interactive process whereby the researcher is fully immersed in the culture they are studying. Informal interviewing, participant observation and the establishment of ethnically sound relationships provides researchers with an authentic investigation into the phenomena of the specific study (Taylor & Medina, 2013).

The interpretive paradigm is advantageous to this study as it will provide rich local understanding of various spheres of teachers' experiences within the classroom, school and community (Taylor & Medina, 2013). A researchers' own subjectivity should be considered an important factor during the interpretation process, therefore (Taylor & Medina, 2013) are of the opinion that researchers should constantly ask: "What is the influence of my own values and beliefs in interpreting the thoughts and feelings of the other?". In order to explore understandings of participants, an interpretive methodology provides a context that allows me to examine what the participants in my study have to say about their experiences.

According to Thanh and Thanh (2015) interpretive researchers gain insights from participants', from a particular group or culture, based on their experiences as "different people and different groups have different perceptions of the world" (Willis, 2007, p.194). A comprehensive understanding of the phenomena will be reached through the use of the interpretivist paradigm (Morehouse, 2011). Thus significantly facilitating an insightful generation of information from participants over and above that pf which statistics could provide.

Teachers develop an enhanced understanding of their students' reality through reflective practice and asking questions such as: Who are these students who sit before me? Who is the self that teaches? (Palmer, 1998). This type of enquiry is evident in my study since my participants are asked to recognise the 21st century learner who they are currently teaching and they are required to reflect on their current teaching methods. According to Taylor and

Medina (2013) in order for a teacher to adopt a more student-centred pedagogy, such as constructivism, an interpretive orientation is essential.

The interpretivist paradigm uses qualitative data collection methods such as case studies (Willis, 2007). As explained by Willis, the qualitative data collection approach of case studies provides wealthy reports that are necessary for interpretivists to fully understand a context. This is valuable to my study as case study will be my primary data collection method.

3. CASE STUDY

Case studies are a popular research approach within education (Rule & John, 2011). Researchers often choose case study as a research approach because examining a particular case is manageable and achievable (Rule & John, 2011). Case studies can provide rich insights into particular situations, classrooms and even persons. An intensive holistic description and analysis of a particular context can be achieved through the use of a case study and will provide awareness into the real-life circumstances of the participants (Ponelis, 2015; Merriam, 2009; Pickard, 2013). The popularity of the case study method is based on its ability to evaluate processes, problems and programs and provide a deep understanding that ultimately will improve practice. Case studies provide researchers with a manner of obtaining rich descriptions and in-depth insight that can be transferred to similar circumstances (Davies, 2007).

The case study method is strengthened through its flexibility and adaptability, allowing researchers to use various methods of data collection, including direct observation, participant observation, interviews and focus groups (Mouton, 2001, Myers, 2009), during the investigation of their research problem (Cavaye, 1996).

Case study research focus on 'how' and 'why' questions (Myers, 2009) and is thus appropriate for descriptive and exploratory studies (Mouton, 2001). The main focus of a case study will be on the processes, individual or group behaviour and the sequence of events in which the behaviour occurs (Stake, 2005).

Interpretive qualitative case studies will facilitate the researcher in developing contextual descriptions through the use of flexible methods to uncover and gather the greatest amount of research during data collection (Ponelis, 2015).

4. RESEARCH DESIGN

Research design refers to the 'blueprint' that one might use to test a thesis statement (Hofstee, 2006) and this study's blueprint was a qualitative research design that utilised questionnaires coupled with a semi-structured focus-group interview.

Qualitative research allows the researcher to understand the knowledge and ideas that participants assign to problematic situations (Creswell, 2009). This statement suggests an interpretivist paradigm, therefore I decided to use a qualitative research design. Thanh & Thanh (2015) are of the opinion that qualitative methods allow researchers to gain information on participants' opinions and experiences. Since I am seeking the experiences of my participants I will make use of qualitative methods. Qualitative research also provides universal understandings of contextual and non-numeric data through interacting and collaborating with the participants (Mason, 2002 & Creswell, 2009).

For the purpose of this study, I made use of two questionnaires. In the first questionnaire I established participants' biographical information and their current position on the Innovation Adoption Lifecycle. The second questionnaire provided me with information with regards to participants' current ideas about 21st century learning and their preferred teaching approaches. After the two questionnaires I made use of a focus group interview to gather more information on their current opinions with regards to technology, 21st century learning and their preferred teaching approaches. After this I made use of visual representations in order to establish whether or not participants' original ideas with regards to 21st century learning changed after the intervention and what their experiences were with blended learning.

4.1. Rationale for using qualitative research

The rationale for using qualitative research was influenced by the study's research objectives that attempted investigating the personal experiences, perceptions and opinions of the primary teachers with reference to the implementation of blended learning as a 21st century teaching method. In order to determine personal experiences, perceptions and opinions of the primary teachers a qualitative approach was used. Qualitative research employs such methods as interviewing, participant observation and visual methodologies (Denzin & Lincoln, 1994); hence, the study made use of a semi-structured focus-group interview. Myself and five

participants participated in the semi-structured focus-group interview for the study. I invited five participants from one school in the Eastern Cape of South Africa to participate in the study. This practice is in line with the definition offered by Bryman (2012), who stated that this technique of interviewing involves more than one, but usually at least four participants.

Bryman (2012) further suggests that semi-structured focus-group interviews typically emphasize a specific theme or topic that is explored in depth, as was the case in this study, with the topic in this study being the experiences from a group of primary teachers with respect to the implementation of blended learning as a teaching strategies. This study explored, in depth, how primary teachers experienced the implementation of a 21st century teaching strategy in the 21st century learning environment. Furthermore, this study hoped to determine what the participants' current perceptions of learning are and how their perceptions changed once they made use of blended learning as a 21st century teaching strategy. In order to determine the participants' current perceptions of learning the study incorporated two questionnaires with open-ended questions to gather personal experiences, perceptions and opinions from the participants with regard to learning and their current teaching methods.

4.2.Strengths of qualitative research

Atieno (2009) is of the opinion that qualitative data attempts to learn the phenomena of an entire research problem in order to be able to assess all the complications of the situation and to ensure that data can be concluded that includes exclusive and general factors. Furthermore, Atieno (2009) is of the opinion that qualitative research methods create new ways of seeing standing data and researchers should make use of qualitative methods that enables innovation and justify participants' opinions, if the researcher attempts to gain information from experiences.

According to Atieno (2009) qualitative data allow participants to provide information with regards to their opinions. Hence, qualitative research through open-ended questions will ensure that information are obtained from the participants with regards to their opinions about 21st century learning and teaching.

A semi-structured focus-group were incorporated to access additional qualitative data that might not have been identified by the questionnaires and because I wanted participants to discuss a specific topic, namely 21st century learning and teaching (Bryman, 2012).

4.3. Weaknesses of qualitative research

Harris and Brown's (2010) study confirmed that comparing questionnaires and interviews proved challenging. At times, participants can change their ideas during interviews as to what they indicated or explained in questionnaires and there exist the possibility that participants can influence one another during Focus Groups. This is a limitation in the study and a challenge for me, since I will compare the questionnaires' results with the results of the semi-structured focus group and there is a possibility that opinions and ideas which emerge from the questionnaire change during the conversations and interactions. I will attempt to address this challenge by transcribing the Focus Group and analyse questions separately, and use a follow up process if participants did change some of their ideas in order to establish their true opinions and understanding.

5. SAMPLE

The school which I chose to conduct my research at is a dual medium Primary school in a middle class suburb. The school currently has 600 learners, with 36 learners on average per class. As I am a teacher at the school, I was familiar with all the teachers that constituted my sample for the study. Based on this I had easy access to the participants. I invited five teachers who currently teach learning areas to grade seven learners. The reason for this is that the two grade seven classrooms in the school are equipped with an interactive whiteboard which allows teachers to incorporate technology in their teaching.

5.1.1. Characteristics of sample

The five participants in the study are all Intermediate Phase educators and their home language is Afrikaans. The sample consists of three males and two females. All five of the participants are qualified teachers who have a Bachelors of Education Degree. Two of the participants have more than thirty years teaching experience in the Intermediate Phase, two more than ten years and one more than five years. All of the participants have had teaching experience at other schools before they started working at the sample school. Four of the participants teach main stream grade seven classes and one participant teaches learners with special needs.

6. METHODS

This section briefly discusses the research instruments namely the two open-ended questionnaires, the semi-structured focus group and the visual representations. The workshop and intervention involved in the study will also be discussed.

6.1. Research instruments

For the purpose of this study two open-ended questionnaires, the semi-structured focus group and visual representations were used to collect qualitative data. The questionnaires, semi-structured focus group and visual representations were opportunities for the participants to share their personal experiences, perceptions and opinions with regards to the 21st century learner and 21st century learning and teaching. The workshop provided participants with information regards to blended learning as a 21st century teaching method and how to make use of blended learning within the classroom. The visual representations established whether or not the participants' personal experiences, perceptions and opinions changed with regards to 21st century learning and teaching and how they experienced teaching with a blended learning approach.

The following timeline indicates the progress of the study:

Open-ended Questionnaires
- To determine the participants' present technology acceptance and perceptions on 21st century learning and teaching.

Focus Group Interview
- To determine participants' views on the challenges that teachers face to teach 21st century skills.
- To determine participants' views on 21st century teaching.

Workshop
- Developing technology-infused learning environments that incorporate blended learning.

Intervention
- Participants are exposed to developing a technology-infused blended learning environment.
- Participants had to development and teach a series of lessons using blended learning in a technology infused learning environment.

Visual representations
- To establish the impact on participants initial perceptions on 21st century teaching and learning.
- To establish the participants' views on the challenges that teachers face to teach 21st century skills.
- To establish new insights on dealing with challenges.
- To establish how they experienced using blending as a teaching method.

The data collected was analysed through organising the data and identifying main themes.

6.1.1. Questionnaires

Questionnaires can form an integral part of descriptive and opinion-related surveys (Eiselen, Uys, & Potgieter, 2005). When using questionnaires responses are gathered in a standardised manner, therefore it is more objective (Burns & Bush, 2010). This data collection

method provided me with insightful data which relates to the perspectives of the teachers with regards to how they think how the 21st century learner learn and the challenges which they face as teachers. This method provided me with insights with regards to what extent blended learning can address 21st century needs and what teachers regard as the factors which promote and limit the successful incorporation of technology in teaching and learning. I will also obtain information on what change management processes teachers think are effective in introducing successful technology based teaching and learning.

This study required opinion-type data; therefore I used two questionnaires to collect opinion data. In addition to the view expressed by Eiselen et al. (2005) and Hofstee (2011) indicated that questionnaires are used because they can elicit information directly from participants who are presumed to have the required information. In the study I am attempting to understand perceptions and I hoped that the data collection instruments will enable me with insights with regards to these understandings and perceptions.

Advantages of open-ended questions

Open-ended questions offer numerous advantages to a researcher who wants to collect qualitative data in a research project, and as stated by Bryman (2012), open-ended questions allow participants to answer on their own terms, because they are not forced to choose responses from a fixed selection. In addition, Bryman argues that open-ended questions allow for unusual responses to be accessed. Furthermore, Bryman was of the view that open-ended questions do not suggest certain kinds of answer to participants and, as such, they might be useful for exploring new areas such as blended learning as a 21st century teaching method in this study and lastly these question-types are useful for generating fixed-choice format questions at a later stage. The use of open-ended questions in this study was useful, because it allowed me to collect qualitative data with all the above mentioned advantages.

Limitations of open-ended questions

Although, open-ended questions have numerous advantages, Hofstee (2011, p. 133) indicated "open-ended questions can be difficult to interpret/analyse." Another possible limitation of open-ended questions experienced during a qualitative study is that open-ended questions require greater effort from participants (Bryman, 2012). Furthermore, Eiselen et al.

(2005) pointed out that open-ended questions are very time-consuming, for the researcher, because these questions can only be coded after all the questionnaires have been administered. In addition, Eiselen et al. postulated that participants who have difficulty expressing their thoughts and ideas, due to language difficulties, often avoid answering open-ended questions. I experienced this phenomenon during the administering of the questionnaires, because all the participants were Afrikaans-speaking, and considering that all the questionnaires were in English – this might have mitigated against obtaining the richest responses.

Advantages of questionnaires

Research-methods literature suggests that questionnaires have many strengths and weaknesses (Bryman, 2012; Eiselen et al., 2005; Harris and Brown, 2010; Hofstee, 2006). For example, Eiselen et al. (2005) indicated that questionnaires are a convenient tool that a researcher can use, since the participants can complete the questionnaires at a time and place that is convenient for them, in other words, asynchronously. In addition to this view, Hofstee (2011, p. 133) points out that questionnaires "offer confidentiality to respondents" only if they are anonymous, while Eiselen et al. (2005) stated that questionnaires reduce the possibility of interviewer bias. Over and above to the strengths mentioned above, Bryman (2012) postulated that questionnaires are quicker to administer than individual interviews or even small numbers of semi-structured focus groups, because it can be sent out through the post (e-mail), or otherwise distributed in very large quantities at the same time, however, for the purpose of this study I hand delivered and administered the questionnaires to the participants.

Limitations of questionnaires

From the above it can be seen that questionnaires have a range of advantages, but on the other hand they also may have a number of disadvantages. Bryman (2012) points out that sometimes questionnaires contain items that are not relevant to specific individual participants or they simply do not know the answers. While the richness of data that may be elicited using open-response items is acknowledged, another weakness of questionnaires is that a researcher cannot collect any additional information on the spur of the moment using a questionnaire (Bryman, 2012), that is why this study made use of a semi-structured focus-group interview to collect additional data. In addition, Eiselen et al. (2005) pointed out that when the questionnaire is too long or complicated to complete, the response rate of participants tends to

be lower and may even result in questionnaires not being fully answered (Bryman, 2012). This was not evident in the study, because all the questionnaires were shorter than five pages.

6.1.2. Semi-structured Focus Group

For Bryman (2012), a semi-structured focus-group refers to an interview where the interviewer has a series of questions (referred to as an interview schedule or protocol) that she uses to generate discussion. The questions that were used in the semi-structured focus-group were open-ended, because I wanted to access additional qualitative data. Bryman (2012) indicated that the interviewer is able to vary the sequence of the questions in the schedule, and that the nature of these questions is more general. In addition, the semi-structured focus-group interview often allows the interviewer some latitude to ask follow-up questions in response to what are seen as significant replies or responses. The specific semi-structured focus-group interview that were used in the study involved five participants, excluding the researcher. The semi-structured focus-group interview was used to emphasize a specific theme or topic, such as 21st century teaching and learning, to explore the topic in depth. Based on Bryman's suggestion, semi-structured focus-groups were employed, because I was interested in how the participants would respond to each other's views on 21st century teaching and learning, and thus built up a view out of the interaction that took place within the groups.

