Teachers' understanding and use of digital play for language acquisition in Grade R

by

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“***If a child can’t learn the way we teach, maybe we should teach the way they learn”*** (Quoteiston.com)

DECLARATION

I, Leonie Magdalena van der Westhuizen, hereby declare that this MEd dissertation:

Teachers' understanding and use of digital play for language acquisition in grade R

is my original work and that all sources I consulted have been indicated or acknowledged by means of references. I further declare that I have submitted this dissertation to originality checking software.

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Signature

19 November 2019

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ABSTRACT

Teachers tend to use traditional teaching methods, even though young learners are more digitally oriented. The purpose of this study was to analyse teachers' understanding and practices in grade R classes to clarify their use of digital play for language acquisition. The participants consisted of eight grade R teachers at one selected primary school in an urban area that had access to digital technology. Bronfenbrenner's ecological systems theory as a theoretical framework informed this study. This qualitative single case study generated data from teacher participants and their interaction with the learners. The data generation included semi-structured individual interviews, focus group interviews, and non-participant observations. Analyses to answer the research questions were conducted by means of thematic analysis. The main finding was that grade R teachers have some knowledge and understanding of digital play and they are willing to try new games, but they feel they need to know more about digital technology and the use of digital games for language acquisition. Recommendations include the need for the development of more digital games relevant to language acquisition and for teachers to adopt relevant pedagogies to benefit from available digital games. A similar study in a rural area and a comparison between this study and such a study will then be useful in determining teachers' understanding and use of digital play for language acquisition.

KEY TERMS

- Digital play
- Digital technology
- Grade R learners
- Grade R teachers
- Language acquisition
- Teacher pedagogical beliefs
- Information Communication Technology (ICT)
- Technological, Pedagogical and Content Knowledge Framework (TPACK)

OPSOMMING

Onderwysers is geneig om tradisionele onderrigmetodes te gebruik, selfs al is jong leerders meer digitaal georiënteerd. Die doel van hierdie studie was om onderwysers se begrip en praktyke in graad R-klasse te ontleed, om hul gebruik van digitale spel vir taalverwerwing duidelik te maak. Die deelnemers het bestaan uit agt graad R-onderwysers by een uitgesoekte laerskool in ʼn stedelike gebied, met toegang tot digitale tegnologie. Hierdie studie is geïnspireer deur Bronfenbrenner se ekologiese stelselteorie as ʼn teoretiese raamwerk. Hierdie kwalitatiewe enkelgevallestudie het data van onderwyser-deelnemers en hul interaksie met die leerders gegenereer. Die datagenerering het halfgestruktureerde individuele onderhoude, fokusgroeponderhoude en niedeelnemer-waarnemings ingesluit. Die vernaamste gevolgtrekking was dat graad R-onderwysers oor ʼn mate van kennis en begrip van digitale spel beskik en dat hulle bereid is om nuwe speletjies te probeer, maar hulle voel hulle behoort meer te weet van digitale tegnologie en die gebruik van digitale speletjies vir taalverwerwing. Aanbevelings sluit in: die behoefte aan die ontwikkeling van meer digitale speletjies wat op taalverwerwing betrekking het; en dat onderwysers tersaaklike pedagogieë moet inspan om uit die beskikbare digitale speletjies voordeel te trek. ʼn Soortgelyke studie in ʼn landelike gebied en ʼn vergelyking tussen hierdie studie en so ʼn studie sal dan nuttig wees om onderwysers se begrip en gebruik van digitale spel vir taalverwerwing te bepaal.

SLEUTELTERME

- Digitale spel
- Digitale tegnologie
- Graad R-leerders
- Graad R-onderwysers
- Taalverwerwing
- Onderwysers se pedagogiese oortuigings
- Inligting-kommunikasie-tegnologie (IKT)
- Tegnologiese, Pedagogiese en Inhoud-kennis-raamwerk (TPACK)

KHUTSOFATŠO

Barutiši ba na le go šomiša mekgwa ya sekgale ya go ruta, le ge e le gore baithuti ba baswa ba na le tsebo ya theknolotši. Morero wa nyakišišo ye e be e le go sekaseka mašomelo le kwešišo ya barutiši ka diphapošing tša kreiti R go hlalosa tšhomišo ya bona ya papadi ya ditšitale ya go ithuta polelo. Bakgathatema ba bopilwe ke barutiši ba seswai ba kreiti R sekolong se se kgethilwego sa poraemari ka nagasetoropong seo se nago le theknolotši ya ditšitale. Teori ya mekgwa ya ekolotši ya Bronfenbrenner bjalo ka foreimiweke ya teori e thekgile nyakišišo ye. Kheisesetati ye e tee ya khwalithethifi e tšweleditše datha go tšwa go bakgathatema ba e lego barutiši le kopano ya bona le baithuti. Tšweletšo ya datha e akareditše dipoledišano tša motho o tee ka o tee tša go beakanywa seripa, dipoledišano tša go nepiša sehlopha, le ditlhokomelo tša ba go se kgathe tema. Ditshekatsheko go araba dipotšišo tša dinyakišišo di dirilwe ka go šomiša tshekatsheko ya thematiki. Kutullo ye kgolo e bile gore barutiši ba kreiti R ba na le tsebo le kwešišo ye nyane ya papadi ya ditšitale le gore ba rata go leka dipapadi tše diswa, eupša ba kwa ba nyaka go tseba tše ntši ka ga theknolotši ya ditšitale le tšhomišo ya dipapadi tša ditšitale tša go ithuta polelo. Ditšhišinyo di akaretša nyakego ya tlhabollo ya dipapadi tša ditšitale tše ntši tša maleba go ithuteng polelo le gore baithuti ba amogela serutiši sa maleba gore ba holege dipapading tša ditšitale. Nyakišišo ye bjalo nagamagaeng le papišo gare ga nyakišišo ye le nyakišišo ye bjalo gona e tla ba le mohola taetšong ya kwešišo ya barutiši le tšhomišo ya papadi ya ditšitale ya go ithuta polelo.

Mareo a bohlokwa: papadi ya ditšitale, theknolotši ya ditšitale, baithuti ba kreiti R, barutiši ba kreiti R, go ithuta polelo, ditumelo tša serutiši tša morutiši, tshedimošo kgokagano theknolotši (ICT), foreimiweke ya theknolotši, serutiši le tsebo ya diteng (TPACK)

LIST OF ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS AND ACRONYMS	EXPLANATIONS
CAPS	Curriculum and Assessment Policy Statement
DBE	Department of Basic Education
GDE	Gauteng Department of Education
ICT	Information Communication Technology
NAEYC	National Association for the Education of Young Children
PIRLS	The Progress in International Reading Literacy Study
PTD	Positive Technological Development Framework
SGB	School Governing Bodies
SMT	School Management Team
TPACK	Technological, Pedagogical and Content Knowledge Framework

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CHAPTER 1

ORIENTATION

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

High levels of English language proficiency are important for achieving academic success, yet “the reading situation in South Africa constitutes a national education crisis” (Stephen, Welman and Jordaan, 2004:45; Jordaan, 2011:79; Van Dyk and Coetzee-van Rooy, 2012:13). This is problematic since it is assumed that the literacy, numeracy and life skills acquisition of learners in the foundation phase will be sufficient to make the transition from reading to learning after grade three (Reyneke, 2014:34).

As lecturer in early childhood development at a private tertiary institution in Centurion, the researcher observed that a number of students were not adequately competent in reading on their education level. The researcher also taught languages for 15 years at several high schools in Gauteng and North West Province and observed how learners struggled with language. The language problem in education seems to start from a very early stage (Gonzalez-Mena, 2011:380). Learners of the 21st century grow up in a world where they are constantly digitally connected to one or more devices. Seeing that young children are digitally advanced, and because digital technology is so integral in their environment, teachers need to explore and consider how to incorporate it in their pedagogical approaches to teaching young learners to acquire language proficiency through digital play (Dietze and Kashin, 2013:5). Arnott (2016:272) contributed to exploring learners’ social experiences through digital play. She states that digital play is crucial for developing the young learners’ social experiences, interactions and behaviours. Research is needed on the role that digital technology currently plays from the onset of schooling in early childhood education programmes, to identify the possible ways in which digital technology can be used effectively in class for purposes of facilitating language acquisition for the future.