Advantages of semi-structured focus groups

In addition to the questionnaires used in this study, semi-structured interviews such as focus groups are useful to the researcher, because they allow the researcher to develop an understanding of why people might feel the way they do (Bryman, 2012). While the previous point is a crucial strength of semi-structured focus groups other strengths that have been noted are that semi-structured focus groups allow participants to bring to the fore issues in relation to topics that they deem important and significant (Bryman, 2012). Bryman was of the view that these arguments afforded the researcher an opportunity to end up with more realistic accounts of what people think, since these arguments provided the participants the opportunity to review and change their opinions. In addition, semi-structured "focus groups offers the researcher an opportunity to study the ways in which individuals collectively make sense of phenomenon and construct meaning around it" (Bryman, 2012, p. 504).

Limitations of semi-structured focus groups

While it is acknowledged that there are a number of advantages surrounding semi-structured focus-groups there are also a number of important limitations. For example, Bryman (2012) suggested that the researcher probably has less control over the proceedings than his/her counterpart in an individual interview. He argued that the appropriate level of control that must be surrendered to the participants of a focus group is not clear – it depends on the context – and this is what makes this difficult. Although the previous point is a crucial limitation of focus groups, other limitations that have been noted are that data from semi-structured focus groups have been found to be notoriously difficult to analyse, mainly because huge amounts of data can be generated very quickly (Bryman, 2012). Bryman mentioned that it is sometimes difficult to develop a strategy to analyse themes from what people say and the patterns of interaction emerging from the interview. In addition, he indicated that semi-structured focus-group recordings are difficult to transcribe and, as such they tend to be time consuming. The reason for this is the occurrence of inaudible elements and the practice whereby the researcher needs to specifically identify the speaker. Another problem that a researcher might face when conducting semi-structured focus groups is where two or more participants sometimes speak simultaneously. Bryman postulated that it is usually very difficult, and often impossible, to transcribe the portions of the recordings where two or more participants speak at the same time. In my advantage, I know the participants, therefore it will be less challenging for me to recognise their voices in the recording. Moreover, the researcher must also guard against participants who want to dominate the discussion at the expense of speakers who struggle to articulate themselves in the discussion. Lastly, a researcher who wants to make use of semi-structured focus groups to collect qualitative data must take into consideration the group dynamics of the semi-structured focus group, because participants may be prone to express culturally expected views, because they want to impress the other participants in the group (Bryman, 2012).

6.1.3. Workshop

Following the first two questionnaires and semi-structured focus group participants took part in a workshop. The workshop was presented by the researcher and took place at the sample school's computer laboratory. The aim of the workshop was to enable teachers with

the knowledge of how to make use of blended learning as a teaching approach within the 21st century learning environment. The researcher wanted to achieve five outcomes in the blended learning workshop.

The first outcome was to enable participants to define blended learning as teaching approach. The definition of blended learning according to various researchers was explained to participants. The definition of blended learning was presented to the participants by making use of a PowerPoint presentation and participants also watched a Youtube video on blended learning. The second outcome was for participants to be able to identify different blended learning approaches which could be used during teaching. The different approaches were shared with participants and participants watched a Youtube video about one of the blended learning approaches, namely flipped classrooms. Outcome three and four was to make participants aware of the advantages and disadvantages of blended teaching methods, hence participants were expected to follow two links on their computers and read about the advantages and disadvantages of blended teaching methods. Thereafter, the researcher and participants discussed what they had read. The final outcome and foremost outcome was for the participants to design a series of lessons using blended learning as a teaching approach. In order to equip participants with this ability they watched a YouTube video of a teacher presenting a lesson making use of blended learning as a teaching method. Participants also watched a video on blended learning that works and how learners show excitement through their experiences with blended learning.

Advantages of Workshop

For Troyanskaya (2014) a workshop requires participants to put the skills that they gained during the workshop into practice. This is the aim for the researcher since participants will be expected to design a series of lessons where they must make use of blended learning as a teaching approach. Furthermore, Troyanskaya (2014) is of the opinion that workshops provide participants with ideas and knowledge and encourage them to develop new ideas and interest. Workshops are developed to assist a small group of participants which allow the facilitator to provide individual attention to the members present. This adheres to the workshop in this study since only five participants took part in the workshop.

Limitations of Workshop

Organising a workshop takes careful planning and effort. In order to ensure a successful workshop, the facilitator must plan thoroughly. If the facilitator do not prepare thoroughly or have enough funding, challenges can emerge (Troyanskaya, 2014). It is important to prepare a budget before utilising a workshop, should it require funding. This was not a limitation during the planning of the workshop, since the researcher presented the workshop herself and the resources such as computers required for the workshop was at the researcher's disposal within the sample school.

According to Troyanskaya (2014) it is important for the facilitator of workshop to plan thoroughly since many aspects can be discounted and will create challenges. One of these can be the lack of advertising that will create the problem of inadequate amount of participants. The researcher attempted to overcome this challenge through reminding participants numerous times when they must take part in the workshop.

6.1.4. Intervention

Intervention research occurs when a researcher embarks on a field study, aimed at developing an holistic understanding of the phenomena being studied, through the explanation of the social meaning and social processes of the participants' context. It involves activities designed to measure the improvements on a situation after modification that is systematic (Velengtas, Mohr & Messner, 2012). This study involves an intervention since participants was expected to change their teaching methods through incorporating blended learning.

6.1.5. Visual representations

Visualisations are descriptions of information that utilise dimensional organization in a meaningful way. When presenting visualisations, information is converted into visual structure and ideas are represented clearly. During visual representations, new ideas can be stimulated and it allows for clear understanding at a single glance (Bosveld-de Smet, 2005). Other terms used for external visualisations are visual or graphical representations or just pictures and they comprise realistic pictures, photographs, icons, maps, charts, graphs and diagrams (Bosveld-de Smet, 2005). More recently, interest has increased in using qualitative research which focuses on the visual images in order to discover participants' experiences and meaning making

(Frith, Riley, Archer & Gleeson, 2005). Visual data is a method of creating several realities which is influenced by ethnic factors and located in a particular time and space (Guillemin, 2004). This has led to an increasing acceptance that visual methods can provide valuable and valid data (Frith et al., 2005).

One advantage of visual methods is that participants who are not able to express themselves verbally have an opportunity to still communicate their ideas. Similarly, not all experience is best expressed through words and some people have a preference for visual expression (Guillemin, 2004). The process of creating a visual image allows participants time to think critically and this may ensure rich and insightful data (Guillemin, 2004).

Bosveld-de Smet (2005) believes that people observe information more effectively if it is represented in a visual manner, rather than textual. Even long ago, people represented information visually in the form of cave paintings. Bosveld-de Smet (2005) is of the opinion that visualizations are very important in order to understand the 21st century. Hence, I decided to make use of visual representations as a data collecting process in my study. Participants were expected to draw a picture of the experiences that they had when using blended learning as a teaching method.

Visual methods can be used alone or in combination with verbal data. For example, Bagnoli (2009) describes the use of multi-method biographies to holistically explore young people's identities. Methods included verbal interviews, written diaries and visual methods and the aim of these methods is to enhance data collection processes such as interviews (Bagnoli, 2009). Hence, participants were also expected to collaborate on their drawings through verbal explanations and these verbal explanations were recorded.

7. ANALYSIS

1st Questionnaire

The first questionnaire consisted of two sections. Section A gained information with regards to participants' biographical information. Section B gained information with regards to participants' current position on the Innovation Adoption Lifecycle.

2nd Questionnaire

The second questionnaire consisted of two sections. Section A gained information with regards to participants' acceptance of technology and current use of technology. Section B was open-ended questions and gained information with regards to participants' technology use in

their classroom and their perceptions of the 21ˢᵗ century learner. Section 'A' was coded and categorised using the possible responses that appeared next to the Likert-type items, while Section 'B' generated qualitative data and incorporated open-ended items that accessed data on the situation in IP teachers' classrooms.

Focus Group

The focus group provided information with regards to the participants' perceptions of their current teaching and learning approaches.

Visual representations

Participants were expected to draw a picture of the experiences that they experienced when using blended learning as a teaching approach. They were expected to explain their drawings and these explanations were recorded. The visual representations established whether or not the participants' personal experiences, perceptions and opinions changed with regards to 21ˢᵗ century learning and teaching and how participants experienced using blended learning as a teaching approach.

After transcribing the recordings of the focus group interview, the transcripts and questionnaires were analysed making use of thematic analysis. A more detailed narrative of my analysis of the questionnaires follows in the following chapter.

8. METHODOLOGICAL LIMITATIONS

This section focusses on the limitations that were experienced in this study. The study involved a qualitative approach that allowed me to collect open-ended data, but just as predicted by Creswell & Plano Clark (2007) and Harris & Brown (2010) it was a very time consuming and resource intensive exercise. The three questionnaires and semi-structured focus-group interview, while returning rich data, required a great deal of effort to complete and analyse.

All participants were Afrikaans speaking teachers, while the questionnaires were in English. This might limit the participants from completing the open-ended questions.

Change is a learning process for teachers and for their schools (Sahlberg, 2005) and it does not happen overnight. Some of the IP teachers might have been anxious and uncertain to

implement blended learning. This anxiety and uncertainty of the participants might have mitigated against obtaining the richest responses.

9. VALIDITY

The purpose of validity is to check on the quality of the data and results of the research (Creswell & Plano Clark, 2007). According to Van Rensburg, Landman and Bodenstein (1994, p. 560) validity can be defined as "the extent to which a measuring instrument [such as a questionnaire] satisfied the purpose for which it was constructed". In order to ensure the validity of the questionnaires the researcher worked in conjunction with her supervisor to select suitable and appropriate items for inclusion in the questionnaires. The questions for the interview protocol were selected so as to access additional data that the researcher was unable to collect using the first two questionnaires. The data that the research instruments delivered, appeared to be useful in responding to the research question, and as such might be construed as being valid instruments for use in this study.

10. RELIABILITY

Bryman (2012, p. 169) define reliability as "the consistency of a measure of a concept." He indicated that researchers who make use of questionnaires as empirical research instruments, for example, use the 'test-retest' method to test the consistency of a measure. The 'test-retest' method involves administering a questionnaire on one occasion to a sample and then re-administering the same questionnaire to the same sample at a later stage, however, Bryman (2012) suggests that this method is not without problems when it comes to evaluating reliability. He suggests that the responses of the respondents when the questionnaires are administered for the first time may influence how they reply when the questionnaires are administered for the second time. Furthermore, Bryman suggests that events may intervene between the administering of the questionnaires for the first time and second time that may influence the degree of consistency. Based on these limitations offered by Bryman, I opted not to make use of the 'test-retest' method to determine the reliability of the instruments. Therefore, a third questionnaire was constructed in order to establish whether or not participants' original perceptions changed. Administering the questionnaires was not without problems, because the five teachers in the sample were Afrikaans-speaking citizens while the

questionnaires were in English. In concurrence with Eiselen et al. (2005) some of the participants were reluctant to answer the open-ended items in questionnaires, because they had difficulty in expressing their thoughts and ideas, due to the language difficulties that were experienced. In order to address the afore-mentioned problem I translated all the questions in the questionnaires to the participants.

11. ETHICAL CONSIDERATIONS

In order to adhere to the conditions of my ethics clearance I applied to the Eastern Cape Department of Education to seek approval before I proceeded with my main study at the school. As soon as I was granted permission by the DoE I preceded with my study. Even though, I was granted permission by the DoE, I still obtained the permission of the principal before I started data collection. Furthermore, in order to guarantee the anonymity of the IP teachers that participated in this study I made use of pseudonyms for the IP teachers who participated in the study. I explained to the participants that they were not compelled to participate in the research and that they could withdraw at any moment. During the semi-structured focus-group interview the anonymity of the participants was compromised, however, I informed the participants that I would make use of pseudonyms when transcribing the interviews. Ethics permissions was requested and obtained from the NMU ethics committee (See Appendix A).

12. SUMMARY

Chapter 3 gave a detailed discussion of the qualitative research design as well as the methodology that was used to access data in this study. Particular attention was given to a discussion on the research instruments that included the two questionnaires, the semi-structured focus group interview and the visual representations. The data accessed from the completed questionnaires and transcribed interview will be analysed and presented in Chapter 4.

CHAPTER FOUR

RESULTS AND FINDINGS

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1. INTRODUCTION

This chapter presents the data obtained in the study. Concurrent with the data presentation is an analysis of the data that were collected using four instruments, namely: the two questionnaires, the semi-structured focus-group interview and visual representation. As stated in Chapter 3, qualitative data were collected using the open-ended items in the four instruments, and it is these data sets, which are considered as complementary, that are analysed concurrently. I made use of pseudonyms in this chapter in an attempt to keep the participants' identities confidential. The chapter involves the presentation and analysis of the data for the study that were collected using the questionnaires, the semi-structured focus-group interview and the visual representations. Finally, initial conclusions will be drawn from this analysis in order to assist me to understand teachers' thinking about blended learning and make recommendations for further research on implementing blended learning at school. The final conclusion drawn from this study will be discussed in Chapter 5. It is anticipated that the conclusions will be able to answer, or at least, positively respond to answering the research questions.

2. RESEARCH FINDINGS

In this section I present the demographical information provided in the initial questionnaire which was an attempt to get a sense of the teaching experience of my participants. I will also present the participants' position on the Innovation Adoption Lifecycle.

2.1. 1st Questionnaire

In this section I will discuss the information which I gathered from the participants in the initial questionnaire.

2.1.1. Demographics

This study was conducted in the Eastern Cape Province of South Africa and involved five participants from one school. The school is situated in a middle class suburb and is identified as a dual medium school.

The participants consisted of three males and two females, who are all bilingual in Afrikaans and English, with Afrikaans as their first language. We communicate through Afrikaans since I am also Afrikaans, but for the purpose of my study the participants communicated in English.

The first participant (Sam) is a female, younger than 30 years. She has a four year integrated Bachelor of Education degree, 6 -10 years' experience in teaching and she currently teaches grade 4's to 7's English First Additional Language and Economic Management Sciences.

The second participant (Claire) is also a female. She is older than 30 years, has a four year integrated Bachelor of Education degree and also has a further diploma in special needs education. Claire has 16 and more years' of experience in teaching and currently teaches grade 1 to 7 special needs learners. She has 33 learners in her classroom and teaches all subjects. Her classroom is not equipped with an interactive whiteboard, but the computer laboratory is available for her and this laboratory is equipped with an interactive whiteboard.

The third participant is a male (John), younger than 30 years with a four-year integrated Bachelor of Education degree. John has 1-5 years' experience in teaching and currently teaches Natural Sciences to grades 4-7.

The fourth participant is also a male (Dean), older than 30 years with a four-year integrated Bachelor of Education degree. He has 6-10 years' experience in teaching and he currently teaches Mathematics and English Home Language to grade 6 and 7 learners.