The argument for the need for this study was supported by the limited number of references to international studies on the use of digital technology in early childhood

language acquisition listed in Google Scholar and the electronic data base Ebscohost. A search of studies on the use of digital play in grade R in South African schools did not yield any references, either.

The focus of this study is on teachers' understanding, knowledge and use of digital technology through play to enhance language acquisition in grade R. The researcher's specific interest is in digital play in grade R and its use for language acquisition. The purpose was to investigate teachers' understanding of the relation between digital play and language acquisition in grade R and current use in order to make recommendations about ways in which digital play can be integrated with teaching methods relevant to language acquisition.

The research was conducted at a primary school in Centurion, Pretoria. The school is an ex-model C primary school, which has a grade R centre with eight teachers and approximately 280 grade R learners. The primary language of the school is Afrikaans and there is an annual increase in diversity in classroom composition. The school is a well-resourced neighbourhood school in a middle to lower socio-economic status area of Centurion. Technology resources are readily available and the teachers are known to be innovative in their teaching.

Early childhood teachers, as well as early childhood student teachers will benefit from this study, as it will show them how digital play can enhance their teaching of language to grade R learners. It was foreseen that utilisation of digital play can enrich the classroom environment as well as benefit grade R learners' language acquisition.

1.2 PROBLEM STATEMENT

Young learners are exposed to digital technology through play. This is evident in the significant and rapid expansion of the availability of technologies, different media, digital texting and social media systems, and the fact that children grow up surrounded by cell phones and other devices. Lieberman, Fisk and Biely (2009:301) acknowledge that young learners between ages 3 to 6 have a growing number and variety of digital games available to play on large screens, handheld screens, electronic learning systems, and electronic toys, and their time spent with digital games is growing. Digital

games are becoming more popular among learners in the preschool-to-first grade range and justify significantly more consideration. Teachers, on the other hand, mostly use traditional methods for teaching and rely on traditional resources, such as printed material. During the language acquisition process for grade R learners, they also make use of word meanings from typed texts like storybooks, and from storytelling (Parette and Blum, 2013:126). With the increase in development and availability of digital media, one begins to see teachers' spontaneous classroom innovation with the use of tablets for story watching or singing along with songs and videos. Digital play methods in this context would entail using tablets and cell phones, to play games and learn about word meanings at the same time. Digital technology is currently not used to that extent in the South African classroom and the researcher intended to investigate how teachers use digital technology and specifically digital play in the grade R classrooms to teach language acquisition. Grade R language acquisition is about emergent reading, shared reading, phonemic awareness, and emergent writing as required in CAPS.

The 'push down effect' that is happening in schools whereby grade R and preschool learners are being 'schoolified' (preparation for grade one with the focus on academic achievement of the young children) is inhibiting play. As stated in Parker and Thomsen (2019:16) there is "an increased burden on children to master academic concepts at a younger age, negatively impacting child wellbeing and impacting play". As early as grade R, the focus is more on academic achievement and less on play. This study investigated the phenomenon of digital play as used by teachers during language acquisition activities in grade R.

1.3 RATIONALE FOR THE STUDY

The Progress in International Reading Literacy Study (Howie, Combrinck, Roux, Tshele, Mokoena and Palane, PIRLS, 2017) released by the national research coordinator, professor Sarah Howie, at the University of Pretoria, revealed that the majority of South African grade 4 learners cannot read for meaning. They have scored the lowest marks in an international reading literacy study where a comparison was made with their counterparts across the world. Basic Education Minister, Angie

Motshekga requested that the researchers get to the root causes of the challenges around reading (Fengu, 2017:2).