The final participant is a male (Kyle) who is older than 30 years and who has a Higher Diploma in Education. Kyle has more than 16 years' experience in teaching and he currently teaches Social Sciences to grade 6 and 7 learners.

These participants are five of the seven teachers who teach grade seven learners in the sample school.

2.1.2. Innovation Adoption Lifecycle Position

As mentioned in Chapter 2, Rogers (1962) identified some personality traits that assists the researcher to understand how people will accept a new innovation which indicates categories of acceptance. In this section I present information obtained from the initial questionnaire with regards to the participants' position on the Innovation Adoption Lifecycle, which may also indicate their attitudes towards the blended learning as a teaching innovation.

Sam

When a new product is introduced, Sam is most likely to collect more information about the product before she makes a decision. Sam indicated that when new products are launched she is most likely to gain information on the product through relying less on group norms and more on herself and experts. With regards to a new technological innovation she is most likely to only use the innovation once it has a track record. When Sam needs to adapt to new things she is most likely to only adapt it once she believes it is effective. She is therefore probably part of the early majority.

Claire

Like Sam, Claire also indicated that when a new product is introduced she is also most likely to collect more information about the product before she makes a decision. Claire indicated that when new products are launched she is most likely to gain information on the product through word-of-mouth. With regards to a new technological innovation she is most likely to only use the innovation once it has a track record. When Claire needs to adapt to new things she is most likely to only adapt once she knows it is effective. She is therefore probably part of the early majority.

John

When a new product is introduced John is most likely to collect more information about the product before he makes a decision. John indicated that when new products are launched he is most likely to rely less on group norms and more on himself and experts. With regards to a new technological innovation he is most likely to only use the innovation once it has a track record. When John needs to adapt to new things he is most likely to only adapt once he knows it is effective. He is therefore probably part of the early majority.

Dean

When a new product is introduced Dean is most likely to be eager to try the new product. Dean indicated that when new products are launched he is most likely to rely less on group norms and more on himself and experts. With regards to a new technological innovation he is most likely to be committed to new technology since he believes it is bound to improve our lives. When Dean needs to adopt to new things he is most likely to be the first to have information and people are most likely to ask him for more information. He is therefore probably an innovator.

Kyle

When a new product is introduced Kyle is most likely to collect more information about the product before he makes a decision. Kyle indicated that when new products are launched he is most likely to rely less on group norms and more on himself and experts. With regards to a new technological innovation he is most likely to only use the innovation once it has a track record. When Kyle needs to adopt to new things he is most likely to be the first to have information and people are most likely to ask him for more information. He is therefore probably part of the early majority.

Indicated in Figure 4 is the participants' position on the innovation Adoption Lifecycle. Four of the participants are part of the early majority category which according to Rogers (1962) indicates that they collect more information about a product, will weigh the pros and cons before they make a decision and will rely on their groups' opinions instead of forming them for themselves. Only one of the participants is an innovator which indicates that according to Rogers (1962) he is eager to try new ideas and products. He is most likely to rely less on group norms and are more self-confident.

Figure 3: Position on Innovation Adoption Lifecycle

Position on Innovation Adoption Lifecycle
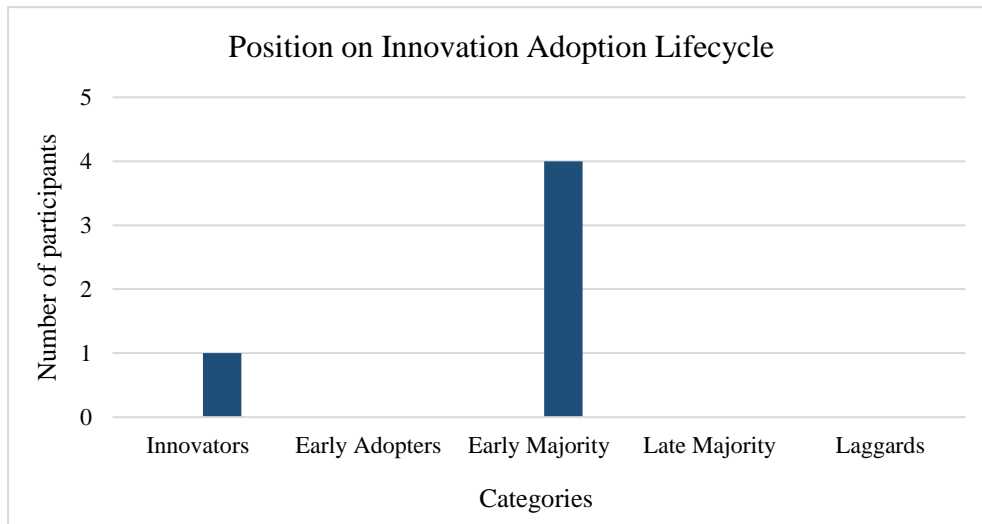
According to these findings only one of the participants will be eager to attempt the blended learning innovation initially.

2.2. 2nd Questionnaire and Focus Group

In this section I discuss the information that emerged from the 2nd questionnaire and the focus group. Information gathered from Section A in the questionnaire is discussed separately. Information gathered from Section B in the questionnaire and the focus group is discussed conjointly since the same questions were used in an attempt to allow for more discussion and the development of more explanatory information among the participants. I hoped that the interaction between the participants would provide more insightful ideas and opinions. Lastly, I discuss the ideas which emerged from the Focus Group which were not asked in the questionnaire.

2.2.1. Personal experiences with technology

In this section I am discussing whether or not participants had any experience with technology during their education career. This information was gathered from the initial questionnaire. According to Timothy (2009) it will influence teachers' implementation of technology if they have had experience with technology and if they made use of computers when they were in school.

Primary and High school

Claire and Kyle didn't make use of technology when they were in Primary and High school since they did not have personal computers in those days. Sam, John and Dean used

technology in Primary and High school and they had a subject that incorporated computers. Although all three of them enjoyed using technology, Sam reported that she found it challenging.

Tertiary institutions

Sam, John, Dean and Kyle indicated that one of their favourite modules at university incorporated technology. Sam, John and Dean did not learn the basics of technology at university since they already gained the basic skills in Primary and High school. Kyle, on the other hand, was taught how to use a computer at university where he received basic technological training. All four of them indicated that although they were trained how to use a computer they felt that their tertiary technology training did not equip them to teach through the medium of technology. Claire did not receive any technology training or exposure in tertiary education. She did not learn basic technological skills therefore, she is not confident to make use of technology as a teaching tool.

In-service technological training

All the participants reported that they had not received adequate training and support on how to implement technology at their current teaching institution. They indicated that the school never sent them on courses to improve their technological skills.

As mentioned in Chapter 2, Scott (2015) suggests that in order to have highly competent and committed teachers using active pedagogies, nations must ensure that there is an adequate supply of well-trained and motivated teachers and school leadership, improve teachers' training and offer sufficient professional development opportunities. It is evident from the above findings that the teachers at the sample school were not provided with these opportunities.

2.2.2. Primary school learners' attitude towards technology

All the participants indicated that in their school 21st century learners come to school with prior knowledge of technology and these learners do not find technology difficult.

Three of the participants indicated that primary learners have the ability to use technology, whereas two of the participants felt that not all primary learners have the ability to make use of technology.

The participants indicated that primary learners enjoy using technology and that learners are more willing to participate in lessons when technology is incorporated.

2.2.3. Participants' opinions of the importance of technology implementation

Four of the participants indicated that 21st century learners are accommodated within the learning environment when technology is being implemented. All of the participants indicated that teaching with technology creates excitement and willingness to learn in learners. They indicated that when technology is incorporated in teaching, learners are being prepared for the 21st century world. The participants strongly agreed that learners in the Intermediate Phase should develop technological skills. Four of the participants indicated that 21st century learners are not accommodated sufficiently in IP and therefore this must become a higher priority. Dean expressed the following opinion which emerged in the focus group discussions:

"When I am going to mention something important I have to tell my kids make a note about this. I had a girl that was in Collegiate and she said as soon as their teacher said something important they had permission to take out their cell phones and video record him and when it's time for exams, they can go back watching how it was taught and they can relate to it and experience it again as to having to read a note they made 11 months ago. This can enhance learning tremendously. How cool would it be if learners can go and watch a lesson their teacher presented on fractions at the end of the year to prepare for their final exams. Giving learners tools that they can go back to will enhance the learning process. Definitely, for incorporating technology."

Dean's opinion indicates his excitement towards a blended approach, where it involves teaching and learning within a formal education program where students learn at least, in part, through online delivery of content and instruction. Students have some level of control over time, place, path, and/or pace of instruction and part or all of instruction is delivered away from home in a supervised location (Staker & Horn, 2012).

2.2.4. Challenges experienced by participants when implementing technology

Sam

Sam reported that the limited time which teachers have during lessons is a big challenge when implementing technology. Teachers do class rotation every 40 minutes and the set up and packing up of the technology takes too much critical teaching time. She found it very

difficult to implement technology because not all the classes are equipped with technological resources. Hence, she can implement technology in her Grade 7 classes, but not for her Grade 4's, 5's and 6's. This makes her hesitant to incorporate technology since she feels that she would like to do the same for all her classes and not advantage only her Grade 7's. She also reported that the school is not funding equipment, teachers have to buy their own laptops and not everyone has a personal laptop. Sam shares a laptop with her husband, so she only has her laptop to connect to the interactive whiteboards when her husband doesn't use the laptop for work.

Claire

Claire finds the speed at which changes took place over the past thirty years very challenging. She finds it very challenging to keep up with all the changes with regards to technology. She agrees with Sam that the school makes the incorporation of technology challenging since they do not provide teachers with the necessary tools in order to use technology fully. The school incorporated interactive whiteboards in the Grade 7 classes, but she doesn't have a laptop that she can connect to the interactive whiteboard in order to make use of the interactive whiteboard in her teaching.

John

John reported that he finds it challenging to implement technology within his teaching since some learners have no technological background and they have no base to work from.

Dean

Dean reported that he finds it difficult to find suitable software to enhance the learning experience, since he has to rely on basic software such as Microsoft PowerPoint.

Kyle

Kyle agreed with Sam and Claire that funding to implement technology is a problem, hence it make the process of using technology within one's teaching challenging. He experiences the implementation of technology very challenging since he has a fear of change. Kyle identifies that another challenge is the fact that he and his colleagues have not received sufficient training in order to use and implement technology within their teaching.

2.2.5. Attitudes and feelings towards using technology during teaching

Sam

Sam reported that although it is not always practical to make use of technology in her class situation, she is positive about it and willing to implement it during lessons. She feels that she is adequately equipped with the necessary skills in order to incorporate technology in to her teaching, since she had computer classes during primary and high school and she received basic Microsoft training at university.

Claire

Claire reported that at first she was not confident to make use of technology in her teaching and she is still unsure on how to use some of the technology. She felt that she is not adequately equipped with the necessary skills in order to incorporate technology in to her teaching, for example using Microsoft PowerPoint. Claire stated the following:

"I am definitely not comfortable using it and even if we go on courses you are too embarrassed to ask because even if you ask the younger person they look at you like really did you grow up with Noah and you become embarrassed and if you do ask they show you to do this this this and this and you lost the person at step number 1. We didn't grow up with it so we are not comfortable using it."

Claire's statement strongly indicates her aversion to technology and therefore she does not incorporate it into her teaching. Her statement is in coherence with the findings of Timothy (2009) who probes that teachers' social, demographic and personal characteristics influence their technology acceptance within educational settings. Claire's statement also indicates studies done by Bayhan, Olgun and Yelland (2002) who found that 82% of teachers do not use computers by any means in classrooms because of their low level of confidence and lack of professional development. It was evident from the discussions in the Focus Group and body language that Claire had a negative attitude towards using technology. She believe that Special Needs learners need to see the textbook and have one on one teaching with her.

John

John reported that he is excited to use technology in his teaching. He felt that he is adequately equipped with the necessary skills in order to incorporate technology in to his teaching, since he had technology training at school and university.

Dean

Dean stated that he has a very favourable attitude towards using technology. He reported that although he incorporates technology into his teaching he still does not feel that he is adequately equipped with the necessary skills in order to incorporate technology into his teaching environment since he makes use of skills he has developed through trial and error. Although he was taught how to make use of Microsoft programs, he was never taught how to make use of technology as a teaching tool. He reported that he would enjoy formal training in order to develop his skills. Dean stated the following:

"We also don't get taught how to use it, its trial and error. We just use the opportunities we have. It's kind of a choice, you are going to be comfortable if you are open enough to make mistake."

Dean made the above comment after Claire stated that they were not taught how to use technology. I observed a sense of frustration in Dean and it was clear that he wanted to encourage Claire to have a different attitude towards technology.

Kyle

Kyle reported that he is very positive towards technology in teaching as he believes it enhances the visual aspect. He also believes that it helps to overcome any language barriers experienced from time to time. Kyle feels that he is not adequately equipped with the necessary skills in order to incorporate technology in to his teaching, since he believes that there is always room for improvement.

It was evident in the discussions that the majority of the participants have a positive attitude towards using technology as part of their teaching approach.

2.2.6. Participants use of technology in their teaching daily

Four of the five participants reported that they make use of technology in their teaching. Three of the four participants reported that although they do make use of technology in their teaching, they only do it on occasions and not daily.

The participants mentioned in the discussions that they also use technology in ways other than in their teaching for example at the end of term when learners are provided with the opportunity to watch an animated movie.

Four of the five participants reported that they use textbooks more than technology in their teaching. Only Dean makes more use of technology, rather than using the textbook. He uses technology every day in order to enhance his teaching approach. He stated that not only does he use technology as part of his teaching approach, but he also provides his learners with the opportunity to make use of technology in the learning environment. For example he provides learners with the opportunity to use a Microsoft PowerPoint presentation in order to do an oral. He reported that it was amazing to observe how the learners made use of the technology, for example the way in which they pointed to the interactive whiteboard. He stated that he could see how one of the learners would lead a meeting one day in a managerial position and he was the one who had provided her with the opportunity to develop those skills. He made the following comment.

"The child that uses technology gains so many skills that they are going to use one
day as from the child that presents an oral in the old way, without any technology."

Dean is of the opinion that if learners are provided with opportunities to use technology at school, it will equip them with skills which they will need in their careers in the future. Dean's opinion are in line with the Pacific Policy Research Center (2010) who stated that when implementing 21st century skills focus should be on how to best prepare students for a future of work that does not yet exist.
The following graph represents whether or not participants make use of technology and how often they make use of technology.

Figure 4: Technology used by participants as part of their teaching method

Technology used by participants as part of teaching method

- Use no technology
- Use technology on occasions
- Use technology daily
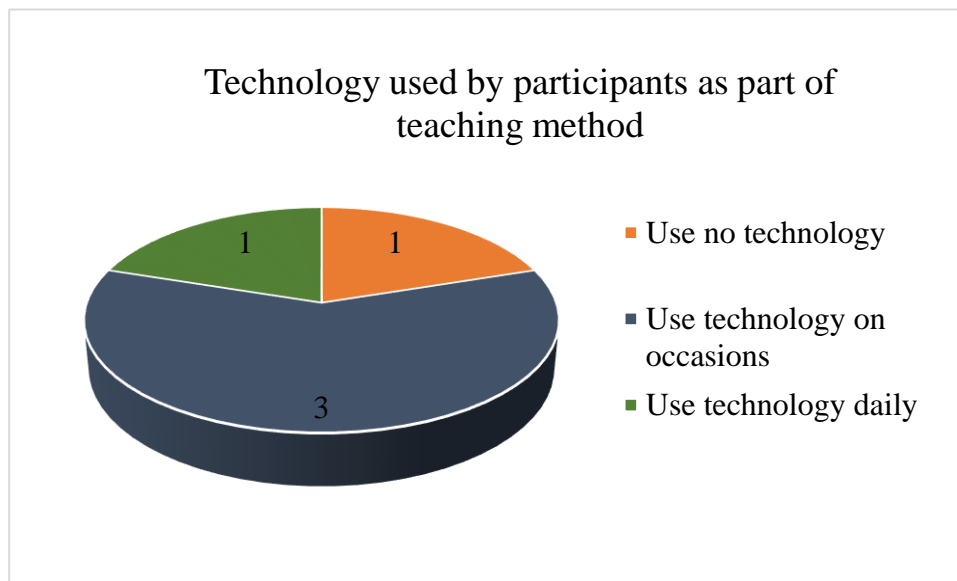
Claire does not use technology in her teaching, whereas Dean uses technology daily in his teaching. Sam. John and Kyle use technology, but only on occasions for instance when they want to show the learners a video about something. These findings are in agreement with the findings of Lim & Khine (2006) who found that teachers' use of technology is still very limited and technology is used minimally in teaching and learning processes.

2.2.7.   Teaching methods and the reasoning for using preferred methods

Sam

Sam makes use of textbooks and class discussions. Occasionally, she will make use of the interactive whiteboard that is at her disposal. She makes use of group work and pair work in order to ensure learner involvement. In her approach she always attempts to include learners as far as possible. She reported that she is a textbook based teacher since textbooks are the learning materials handed out to the learners and content in the textbook needs to be covered for assessment purposes.

Claire

Claire focusses on individual teaching and she focus on textbooks since she teaches learners with special needs.   She reported that she cannot teach the way other teachers do, since the learners are different and she cannot make use of technology in the way that other teachers can.

John

John makes use of a learner centred approach and he facilitates during lessons through interacting with learners. He reported that he is a textbook based teacher. He feels very limited since he teaches a subject where the textbook is full of practical activities and the school limits him because he doesn't have the resources to do the practical activities. Therefore, he occasionally makes use of a YouTube video. Once again he feels limited because not all the classes have interactive whiteboard. He can use the television in his Grade 6 classes, but the sound is not good, therefore he goes back to the textbook to explain and teach.
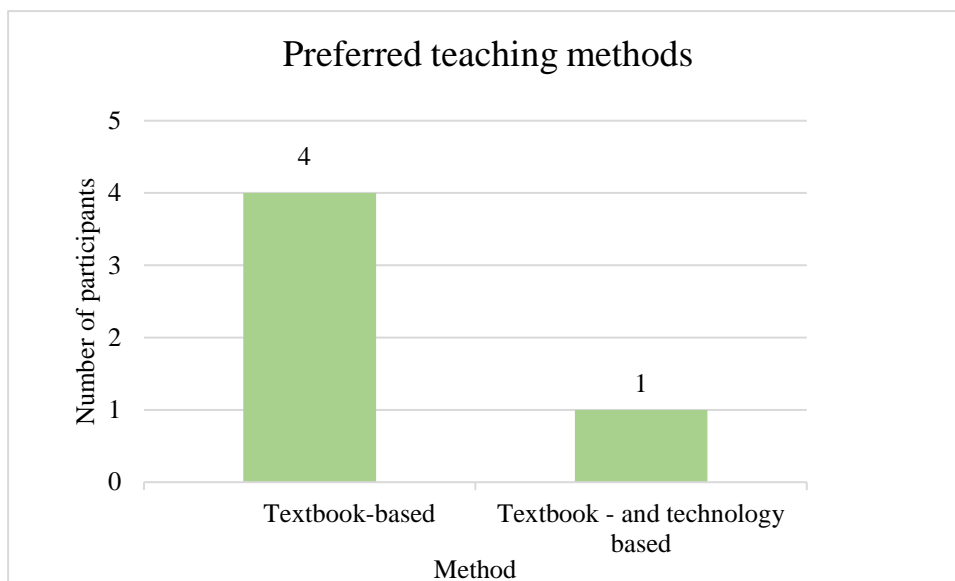
Dean

Dean makes use of multimedia presentations. He combines this teaching approach with group work, class discussion and peer teaching. He reported in the Focus Group that he bought all the electronic versions of his textbooks. Instead of him having his textbook open, he puts the textbook onto the interactive whiteboard. He found that it engages the learners a lot quicker then asking everyone to turn to page 144 for example. He further explains that he can do adjustments to the textbook, since he can circle important things, underline content and even make notes. In his experience learner interest is ensured through making use of this method since all the learners look at the interactive whiteboard and engage with him as teacher. Furthermore, he attempts to get learners to think out of the box through asking questions with not only a 'yes' or 'no' answer. He also follows everything up which the learners say to him, by asking 'why'. He felt that learners today cannot explain why they say something and through using this approach they collaborate in their thinking.

Kyle

Kyle uses classroom discussions as a teaching approach. He also makes use of textbook based teaching and will infuse this with worksheets. Occasionally, he will make use of PowerPoint, YouTube videos and explaining content to the learners on the computer where they had to search information together on a specific topic in the computer laboratory. He stated that he is a textbook based teacher, but occasionally attempts to incorporate technology. The above findings are illustrated in figure 5.

Figure 5: Preferred teaching methods

Preferred teaching methods

Number of participants

Textbook-based: 4	Textbook - and technology based: 1

Method

All the participants, except Dean prefer the use of textbooks only in their teaching approaches. Dean prefers to use technology and enhances his use of technology with the content in the textbooks.

All participants reported that they choose to use these specific teaching approaches since they each believe their approach ensures optimal learning and creates an effective learning environment with regards to discipline. They reported that through making use of these methods they feel that they relate to the learners through engaging in positive relationships with them.

Sam believes that her teaching methods are effective since you get auditory learners, learners who learn optimally through hearing.

Dean believes that his teaching approach is effective because he always evaluate himself on how his learners do in high school. He likes to contact his learners in high school and their teachers to find out how they are doing and in general the feedback that he gets is that the learners that come from his school do well. He reported that they stand out when they go to high school not only academically but socially also and there are numerous leaders in top high schools in the Eastern Cape of South Africa that come from his school. He reported that in some way or form they as teachers contributed to that. He also believes that these methods are effective since the majority of high schools do not incorporate technology. Therefore learners are well prepared for the teaching approaches that take place in high school.

Kyle reported that he doesn't believe through using the textbook only during teaching is effective. Therefore, he attempts to do most of his content work in a story form. He believes that from time to time you've got to do something else to keep the learners concentration and that's why he brings in the odd YouTube video or cyber hunts.

2.2.8. 21st century learners and learning

In this section participants were asked to elaborate on their comments in their questionnaires through discussions in the Focus Group.

According to Fadel, Bialik & Trilling (2015) once it is evident what students should learn and how they learn best, education can accommodate the 21st century learning process. Hence, I decided to pose the question as to how the participants believe 21st century learners learn best.

The participants reported that a 21st century learner is a child that has to be equipped with skills and knowledge to lead others and who has to be mature, even at a young age. They need to know the consequences of their actions and know how to be up to date with technology and how to use it. They reported that these learners are the future leaders of a difficult society where adults grew up without technology and they have a negative attitude towards it. Sam reported that the 21st century learner must be an adult before their time and outside playing evolved to playing games on technological equipment.

Claire stated that the 21st century child has the world at his or her fingertips by simply the press of a button. She believed that these children face so many dangers from themselves and others.

John described the 21st century learner as a learner who likes technology and he believes that a reason for this is because technology is promoted in the home environment. He further explained that because of this, these learners learn better through visual methods. He stated that the learners whom they are currently teaching are very knowledgeable in technology. He reported that the more you bring in technology into your teaching for example, something on the interactive whiteboard, they grasp the content quicker.

In Dean's opinion the modern learner becomes bored quickly. Some enjoy challenges, but most of the learners give up very quickly when they are faced with problems that require creative thinking.

Kyle agreed with Claire and also described the 21st century learner as a learner with the world at his or her fingertips. He further described these learners as children with limited abilities to read and reason.   He believes that the learners who they are teaching today are so reliant on technology that the logical thinking process has been taken away. This is in agreement with Eaton (2011) who believes that 21st century learners don't know a world without computers and therefore they are very digitally literate. Furthermore, Kyle stated that

nowadays if you put a problem in front of the kids they just Google, that's all they can do, they can't reason for themselves anymore.

Kyle stated that the more visual methods are incorporated the better the child is going to learn, because the more senses are being used, it's not only hearing, but also seeing. He believes that if you have something visual and technological it will enhance the learning process.

Sam agreed that 21st century learners learn best visually, but also through hands-on approaches. She reported that if they can participate through doing something, making something, they learn optimally from that. She stated the following.

"Also a hands-on approach, if they can participate through doing something, making something, they learn from that. If they can work on the computer and set up the slide show, they understand better and are more interested."

Dean agreed with Sam and reported that he would rather implement practical subjects in to a school where kids can actually do something. He stated that if you observe these kids and how they enjoy the Science that they are doing at the moment with the products they have to build from raw materials. He stated that learners do not only enjoy learning in this manner, but truly develop necessary, practical skills in this way. He believes that 21st century learners learn optimally through watching, observing and seeing things happen.

Sam, Dean and Kyle reported that practical activities keep 21st century learners motivated and engaged. According to Scott (2015) the 21st century learners needs to be engaged and motivated, since research emphasizes the importance of the teacher's role in motivating learners and finding ways for them to build intrinsic motivation. Sam, Dean and Kyle believe that they motivate learner engagement through providing them with opportunities where they can be practical.

2.2.9. Visions of the teaching structures necessary to accommodate 21st century learners.

Four of the five participants reported that they do not believe that all the IP teachers at their school share a common vision and understanding of the teaching structures necessary in order to accommodate 21st century learners. Three of the participants reasoned that the gap between the age groups of teachers is too big. Sam reported that the gap is as big as 25-65 years of age at the moment in the school. She also stated that not everyone have the confidence

to use technology and not all teachers received that same tertiary training. Furthermore, she reported that everyone have different teaching styles and preferences since some teachers focus on the use of technology, while others only use the "chalk and talk" method.

Dean reported that even with technology available in the classrooms, many teachers don't make use of the technology aids in their classrooms and simply teach the way they were taught as they view these methods as sufficient. Kyle agrees with Dean and reported that the older generation still seem to bore the learners by reading from a textbook. He states that the younger generation are definitely more creative in applying new technology in the classroom.

2.3. Additional information gathered from the Focus Group

In this section I will discuss the information which I gathered from the participants in the focus group through discussions that was not asked in the questionnaire.

2.3.1. Other methods that can be used to improve teaching

Dean reported that when Outcomes Based Education was present teachers were very group based, but now teachers are content based, textbook teachers again. He stated the following.

"There's a mind shift that needs to be made."

He is of the opinion that teachers need to change their thinking with regard to which teaching approaches will be the most effective. His statement echoes Fadel, Bialik & Trilling (2015) who believes that the unpredictable context which we face today requires a paradigm switch and in order to adapt to 21st century needs one must revisit each dimension in the framework and the interplay between them. Dean is implementing group discussion and peer to peer teaching in his class systematically in order to enhance his teaching. He reported that when children talk in a group they discuss the work to each other on a level that they can relate to. His learners love group work because the pressure is a little bit off that learner that struggles and they get a chance to talk since they are more comfortable to ask questions. Dean stated that he was brought up in OBE so he is teaching the way that he was taught.

This teaching approach is important in the 21st century since Eaton (2011) suggests that these learners demand to be in connection with others at all times, therefore they are characterised as good team players and effective collaborators. These learners seek

opportunities to identify with others and associate with peers and Dean's use of group work provides them with these opportunities (Eaton, 2011).

Kyle likes to take the learners out of the classroom and sit outside in order to enhance his teaching. He reported that the learners do not spend much time outside anymore like his generation used to. In the beginning it is difficult to keep law and order outside, but once you have established the values they cooperate and they thoroughly enjoy being outside the classroom.

Sam, Claire and John did not comment on whether or not there are other methods that can be used to improve their teaching.

2.3.2. Opinions on teacher-centred and learner-centred teaching

Because Blended learning recognises both the roles of the teacher and the learner it was important to find out what the participants' views were about a teacher-centred and learner-centred approach to teaching. The participants agreed that a teacher-centred approach is where learners put all of their focus on the teacher, the teacher talks and the learners exclusively listen. They agreed that during activities, learners work alone and collaboration is discouraged. The participants further agreed that a learner-centred approach is when a classroom operates with student-centred instruction and learners learn through talking to one another.

John reported that he does not think a teacher-centred approach is effective. He believes that it is good to lead off the lesson, but if one brings in pair work learners understand concepts more effectively through talking to friends. He stated that he can give learners the content but they must still understand and comprehend the concepts. He believes that teachers should guide learners towards the concept that they want them to learn. John made the following statement.

"When teaching is teacher-centred we parrot teach the learners and they don't fully comprehend or explore for themselves."

Since Claire teaches learners with special needs she believes that teaching must be teacher-centred in order to ensure effective learning, but she is of the opinion that teacher-centred teaching is not the most effective teaching method in mainstream classes.

Dean stated the following.

"I don't agree with teacher centred teaching because it's only about the teacher then and the class only does work that the teacher wants them to do and the teacher controls every single process."

He shared his concern with regards to future teachers and believes that there is not enough teacher centeredness. In the majority of student lessons that he observes the students engage with the learners for four minutes and then it goes over to the learners and they must work for thirty six minutes. He is of the opinion that teacher-centred teaching is not effective, but reported as soon as you take the teaching out of the hands of the teacher and stop teaching and simply start facilitating things go backwards very quickly. He stated that he has learners that already have a lack of responsibility at home and now the teaching responsibility is also put on them where teachers say teach yourself and watch a video on this topic. Therefore, he believes that teaching must have a fine balance. He further stated the following.

"Every lesson must have a form of teacher centeredness because during that specific part of the lesson you will learn what I know you must learn and it's important that you learn it but every lesson must have that learner centeredness part as well where we say now the responsibility moves over to you go and apply yourself and when you need me come to me and then I can help you understand the work a bit better, but there must be a balance. No teacher centeredness will never work it will ruin schools in my opinion."

Kyle believes that in the times that we live in with more and more children being ADHD and having learning disabilities one cannot have learner-centred teaching. He reported that if you leave this type of learner alone or in a group he/she is the one that ruins everything and no learning takes place. Therefore, he reported that there must be a certain amount of teacher centeredness simply to maintain order and make it comfortable for the rest of the class.

2.3.3. Challenges experienced when teaching 21st century learners

Claire reported that her biggest challenge is the fact that they as teachers are not really used to all the technology that the children are using, because they didn't grow up with it. It's new to them, but not to the 21st century learner. She stated that for herself as an older teacher

it is difficult to keep up to date with all the new developments, because since she has started teaching to where they are today, it's been changes after changes when it comes to technology. She stated that a big challenge for her is the fact that learners are more advanced than she is when it comes to technology.

Kyle agreed with Claire and stated the following.

"Speaking on behalf of the older generation, I think it's the fear of technology. We were brought up if you break it all hell will break loose and kids today know if they break it there's someone that is going to replace it. They have spontaneous go for it and we have fear."

Dean reported that his challenges with learners today and trying to work with them, is the lack of parent involvement in what they do. He stated the following.

"When I ask parents how does your child study for Mathematics their answer is: "Well, I'm not sure how they study." If parents are not involved in how they kids prepare for school then it seems like there's no input from parents. Parents expect kids to continue on their own and I think when it comes to education you still need the teacher, parent and child involved. I think technology is connecting people faster, but it is also separating people as well, because now I don't need to contact you verbally anymore, and you lose skills, and parents can't talk to teachers anymore and parents can't talk to their kids anymore, because we WhatsApp each other."

Dean reported that his biggest challenge at the moment is getting parents to realise that they have a massive responsibility in raising their kids.

2.4. Workshop

After completion of the 2nd questionnaire and focus group, I presented a Blended Learning workshop to the participants. The participants agreed to participate in the workshop on a Friday afternoon, since everyone had sport responsibilities during the week. The workshop took place in the computer laboratory where I made use of the interactive whiteboard. The goal of the workshop was to make the participants aware of the possibilities

of Blended Learning as a 21st century teaching approach since Staker & Horn (2012) states that Blended Learning is a teaching approach which accommodates 21st century learning.

I started the workshop by reminding the participants about the ideas which they shared in the 2nd questionnaire and the focus group with regards to how 21st century learners learn optimally and what their teaching approaches currently are. Thereafter, I introduced blended learning as a 21st century teaching approach. I discussed the definition of blended learning on a Microsoft PowerPoint presentation and showed them YouTube videos where a teacher demonstrates blending and how a specific class experienced a blended approach. The last video concluded with the following quote:

"Let's meet the needs of 21st century students, raising blended learners (YouTube, 2015)."

After this video I observed the excitement on the participants' facial expressions, except Claire's. I shared with the participants that they were expected to present a lesson or a series of lessons where they made use of a blended teaching approach. The Pacific Policy Research Center (2010) suggests that teachers will have to communicate and collaborate with each other and with students, become flexible with managing new classroom dynamics, be able to support independent student learning and be willing to adapt their teaching styles to accommodate new pedagogical approaches to learning. Therefore, I requested the participants to adapt their teaching styles.

Lastly, I provided them with the opportunity to ask questions. Surprisingly, the participants were very comfortable with my request and Kyle shared that he already knew in which lesson he was going to blend. Claire was not very open to my request and stated the following.

"How do you expect me to blend with learners who have special needs?"

Dean reminded her that through a blended approach one is not eliminating her as a teacher or the textbook, she is simply going to enhance her current teaching approach through incorporating technology. After this, she stated that she would try it.

As mentioned in Chapter 2, there are various reasons why people are reluctant to change their old ways. People tend to like habits and routines become automatic therefore any change can create the feeling of not being in control (Kanter, 2012). Claire's reaction to the new innovation can be because of her habitus. As mentioned in Chapter 2, Habitus is created through a social, rather than individual process leading to patterns that are transferrable from

one context to another (Navarro, 2006). Although a shift in habitus can take place, it doesn't take place easily and it will be reproduced unconsciously (Navarro, 2006).

The participants assured me that they would present a blended lesson within the next two weeks.

2.5. Experiences with Blended Learning (Visual representations)

After the completion of the blended lessons the participants agreed to meet with me on a Friday afternoon in order to provide me with information on their blended experiences. We met in the computer laboratory and I asked the participants to draw a visual that would represent their personal experiences with Blended Learning. When the participants were done with their drawings they were invited to explain their drawing in detail and how this reflected their blended lessons. Participants were recorded during this oral activity. Claire was very hesitant to draw and asked me if she could rather make use of magazine pictures to illustrate her experience as a visual.

I decided to gather the participants' experiences through visual representations since interest has grown in performing qualitative research which focuses on visuals in order to explore participants' experiences and meaning making (Frith, Riley, Archer & Gleeson, 2005). According to Guillemin (2004) visual data is a way of constructing multiple realities influenced by social and cultural factors and therefore I believed that visual representations will provide my participants with the opportunity to present their thinking differently.

In this section each participant's experience is discussed individually. I will provide the reader with an explanation of the lesson or series of lessons in which the participants decided to blend. Thereafter, I will present the visual representation with the explanation that the participant shared on their drawing in a textbox form. Lastly, I will discuss the overall experience of the participant which emerged in the discussions that follow.

Sam

Sam decided to blend over a period of three lessons in Afrikaans Eerste Addisionele Taal. She stated that because languages can be a subject where learners tend to get bored easily with repeated writing topics such as 'What did you do this holiday', she decided to make use of a blended approach. Because she knew that Disney characters interest learners, she decided that learners must complete a writing piece on 'My favourite Disney character'. She gave the

learners instructions and took them to the computer laboratory where the learners received the opportunity to research information on the internet. They also had to print a picture of their favourite character. She provided the following guidelines to the grade 7 learners:

Instructions

Name of your favourite character.

Movie's name in which the character features in.

Date the movie was released.

Describe how the character looks.

Who designed the character?

Does the character have any super powers?

Reasons why you like the character.

Personality traits/Characteristics this character has that inspires you.

In the following period they had to write an informative text where they put all the information they researched in paragraphs. In the last period they had to present all the information to the class, with illustrations, either printed or by means of a PowerPoint presentation. She described her blended learning experience through the following visual representation:

Figure 6: Sam's visual representation
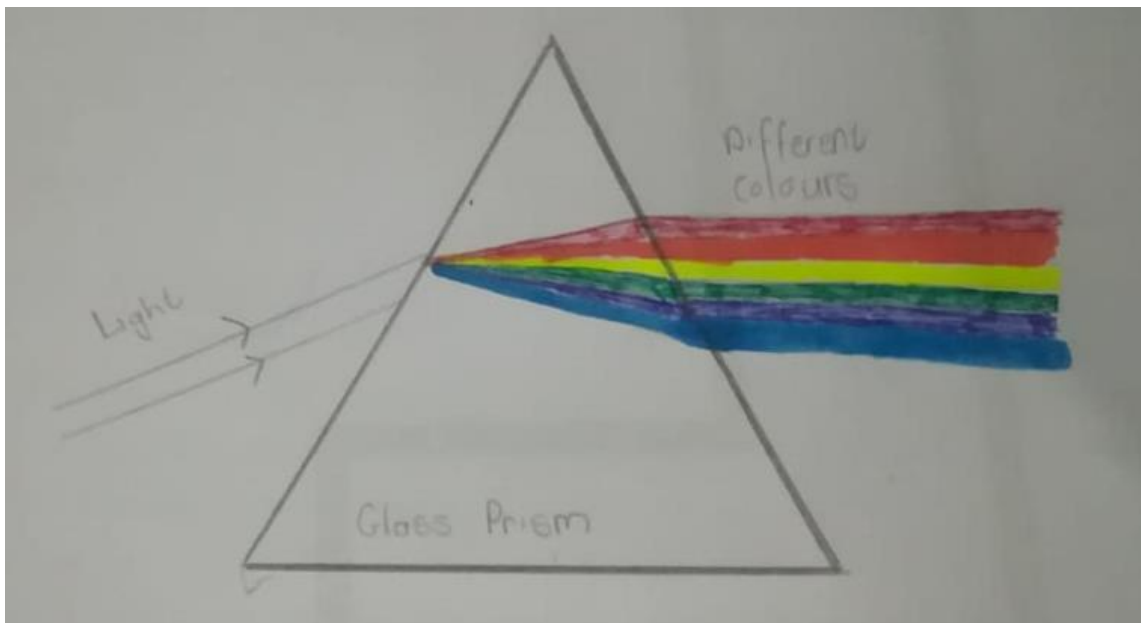
The following is a transcript of her explanation of the drawing.

"I found the learners to be like a glass prism. They allow light to shine through them because they want to learn new things. The learners are open to ideas and facts and they are curious.

The white light that shines through the prism illustrates the teaching method that is used. This light has to be white and has to enter the prism at the correct angle. This indicates a teacher's teaching method which should make learning interesting for learners and should be implemented in such a manner that learners can relate to it.

The colour spectrum indicates the response of the learners to the teaching method. If the correct teaching method is used which accommodates the needs of the learners, the learners will blossom and react in various ways. The different colours indicate the mixing of different approaches such as online learning, textbooks, technology, etc.

In this visual representation the teaching method is blended learning and learners receives an optimal learning experience since the colours are growing."

Sam experienced better learner cooperation and discipline during her blended lessons. She reported that the learners were interested in the topic and they enjoyed doing research online in a different environment which was technology-infused. She stated that all her learners were computer literate which made the flow of the lesson effective since the learners didn't need her assistance. She stated that the moment the learners switched on their computers their started with their research process.

She experienced blended learning to be effective, since learners had clarity of focus, she could feel the positive atmosphere in the learning environment and observed the learners enjoy the lesson thoroughly. The learners had smiling facial expressions while they were interacting with the computers. Blended learning gave the learners the opportunity to use personal interest in school work and to be graded on something that they enjoyed doing. She reported that the learners did not get bored and they enjoyed presenting their character to the class, whereas learners are sometimes shy to participate in orals.

She stated that she found a blended teaching approach very interesting and experienced it as a breath of fresh air.

"As a teacher you become very set in your ways, especially after a few years. Teaching through making use of a blended method made me revise my current teaching method and I realised the importance of accommodating learners in the learning environment."

Sam expressed that for her as teacher it is very important that learners experience learning as interesting and fun. She also felt that it is important to teach learners in a way that would promote optimal learning and she believes that a blended method contributes to this. She stated that through blending her teaching approaches her opinion on how 21st century learners learn optimally widened. She had previously thought that it was not so necessary to include technology in lessons, but after experiencing the benefits she realised how the implementation of technology promotes optimal learning experiences and opportunities for the learners to build on their interests' and engage in writing.

Claire

Claire decided to blend through showing her learners a video about natural disasters such as a volcanic eruption since they are busy with natural disasters in the Natural Sciences curriculum. Learners had to go home and follow the latest news on a volcanic eruption in Hawaii, which happened at that time. Learners also had to go home and find more information on the natural disaster that had taken place or other volcanic eruptions and bring their information to school. She described her blended learning experience through the following visual representation:

Figure 7: Claire's visual representation

The following is a transcript of her explanation of the drawing.

> *"I made use of a book full of words which also looks like a chalkboard and learners are trapped between the textbook and the chalkboard through my current teaching approach. The learners literally feel like they are behind prison bars and want to break free. Learners see freedom as a learning environment full of technology, such as televisions, movies, pictures etc. They want to break free and experience modern, 21st century teaching methods and learning environments."*

Claire reported that the learners were extremely excited when she showed them the video and they were interested with their eyes locked on the television. The learners were so excited to find more information at home and they were confident to share their information with the rest of the class. She also experienced that the learners became more involved through this approach since learners who are usually hesitant to share ideas put up their hands and shared their own ideas.

> *"Learners who I thought never have an opinion and who are in their own world's, became alive and shared their own personal stories."*

She further reported that she ended up with a big classroom discussion around natural disasters.

She enjoyed blending as a teaching method because she could see the excitement on the learners' faces and she experienced that some of the learners grasped the content more effectively by feeling, seeing and experiencing it. It is promoted learner involvement which is something she finds challenging in her class.

Claire shared that this teaching approach changed her idea with regards to how 21st century learners learn optimally. Blended learning made her realise that learners want to learn through seeing and hearing, these learners do not want to read. She reported that she can enhance her teaching and learning experiences in the classroom through making use of blended learning in the future. Claire stated that although she enjoyed to blend it is not possible to blend every period and get through the content which she needs to cover in the textbooks according to the Department of Education.

John

John decided to blend in a series of Natural Sciences lessons. He decided to try this new approach in a topic which learners tend to find challenging and that is to differentiate between acids, basis and neutrals. He made use of the textbook to explain to the learners what the difference is between acids, basis and neutrals therefore he focussed on their properties and where they fall on the pH scale. After this he incorporated a practical activity where some learners received the opportunity to come to the front of the classroom and taste different household items such as lemons, coffee, water etc. The classroom had to place each item in the correct column on a worksheet according to how the specific learner reports the taste and they could use the properties in their textbooks to assist them. After this practical and writing activity he showed the learners a YouTube video in which different household items occur, what they are and what their pH level is. While watching the video for the second time learners had to mark their worksheets and add in additional information such as the pH level and under which group detergents fall etc. After the video the learners had to confirm their answers through making use of blue and red litmus paper to test whether or not the specific substances are acids, basis or neutrals. Thereafter learners were divided into groups and they were expected to make a poster of the three groups and present their posters to the rest of the class. He gave learners the opportunity to go to the computer laboratory to research more information online and to find pictures for their posters. He described his blended learning experience through the following visual representation:

Figure 8: John's visual representation
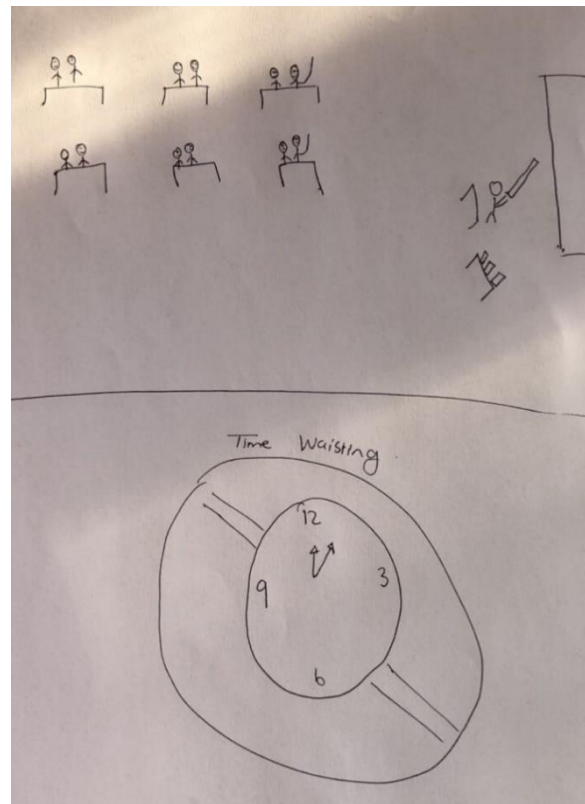
The following is a transcript of his explanation of the drawing.

"I decided to divide my picture into two parts. The bottom part of the picture indicates a negative point of view towards my blended learning experience. The blended learning approach is very time consuming and the teacher feels pressurised to finish with the topic since there are still assessments that need to be done and the curriculum do not allow so much time to be spend on one topic. It also indicates the amount time that goes wasted to set up and pack up technology used in a blended learning approach. It also takes more time to plan for a blended approach since if you want learners to use online technology you must first find out if the computer laboratory will be available for that specific lesson.
The top part of my picture indicates a positive point of view since my experience was mostly positive. After observing the learner excitement and involvement by learners who are usually not involved and usually disrupts the lessons, I decided to not worry too much about the time factor since optimal learning is my first priority."

John reported that this blended approach allowed him to rethink his current teaching approach. He was astonished with the learner involvement during these lessons, since learners

who were usually not interested in his lessons and mostly interrupted his teaching through bad behaviour, became involved and interested. He reported that he was under the impression that computers and technology was nothing new and exciting anymore for the 21st century learner, but when he took them to the computer laboratory the learners were so excited and involved in doing research for their posters. They were collaborating with positive attitudes and considering each other's' ideas. When he showed the learners the YouTube video they wanted to see it again and their feet stomped with the beat of the music in the video.

Although he enjoyed this new exciting atmosphere in his classroom he reported that blended learning is very time consuming and almost impossible to do in one lesson. This topic had to stretch over a series of three to four lessons since it took time to show the learners the video and to take them to the laboratory to do online research. He stated the following.

> *"It also takes a lot of time to set up your technology in order to make use of the SmartBoard, lessons are only 40 minutes and you need to take time into account to pack up also since the next teacher comes in to teach when the bell rings."*

John also expressed his concerns towards power outages that would make a blended approach impossible and then one must fall back to a textbook-based approach only.

Overall he experienced a blended approach to be very positive since it has a lot of positive outcomes and he is of the opinion that a blended approach promotes optimal learning in the 21st century learning environment. He reported that his examination results for the section on acids, basis and neutrals improved and he could see while assessing learners that they had a better understanding about the topic than before the blended approach. When he only covered the content in the textbook he observed concerned facial expressions and could see that that learners were confused. After blending and making use of the video and online research he observed confidence in the learners with regards to the topic and this was evident in their oral presentations when they presented their posters to the class

Dean

Dean decided to blend in an English lesson during which the learners had to rewrite a certain scene from Romeo and Juliet in today's standard English. The textbook contained a specific piece of dialogue from the play that the learners had to rewrite. In order to incorporate a blended approach, he found a video containing the exact piece of dialogue. Firstly, he allowed the learners to read the dialogue on their own and try to comprehend what it all meant. After that, he showed the learners the video. He described his blended learning experience through the following visual representation:

Figure 9: Dean's visual representation
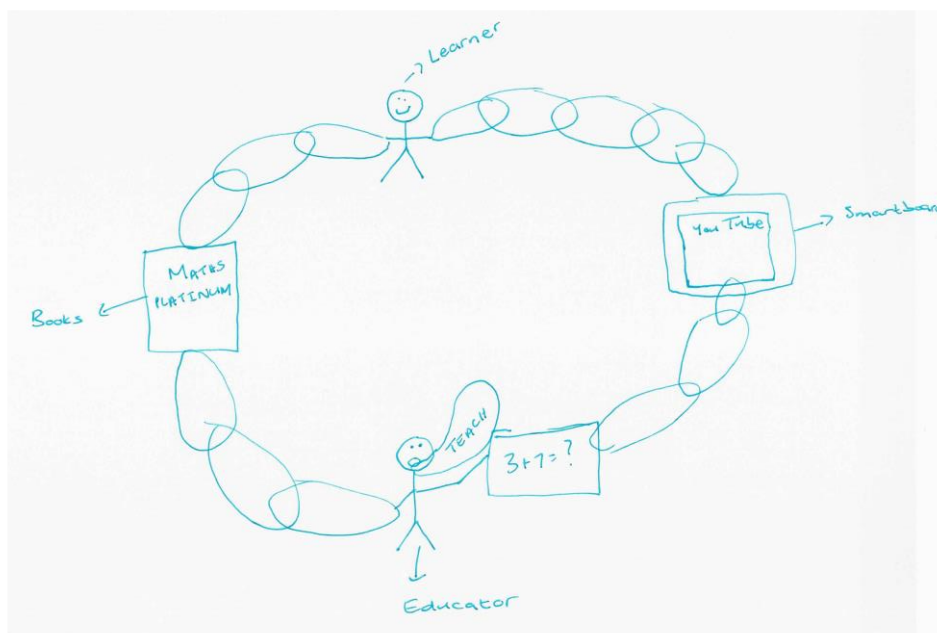
The following is a transcript of his explanation of the drawing.

> *"I drew a picture which symbolises a chain with many links. The most important parts in the link are the teacher, the learner, textbooks and technology. This indicates that if one of the links were to go missing the chain would break and effective teaching would not be possible. All these links are interconnected with one another in order to promote an optimal learning environment in the 21st century."*

Dean reported that before he had the appropriate technology to incorporate blended learning in his class, he applied strategies that he grew up with. He grew up in the Outcomes Based Education phase of education which meant two things for him: textbooks and group

work. He would discuss certain topics with learners and then he would allow them to discuss the matter further before completing their work such as an activity from the textbook. With the start of CAPS he believes that his teaching became slightly more teacher-centred as there was no longer this emphasis on group work.   When his class was fitted with an interactive whiteboard his teaching shifted over to a more blended experience.

Dean stated that he enjoyed his blended lesson tremendously. The learners were a lot more engaged and interested in the content. He also stressed that this approach took some of the focus away from him which decreased the pressure of being the primary source of knowledge in the classroom.

"I can say with certainty that the lesson was more effective. After the learners were able to get a visual representation of the dialogue and also hear the tone of voice the characters were using they had a much better idea of what was happening in the story and could to a greater extent rewrite the dialogue. There was a remarkable difference in their understanding of the dialogue after watching the video."

He reported that the learners enjoyed the lesson. They particularly liked the fact that they could rewind the video to focus on certain pieces of the dialogue. They were engaged throughout the lesson and even wanted to watch what happened in the next scene.   He stated the following.

"It's not easy getting learners to like Romeo and Juliet in the 21st century and blended learning allowed me to do this."

Furthermore, Dean explained that he has preferred blended learning for some time now. Difficult concepts are made a lot easier when teachers are able to make problems visual.

"Blended learning also caters to the needs of more learners."

With traditional teaching, he thinks the learner who can listen well for long periods of time had a clear advantage. The needs of more learners are taken into account when applying blended learning as most lessons then take on an audio and visual perspective.

Dean stated that he has thought for a while that schools are no longer taking into account what the best method would be for 21st century learners to learn. Most information received

these days are taken in by people in an electronic way be it via emails, PowerPoints, videos or podcasts. He believes that these are the mediums that modern youngsters use to gather information. The emphasis is no longer on one person giving all the information and having learners simply take note about it. Dean is of the opinion that we will continue to have educational problems with this generation of learners simply because we are not communicating with them in the way that they communicate with each other.

> *"Learners today are more independent however when it comes to education I believe that teachers and parents hamper what they can learn by applying out of date practices and making the process of learning very monotonous. Teaching and learning needs to catch up with the 21st century learner. The learner should not be waiting for our processes to update to today's standards."*

The above statement from Dean is the reason why I decided to research this topic. As a teacher in the sample school I agree with Dean that teachers use out of date practices and do not accommodate the 21st century learner in their classrooms.

Kyle

Kyle is currently teaching his learners how the continents formed in Social Sciences. He took them to the computer laboratory and they had to search for any information about the topic online on the internet. He then took them back to the classroom and they shared their information orally through a classroom discussion. He connected the interactive whiteboard to his laptop and showed the learners a YouTube video on how the continents formed and how new volcanic islands formed, etc.   He described his blended learning experience through the following visual representation:

Figure 10: Kyle's visual representation

The following is a transcript of his explanation of the drawing.

> *"On the left side I described my current teaching approach visually. The teacher is dominant in the teaching approach and does all the talking in front of the class while writing on the chalkboard with his back towards the learners. Learners have to pay attention with their textbooks open in front of them and then they have to apply what they have learned through writing in their workbooks and using the textbook as a guideline. The teacher's perception is that learners are "naughty brats" since you have to ask them numerous times to keep quiet and to pay attention and learners are bored since all that they are thinking about is "I am looking forward to sport at 3".*
>
> *On the right side I described my experience with blended learning visually. Technological equipment is available and electronic media is used by the teacher to explain to the learners through showing them a video from his laptop on the SmartBoard. The teacher's body language is open towards the learners and he has a smile on his face. The perception of the teacher is "What a nice bunch", since learners are attentive. The learners show excitement and interest through saying "Check that out"."*

Kyle reported that it's good to explain things orally, but every learner forms a different picture in their head about what you are explaining, whereas visual methods are self-explanatory and every learner see the same picture, therefore they form the same idea in their heads.

He experienced learners to be excited the moment he took his laptop out and start darkening the classroom in order for them to see better on the Smartboard. Kyle stated the following.

> *"I didn't only experience the learners to enjoy the video, but I also enjoyed the video since for a change I was not the one being the prescriber. I observed learners being more interested not only in the video, but also when I collaborated on the content of the video."*

Kyle reported that he enjoyed using blended learning as a teaching approach since it opened up a new world to yourself as a teacher as well as to the learners. He refers to this

world as the world of reality, where learners can see what you are talking about. He prefers to use blended learning as a teaching approach rather than only making use of the textbook. Although he prefers blended learning as a teaching approach he finds it challenging to incorporate when he teaches languages, since languages are very reliant on learners' writing abilities such as spelling and on assessments. Kyle agrees with Sam, Claire and John that time is an issue in order to blend. This could be a reason why they are not currently using a 21st century teaching approach, since Fadel, Bialik & Trilling (2015) states that as a consequence of the infinite amount of information that needs to be covered and the pressure of preparing for standardized tests, relatively few teachers are able to constantly provide the time needed to effectively integrate new learning goals into the curriculum.

Furthermore, Kyle reported that it was challenging to find the time to blend since he had to make use of 2-3 periods in order to teach through this approach. Kyle stated the following.

> *"My experience with blended learning changed my thinking around how learners learn optimally tremendously. Through studies done previously we were told that learners have a very short attention span, but I didn't adapt to this through changing my teaching method. I continued teaching through standing in front of the class with a textbook and explaining the work. Through this method I observed constantly how learners lose attention because of their short attention span."*

Kyle reported that when he blended he found his teaching to be more effective since learners' attention was grasped for longer periods. He explained that even the YouTube video that he showed the learners, already incorporated that phenomenon where they change the scenery to keep ones attention. He is of the opinion that electronic media plays a major role in teaching in the 21st century and he experienced a blended method to enhance his teaching and promote optimal learning.

2.6.Discussion after Blended Learning

In the following section I will provide the reader with feedback from the participants with regards to which teaching method they prefer after experiencing Blended Learning. I gathered this information through the discussions that followed their explanations. This information is presented in Figure 12.

Although one of the participants already had a blended teaching approach, all the participants reported that they would like to change their current teaching approaches to a blended approach in the future since this method promoted effective learning. Learners were engaged and focussed and the learning experiences was fun and exciting.

Figure 11: Preferred teaching method after experiencing blended learning
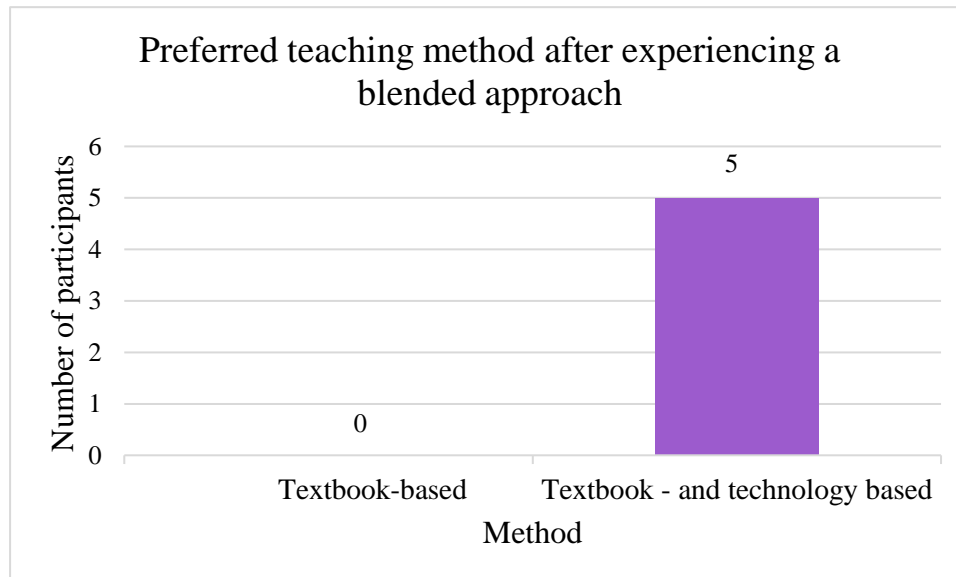

Figure 11 indicates the shifts that took place in the participants' original teaching methods as indicated in Figure 6. Although Dean already made use of a blended approach, Sam, Claire, John and Kyle shifted their original textbook-only approach to a more blended approach as a preferred teaching method. These shifts mostly occurred because of their experiences and that the participants observed effective learning practices in the learning environment. As mentioned in Chapter 2, Kharbach (2013) explained that due to the complex new generation present in the learning environment, learning is also changing and demands new methods to accommodate learning in the 21st century. This explanation is evident in the shifts that took place in the participants' preferred teaching methods.

According to Usoff & Khodabandelou, (2009), Melton, Graf & Chopak-Foss (2009), Chen, Clement C & Jones (2007) and Singh (2003) blended learning is preferred over a traditional lecture format, and promising data emerged to challenge teachers' traditional approach to teaching. These researchers reported that Blended learning enhances the curiosity of the students and there is an increased student satisfaction with the mode of instruction compared to traditional formats.

I believe that I challenged Sam, Claire, John and Kyle's traditional approach to teaching through introducing them to a blended approach and that they experienced more learner

involvement because a blended method promotes learner curiosity. It should also be noted that in the classes described above there was a novelty value attached to using technology which piqued learners' interest.

2.7.CONCLUSION

As expected teachers were reluctant to change and they are attached to doing things in certain ways. This is in line with Bourdieu's notion of habitus which explains "how deeply ingrained and unconscious our dispositions are and how this impacts on our perceptions, appreciations and practices" (Gennrich & Janks, 2013). One's practice results from habits and it is not easily changed.

Various aspects contributed to the participants making shifts from their preferred textbook-based teaching methods to a blended method. The participants were invited to try disciplines which they were comfortable with and through giving them the authority it led to shifts. Shifts were not only made in their teaching methods, but also in their thinking, away from themselves to the learners' positive learning experiences.

It was found that teachers would like to receive in service training on how to make use of technology in their teaching. Although some teachers were taught how to use technology they were never taught how to incorporate it in their teaching and this is very important in order to accommodate 21st century learning since learners are more engaged in the learning process when technology is incorporated.

Chapter 4 gave a detailed presentation and in depth discussion of the data collected from the questionnaires, the focus group interview and the visual representations. Conclusions were drawn based on the data presented. In my concluding chapter, I will utilise the data from my study and the literature reviewed on blended learning, to conclude what lessons, if any, we can learn from teachers' teaching approaches in the 21st century learning environment.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

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1. INTRODUCTION

This chapter brings the study to a close and draws conclusions using the data (derived from the questionnaires, focus-group and visual representations) which is informed by the literature. These conclusions are guided by the main research question and sub questions, namely:

Main question: What informs teachers' attitudes to Blended Learning?

Sub-questions: What are teachers' understanding of 21st century learning?

How do teachers experience using technology?

How can exposure to Blended Learning shift teachers' attitudes?

The study investigated teachers' attitudes to implementing blended learning in their teaching. Based on my readings in the literature review and the analysis and discussion of the data in Chapter 4, I have drawn some conclusions from the study in relation to teachers' attitudes to technology, exposure to blended learning, shifts in habitus and case study methodology. Following from that I offer possible limitations of the study and some recommendations for further research with respect to the implementation of blended learning.

2. TEACHERS' ATTITUDES TOWARDS TECHNOLOGY

I found that participating teachers who did not grow up with technology and did not experience technology in their education careers such as Claire and Kyle, are often reluctant to use technology in their teaching. They have a fear of using technology since they are not comfortable using it. This was strongly linked to their habitus and sense of what works well in teaching which developed over many years. Participating teachers who had made use of technology during their school career and had received training at tertiary institutions such as Sam, John and Dean were more comfortable to incorporate technology in their teaching. In general, participating teachers tend to be fixed in their teaching approaches and are hesitant to

change their ways. So any attempts to introduce technology would need to be scaffolded and supported. This is similar to what Hodgkinson-Williams et al (2007) found in their study of schools in the Eastern Cape. Their study specifically recognised the role of the champion teacher in encouraging and driving ICT implementation together with ongoing training and a willingness to change.

3. WORKSHOP AS AN INTERVENTION

Teachers were strongly encouraged to participate in a blended learning workshop since I believed that through providing them with the opportunity to experience blended learning themselves it would encourage shifts. A challenge with some workshops with teachers is that the teachers do not experience learner responses and possible positive outcomes. Many workshops presented by the DBE presume that teachers will incorporate new learning but there is often little, or no, follow-up. Through encouraging implementation after the workshop, I allowed the participants to experience teaching with blended learning for themselves according to their preferred subject area.

How people take on an innovation did prove to be challenge because the majority indicated that they do not change easily. This links with the idea of habitus since people do not change their existing habits easily as it is so closely linked to their way of being, particularly as a teacher (Gennrich and Janks, 2013). Initially one of the participants, Claire, was hesitant to implement blended learning and to try a different teaching approach other than her current teaching approach, but after implementation the participant reported a positive experience.

4. SHIFTS

One of the challenges with introducing a new strategy is to encourage teachers to attempt to use technology and be willing to shift their practice. It was an exciting and rewarding stage for the participants and myself when they reported on their blended learning lessons with a sense of excitement and enthusiasm. After incorporating blended learning participants reported how they had shifted from a textbook-based teaching method to a blended method. The learners' responses led to these shifts since blended learning promoted learner involvement and excitement during the learning process. These shifts also created feelings of worthiness amongst the participants since they created such effective learning opportunities for the learners. Teachers' opinions and experiences on teaching was enriched and these shifts also created excitement in the teachers. This awareness of shifts in attitudes needs to be tempered with an understanding of habitus and a recognition of the limitation of one successful lesson as

a mark of shifting practice. That said, this sharing of the successes of blended teaching and the participatory research approach may encourage teachers to continue to add blended methods to their teaching repertoires.

5. CASE STUDY AND METHODOLOGY

As expected, it proved to be challenging to get teachers to change their teaching habits, since they are comfortable with their current teaching methods. However, a case study approach over a period allowed me to form close relationships with my participants and explore blended learning possibilities together in a safe space. Another benefit of a case study is that the researcher and the participants met informally and participated in discussions (Merriam, 2009). For example, the Focus Groups also created opportunities for the participants and myself to engage in informal discussions and for the group to interact more with each other. This allowed me to develop and build a good relationship with my participants and created feelings of openness to take risks amongst my participants. The questionnaires allowed me to establish a baseline where my participants were with regards to their thinking about 21st century teaching and learning. From this basis I was able to interact with my participants and through sharing teaching philosophies and experiences with technology, come to understand their attitudes to blended learning. These multiple research approaches lead a deeper understanding of the participants since one of the strengths of the case study method is its flexibility that allows multiple methods of data collection to be used to investigate a research problem (Cavaye, 1996).

Through using visual representations, I wanted the participants to see things in alternative ways. The visual representations required the participants to present their thinking in a different medium since visuals allow people to look at things in a more metaphoric way. This also allowed the participants to elaborate on their blended experiences since they were all Afrikaans speaking and a written medium could limit their explanations.

Despite this being a case study and the opportunities for in-depth learning, it was also of necessity a small scale study with few participants who only taught one series of lessons. As a result the group have only experienced blended learning in certain subjects only. In a longer study, they may have experimented in possibly more learning areas.

6. LIMITATIONS OF THE STUDY

Considering that all the participants were Afrikaans-speaking teachers, who, while they could all converse in English, had some difficulties expressing themselves in academic or subject specific English. It is not surprising that some of them were reluctant to answer the open-ended questions in the focus group. Although this was a possible limitation it did not prevent them from engaging in a lively exchange since they knew each other well.

Another limitation of the study was the fact that the study only included teachers as participants and learners experiences, which were beyond the focus of this study, were ignored. As Gachago, Strydom, Hanekom, Simons and Walters (2015) point out, students or learners experiences of being taught using technology has not been well researched and continues to be a gap in our understanding of the affordances of blending in teaching. Working with teachers was also challenging since their time was limited as many were busy with extra-curricular responsibilities on different days after school. When we met for the participants to draw their experiences, the participants were under a lot of stress as it was near the end of term with many administrative deadlines. I assured the participants that the process would not take hours and they should use the opportunity to take a break from all other responsibilities.

Inviting participants to draw pictures proved to be both challenging and rewarding. Some of the participants were hesitant to draw and Claire refused to draw. I allowed her to take pictures from a magazine to create a visual representation. Although the participants were initially reluctant to draw and were somewhat surprised at the request, they all produced a visual representation of their thinking about blended learning. This then allowed us to think differently about the experiences they had about including a blended component in their teaching.

I could only choose teachers who teach the Grade 7's, since only the Grade 7 classrooms are equipped with interactive whiteboards and focusing on interactive whiteboards is a possible limitation when one considers other possibilities for blending such as WhatsApp (Gachago et al, 2015). This study was limited to the sample school which is relatively well-resourced compared to the majority of schools in the metropole. It is possible that schools without interactive whiteboards could blend using mobile technologies such as WhatsApp.

7. RECOMMENDATIONS

Although, the sample school has technological resources, the DBE should take into consideration that schools require technological resources in order for teachers to enhance their teaching and thus accommodate 21st century learners. Furthermore, the DBE should take into consideration, and as far as possible attempt to alleviate, the challenges that teachers experience in order to teach these high-tech learners. Furthermore, the DBE should provide in-service training to teachers to equip them with the necessary technological skills in order to incorporated technology into their teaching and create learners who can cope in the 21st century work world. There should also be on-going support if the training is to be carried into practice.

Unlike the study by Slay, Siebörger and Hodgkinson-Williams (2008), none of the participants chose to blend with Mathematics. This may be due to the limited nature of this study and the fact that the teachers in the study by Slay *et al* (2008) taught high school Maths and needed the visual support of the whiteboard more. I thus recommend further research to investigate whether or not a blended teaching approach is more appropriate to certain subjects or different levels of learning abstraction.

Since Claire teaches special needs learners and had a positive experience with blended learning, I recommend further research into the affordances of blended learning for special needs learners.

8. CONCLUDING REMARKS

One of the many characteristics of the 21st century learner is that they are highly technologically skilled. This characteristic poses today's teachers with many challenges in order to teach these learners and create optimal learning experiences. It is evident that teachers have their own preferred teaching methods which they believe work best and some teachers teach the way that they were taught at school. These preferred teaching methods are sometimes out of date and do not accommodate 21st century learners.

Blended learning is a teaching method that is said to promote optimal learning experiences in the 21st century learning environment. Through experiencing blended learning teachers who made use of a textbook based teaching method made shifts not only to a blended approach, but also shifted their thinking away from what they prefer, to what learners get out of the learning experience. Although challenges occur when using a blended teaching approach, their experiences with blended learning were mostly positive and they found learners to be more involved in the learning process. Hence, their attitudes to 21st century teaching changed and they were excited about the learning process again. These outcomes created

feelings of worthiness in the teachers since they create such positive learning opportunities for their learners.

It seemed as if certain subjects promoted blended learning since none of the participants chose to blend with Mathematics. Languages allowed teachers to bring in current affairs and popular culture that recognises the reality of the learners' lives. Schools do not recognise learners' culture, whereas Sam who used Disney characters recognised how important it is to link teaching with out of school learning and interests.

Although the teachers made shifts, most of the participating teachers continue to have a fear for technology since they had not received adequate training to incorporate technology into their teaching approaches. It is crucial for the DBE and schools to provide teachers with opportunities to improve their technological skills in order for teachers to create blended learning experiences for the 21st century learner.

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APPENDICES

Appendix A:

Nelson Mandela Metropolitan University

for tomorrow
FACULTY OF EDUCATION
Tel . +27 (0)41 504 4568
Fax. +27 (0)41 504 1986

4 May 2016
Prof P Bean / Ms M Williams
Education Faculty
NMMU

Dear Ms Williams

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning

Your above-entitled application for ethics approval was approved by the Faculty Research, Technology and Innovation Committee of Education (ERTIC) at the meeting held on 2 February 2016.

We take pleasure in informing you that the application was approved by the Committee.

The ethics clearance reference number is **H16-EDU-ERE-004**.

We wish you well with the project. Please inform your co-investigators of the outcome, and convey our best wishes.

Yours sincerely

Ms J Hay
Secretary: ERTIC

Appendix B:

Institutional Permission – Department of Education

Ethel Valentine Building
5 Sutton Road, North End
(041) 4034400
For attention:

Request for permission to conduct research in schools

To whom it may concern

My name is Monique Williams, and I am an education student at the Nelson Mandela University in Port Elizabeth. The research I wish to conduct for my Master's thesis involves a collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning. This project will be conducted under the supervision of Dr. E. Scheckle (NMU, South Africa).

I am hereby seeking your consent to approach a primary school in the Port Elizabeth area to provide participants for this research programme.

I have provided you with a copy of my thesis proposal which includes copies of the measure and consent and assent forms to be used in the research process, as well as a copy of the approval letter which I received from the NMU Research Ethics Committee - H16-EDU-ERE-004.

Upon completion of the study, I undertake to provide the Department of Education with a bound copy of the full research report. If you require any further information, please do not hesitate to contact me on 0795175791 and/or s209061496@mandela.ac.za. Thank you for your time and consideration in this matter.

Yours sincerely

Monique Williams
Nelson Mandela University

DEPARTMENT OF EDUCATION
PROVINCE OF THE EASTERN CAPE

PORT ELIZABETH DISTRICT OFFICE

✉ Private Bag X3915, Sutton Rd, Sidwell, Port Elizabeth
☎ (041) 403 4445 ▯ 0818941298 / ☎ 0866552800
E-Mail pedro.vanvuuren@edu.ecprov.gov.za
ACTING CENTRAL CMC HEAD

TO: MS. M. WILLIAMS
FROM: MR. PJ VAN VUUREN (A CENTRAL CMC HEAD)
RE: PERMISSION GRANTED TO CONDUCT RESEARCH AT SCHOOL
DATE: 27 MARCH 2018

Dear Ms. Williams

Warm Greetings

Permission is hereby granted to conduct research at Charlo Primary School.
The research however must be based on the following premise:

1. This letter is given to the school
2. The principal will be consulted in all of this
3. All current policies/prescripts of the DoE will be honoured iro of leave; school hours etc.
4. There will be a minimal disturbance iro teaching and learning
5. This will in no way distract from the current programme of the school and its concomitant programme with the DoE.

Thank You

Pedro J van Vuuren
A CENTRAL CMC HEAD

E-Mail: pedro.vanvuuren@edu.ecprov.gov.za
Cell: 0716102477
Office: 041-4034407
Fax: 0866552800

Appendix C:

Appendix A

Institutional Permission – Principal of school

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may
have on primary teachers' modes of learning

School Principal Consent Form

I give consent for you to approach grade seven teachers to participate in the research
programme 'A collective case study of the changes the practice of blended learning may have
on primary teachers' modes of learning'.

I have read the Project Information Statement explaining the purpose of the research project
and understand that:

- The role of the school is voluntary.
- I may decide to withdraw the school's participation at any time without penalty.
- Grade seven teachers will be invited to participate and that permission will be sought from them.
- Only teachers who consent will participate in the project.
- All information obtained will be treated in strictest confidence.
- The teachers' names will not be used and individual teachers will not be identifiable in any written reports about the study.
- The school will not be identifiable in any written reports about the study.
- Participants may withdraw from the study at any time without penalty.
- A report of the findings will be made available to the school.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

_____   _____   2018-03-
Principal   Signature   Date

2018-03-14
PRINCIPAL

Appendix D:

Institutional Permission – Participants

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning

Participants Consent Form

I hereby voluntarily participate in this research study and give permission to the researcher to record me during Focus Group Interviews, participate in a workshop and complete questionnaires.

I have read the Project Information Statement explaining the purpose of the research project and understand that:

- My role is voluntary.
- I may decide to withdraw participation at any time without penalty.
- Only teachers who consent will participate in the project.
- All information obtained will be treated in strictest confidence.
- My name will not be used and individual teachers will not be identifiable in any written reports about the study.
- A report of the findings will be made available to me.
- The recording may be used at any time in the future by the researcher, M. Williams and Primary responsible person, Dr. E. Scheckle.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

Ethical clearance was obtained from the Nelson Mandela University Research Ethics Committee (Clearance number - H16-EDU-ERE-004).

_____   _____   10 May 2018
Participant   Signature   Date

Institutional Permission – Participants

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning

Participants Consent Form

I hereby voluntarily participate in this research study and give permission to the researcher to record me during Focus Group Interviews, participate in a workshop and complete questionnaires.

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- My role is voluntary.
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- All information obtained will be treated in strictest confidence.
- My name will not be used and individual teachers will not be identifiable in any written reports about the study.
- A report of the findings will be made available to me.
- The recording may be used at any time in the future by the researcher, M. Williams and Primary responsible person, Dr. E. Scheckle.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

Ethical clearance was obtained from the Nelson Mandela University Research Ethics Committee (Clearance number - H16-EDU-ERE-004).

| _____ | _____ | 10-05-2018 |
| Participant | Signature | Date |

Institutional Permission – Participants

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning

Participants Consent Form

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- I may decide to withdraw participation at any time without penalty.
- Only teachers who consent will participate in the project.
- All information obtained will be treated in strictest confidence.
- My name will not be used and individual teachers will not be identifiable in any written reports about the study.
- A report of the findings will be made available to me.
- The recording may be used at any time in the future by the researcher, M. Williams and Primary responsible person, Dr. E. Scheckle.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

Ethical clearance was obtained from the Nelson Mandela University Research Ethics Committee (Clearance number - H16-EDU-ERE-004).

▬▬▬▬▬▬	▬▬▬▬▬▬	2018-05-08
Participant	Signature	Date

Institutional Permission – Participants

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning
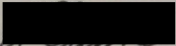
Participants Consent Form

I hereby voluntarily participate in this research study and give permission to the researcher to record me during Focus Group Interviews, participate in a workshop and complete questionnaires.

I have read the Project Information Statement explaining the purpose of the research project and understand that:

- My role is voluntary.
- I may decide to withdraw participation at any time without penalty.
- Only teachers who consent will participate in the project.
- All information obtained will be treated in strictest confidence.
- My name will not be used and individual teachers will not be identifiable in any written reports about the study.
- A report of the findings will be made available to me.
- The recording may be used at any time in the future by the researcher, M. Williams and Primary responsible person, Dr. E. Scheckle.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

Ethical clearance was obtained from the Nelson Mandela University Research Ethics Committee (Clearance number - H16-EDU-ERE-004).

| _____ | _____ | 2 | 5 | 2018 |
| Participant | Signature | Date | | |

Institutional Permission – Participants

NELSON MANDELA
UNIVERSITY

Change the World

A collective case study of the changes the practice of blended learning may have on primary teachers' modes of learning

Participants Consent Form

I hereby voluntarily participate in this research study and give permission to the researcher to record me during Focus Group Interviews, participate in a workshop and complete questionnaires.

I have read the Project Information Statement explaining the purpose of the research project and understand that:

- My role is voluntary.
- I may decide to withdraw participation at any time without penalty.
- Only teachers who consent will participate in the project.
- All information obtained will be treated in strictest confidence.
- My name will not be used and individual teachers will not be identifiable in any written reports about the study.
- A report of the findings will be made available to me.
- The recording may be used at any time in the future by the researcher, M. Williams and Primary responsible person, Dr. E. Scheckle.
- I may seek further information on the project from Monique Williams on 0795175791 or s209061496@mandela.ac.za.

Ethical clearance was obtained from the Nelson Mandela University Research Ethics Committee (Clearance number - H16-EDU-ERE-004).

		02/05/2018
Participant	Signature	Date

Appendix E:

Date	
H16-EDU-ERE-004	

NELSON MANDELA
UNIVERSITY

Change the World

Nelson Mandela University

Faculty of Education

M. Ed. Research

Research Questionnaire

NUMBER OF QUESTIONNAIRE	

Rationale (Reason)

The aim of this questionnaire is to gain insight into your personal information as Intermediate Phase (IP) teacher and to establish your current position on the Innovation Adoption Lifecycle.

Instructions

1. Participants in this questionnaire will remain totally anonymous.
2. Please do not write your name anywhere on this questionnaire.
3. Participation is voluntary and you may withdraw from the project at any stage.
4. The questionnaire consists of two sections. Section A focuses on biographic information. Section B focus on the personal experience, perceptions and opinions of teachers in the IP with reference to your position on the Innovation Adoption Lifecycle.
5. You are not obligated to answer the questions and may choose whether to answer a question or not.
6. If you require any additional information concerning this project, please do not hesitate to contact me. My contact details are as follow:
    Mrs Williams
    Cell no. 079 517 5791
    E-mail: s209061496@mandela.ac.za

SECTION A: Biographic Information

Please indicate in the block provided by using a cross (x) or tick (√).

1. Gender

Male		Female	

2. Age

Younger than 30 years		Older than 30 years	

3. Qualification

Two-year Teachers' Certificate	
Three-year Teachers' Diploma/National Professional Diploma in Education	
Higher Diploma in Education (four years)	
Bachelors Degree (three years)	
Bachelor of education (four year integrated)	
Bachelor 's degree (three years) plus education diploma (one year)	
Other: Please state which:	

4. Number of years' experience in teaching

1-5		6-10		11-15		16 and more	

5. Indicate the grades that you are currently teaching.

Grade 4		Grade 5		Grade 6		Grade 7	

Section B: Innovation Adoption Lifecycle Position

Choose the one answer that matches your response.

Question 1

When a new product is introduced I am most likely to:	
Be eager to try the new product	
Encourage my group of family and friends to buy the new product	
Collect more information about the product before making a decision	
Only buy the product because my friends have all adopted it	
Only buy the product once it is outmoded or replaced	

Question 2

When a new product is launched I am most likely to gain information on it through:	
Relying less on group norms and more on myself and experts	
Relying on group norms and values	
Relying on my opinion leaders instead of forming them for myself	
Word-of-mouth	
Making use of my past influences in order to make a decision	

Question 3

With regards to a new technological innovation I am most likely to:	
Be committed to new technology since it is bound to improve our lives	
Be the first to exploit the new capability	
Only use the innovation once it has a track record	
Not be interested right away since it is high-tech and be sceptical	
Not participate at all since I have a fear of new technological innovations	

Question 4

With regards to adopting to new things I am most likely to:	
Be the first to have information and people are most likely to ask me for more information	
Be the first to adapt once it is implemented	
Only adapt once I know it is effective	
Be pessimistic about my ability to gain any value	
Find adaptation very challenging and are not very willing to adapt.	

Thank you for completing this questionnaire!

Appendix F:

Date:
H16-EDU-ERE-004

NELSON MANDELA
UNIVERSITY

Change the World

Nelson Mandela University

Faculty of Education

M. Ed. Research

Research Questionnaire

NUMBER OF QUESTIONNAIRE	

Rationale (Reason)

The aim of this questionnaire is to gain insight into your personal experiences, perceptions and opinions as Intermediate Phase (IP) teachers with regards to the use of blended learning and your current mode/s of learning.

Instructions

7. Participants in this questionnaire will remain totally anonymous.
8. Please do not write your name anywhere on this questionnaire.
9. Participation is voluntary and you may withdraw from the project at any stage.
10. The questionnaire consists of two sections. Section A and B focus on the personal experience, perceptions and opinions of teachers in the IP.
11. You are not obligated to answer the questions and may choose whether to answer a question or not.
12. If you require any additional information concerning this project, please do not hesitate to contact me. My contact details are as follow:
    Mrs Williams
    Cell no. 079 517 5791
    E-mail: s209061496@mandela.ac.za

SECTION A

For the following part of the questionnaire, please indicate your level of agreement with the statements by circling the applicable number. Use the following scale:

1 = Not Applicable	2 = Strongly Disagree	3 = Disagree	4 = Neutral	5 = Agree

1. Personal experiences with technology at **primary and high school**					
1.1) At school I didn't make use of technology	1	2	3	4	5
1.2) At school I found the use of technology challenging	1	2	3	4	5
1.3) At school I did not enjoy using technology	1	2	3	4	5
1.4) At school I enjoyed using technology	1	2	3	4	5

2. Personal experiences with technology at **tertiary institutions**					
2.1) A module/subject including technology was one of my favourite module/subject during tertiary education	1	2	3	4	5
2.2) I found the use of technology difficult and consequently did not like it	1	2	3	4	5
2.3) I learned the basics of technology at college/university	1	2	3	4	5
2.4) My tertiary technology training equipped me to teach through the medium of technology	1	2	3	4	5

3. In-service training					
3.1) I received sufficient training on how to implement technology in my teaching practices	1	2	3	4	5
3.2) I received sufficient training on how to use technology at my disposal within my school	1	2	3	4	5
3.3) I received enough support from my institution on how to use technology effectively	1	2	3	4	5

4. Intermediate Phase learners' attitude towards technology					
4.1) Learners in the IP come to school with prior knowledge of technology	1	2	3	4	5
4.2) The use of technology is too challenging for learners in the IP	1	2	3	4	5
4.3) All learners in the IP have the ability to use technology	1	2	3	4	5
4.4) Learners in the IP enjoy using technology	1	2	3	4	5
4.5) Learners in the IP are more willing to participate in lessons when technology is incorporated	1	2	3	4	5

5. Your opinion of the importance of incorporating technology in the IP					
5.1) 21st century learners are accommodated when technology is being incorporated	1	2	3	4	5
5.2) Teaching with technology creates excitement and willingness to learn in learners	1	2	3	4	5
5.3) Incorporating technology in teaching prepare learners for the 21st century world	1	2	3	4	5
5.4) Learners in the IP should develop technological skills	1	2	3	4	5
5.5) Accommodating 21st century learners must be given a higher priority in the IP	1	2	3	4	5

SECTION B: Open-ended questions

This section focuses on the personal situation in your classroom and school pertaining to the implementation of technology. Kindly respond to all questions as fully as possible.

1. What challenges have you experienced in terms of implementing technology within your teaching?

   _____
   _____
   _____
   _____
   _____ .

2. How would you describe your attitude towards making use of technology in your teaching?

   _____
   _____
   _____
   _____ .

3. Do you feel adequately equipped with the necessary skills in order to incorporate technology in your teaching environment? Yes/No, please motivate your answer.

_____
_____
_____
_____
_____
_____ .

4. What teaching approaches and methods do you currently use in your classroom?

_____
_____
_____
_____
_____
_____ .

5. Please describe the 21st century learner in your opinion.

_____
_____
_____
_____ .

6. Do all the IP teachers at your school share a common vision and understanding of the teaching structures necessary in order to accommodate 21st century learners?

_____
_____
_____
_____ .

Thank you for completing this questionnaire.

Your co-operation is highly appreciated.

Appendix G:

Nelson Mandela University

Faculty of Education

M. Ed. Research

Focus Group Interview

Rationale (Reason)

The aim of this interview is to obtain perceptions from participants on a defined area of interest in a non-threatening environment.

Outcome

At the end of the focus group interview the researcher would like to have obtained information on the participants' perceptions with regards to their current teaching and learning approaches.

Participants

The participants will be five grade seven educators who teach various subjects.

Location

The focus group interview will take place at the school where the participants teach and the interview will be video recorded.

Question Guide

1. How would you define the generation learners who you are currently teaching?
2. How do you believe these learners learn best?
3. What challenges do you think teachers face in order to teach today's learners?

4. What are your current teaching and learning approaches that you follow in your grade seven class?
5. Why do you incorporate these specific teaching and learning approaches in your classroom?
6. How effective are these approaches?
7. What other teaching strategies could you add to your present repertoire to improve these teaching and learning strategies?
8. What do you think about teacher centred teaching?
9. What do you think about learner centred teaching?
10. Do you make use of technology in your teaching?
11. What is your opinion on incorporating technology into the learning process?
12. Are you comfortable when using technology?

Analysis

The perceptions and ideas of the participants will be summarised and shared with the participants.

Appendix H:

Nelson Mandela University

Faculty of Education

M. Ed. Research

Workshop

Rationale (Reason)

The aim of this workshop is to teach teachers how to make use of blended learning as a teaching approach within the learning environment.

Presentation

The workshop will be presented through making use of Blended learning methods.
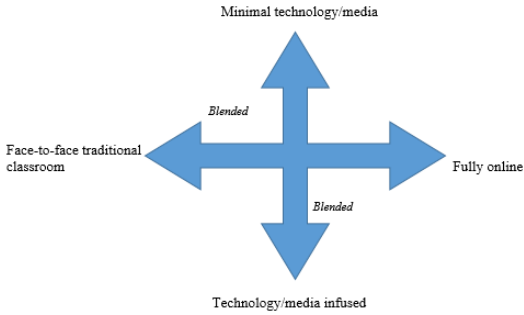
Setting

The workshop will be presented in the computer laboratory of the school.

Outcome

At the end of the workshop the participants must be able to:

1. Define blended learning as a teaching approach.
2. Identify different blended learning approaches which can be used during teaching.
3. Identify the advantages of blended teaching methods.
4. Identify the disadvantages of blended teaching methods.
5. Design a series of lessons through using blended learning as a teaching approach.

Workshop Guide	
Outcome 1: Definition of Blended learning	The word 'blended' is defined as combining two or more things together. Blended learning can be defined as the combination of face-to-face, traditional classroom methods and computer-mediated activities, whether it is online or not. This term combines the classroom and online education in various ways since it is further defined as a combination of face-to-face, traditional interaction with a teacher in a school location, with additional instruction which is conducted in an online learning environment that allows for digital content, personalized learning and collaboration with fellow learners. *(Gulc, 2014)* Figure 2: Broad Conceptualization of Blended Learning Source: Picciano, A.G. 2007. Posting to the Official Website of the 2007 Sloan-C Summer Workshop held in Victoria, British Columbia. Participants will watch a PowerPoint presentation on blended learning. Participants will watch a YouTube video on blended learning.
Outcome 2: Blended learning approaches	Blended lessons can be as simple as to incorporate: Videos Blogs Cyber Hunts Flipped Classroom Moodle *(Gulc,2014; Picciano & Dziuban,2007)* Participants will watch a YouTube video on a Flipped Classroom.
Outcome 3:	Participants will follow a link and read about the advantages of blended learning.

Advantages of blended teaching methods	Link: https://sites.google.com/a/idahopd.org/blended-learning/advantages-and-challenges
Outcome 4: Disadvantages of blended teaching methods	Participants will follow a link and read about the disadvantages of blended learning. Link: https://sites.google.com/a/idahopd.org/blended-learning/challenges
Outcome 5: Providing an example of a lesson through using blended learning	Participants will watch a YouTube video of a teacher presenting a lesson through making use of blended learning as a teaching method.