In a study on the use of digital technology in the teaching of language acquisition of grade R learners, one can assume that one of the reasons for the learners' poor reading and writing performance is the teachers' lack of proper skills in and the knowledge of teaching language. This study postulates the use of digital media to support language acquisition. It is therefore important to research ways to assist the teachers in identifying better teaching methods, such as incorporating digital play as one strategy in their teaching practices, when teaching language to grade R learners (Huysamen, 2000 quoted by van Rooy and Coetzee-van Rooy, 2015:33). This study identified current pedagogical approaches and synergies between digital play and language acquisition to make recommendations for future research on extending digital technology as an aid to enhance language acquisition in grade R. The learners are from technology-rich environments and they need to be taught in a way that incorporates the use of digital technology.

1.4 THEORETICAL FRAMEWORK

For the purpose of this inquiry into the role of digital technology in language acquisition, the framework of Bronfenbrenner was chosen. Bronfenbrenner's bio-ecological theory (Bronfenbrenner, 1994:39-40) is relevant for the analysis of the multiple systems which influence the lives of the teachers and learners in this study (see 2.7.1 for a comprehensive discussion on the literature according to Bronfenbrenner's Bio-ecological Model and Chapter 5 for a detailed incorporation of the findings according to this framework). These systems are eminent as the microsystem, the mesosystem, the exosystem, the macrosystem and the chronosystem. Teachers need to be aware of the systems operating in their own lives, because the systems of the learners and the teachers are linked and form a new system.

Apart from Bronfenbrenner, other theoretical perspectives were explored to understanding how teachers use digital play in language classes and substantiate the choice of the theoretical framing for this study. Connectivism states that learning is

not only seen as a personal skill, but that it also involves how digital tools such as tablets and smart phones, are used in the learning process (Siemens, 2005:5). According to the Technological, Pedagogical and Content Knowledge Framework (TPACK), teachers need to include digital technology together with the traditional technologies in their teaching to enhance their technological knowledge (Koehler, Mishra, Kereluik, Shin and Graham, 2014:102). The Positive Technological Development Framework (PTD) focuses on the role of digital play for language acquisition and the learners' involvement with it (Bers, 2018:98). These theories will be further discussed in Chapter 2.

1.5 KEY CONCEPTS

1.5.1 Digital technology

Digital technology in education is defined as the wide variety of equipment and media used by teachers in classrooms (Berson and Berson, 2010:3). Such devices include computers, mobile phones, MP3 players, televisions and games, consoles and products such as DVDs, websites, games and interactive stories (Plowman, 2015:38).

1.5.2 Language acquisition

Noam Chomsky (1986:18), an eminent American linguist, states that we are born with an ability to learn language, and that young learners will learn a language with little effort. Imitative learning in language acquisition with young children is when they say what adults say and the more they hear it, the more it seems to them the only way to say it (Tomasello, 2000:72). Ochs (1988:13) states that the literature on language acquisition indicates that young learners are socialised to use the most preferred linguistic forms vis-à-vis particular situations of use. They will say "thank you" when told to do so.

In grade R, and for the purpose of this study, language acquisition is considered in terms of play-based learning. According to Pepler (2015:165), play gives the young learner the opportunity to expand his/her vocabulary, sentence structure and to

understand semantics. Through play, the learner is not only a listener, but also a user and creator of language.

1.5.3 Digital play

Digital play in this study is defined in terms of Stephen and Plowman's (2014:2) definition, which states that digital play can range from games with pre-defined rules, through rivalry against a virtual partner, to using a simulated technology in an inventive play setting. This is a broad, activity-orientated understanding of digital play.

Online playgrounds are where digital technology is used to create an educational and fun online virtual world for the grade R learner. These new technologies provide a framework for understanding the critical role that such technologies can play, and it suggests ways in which teachers can support this learning (Berson et al., 2010:7).

1.5.4 Grade R

In South Africa, grade R is seen as part of the foundation phase where according to the Admission Policy for Ordinary Public Schools the admission age of a learner to a public school in grade R is age four turning five by 30 June in the year of admission (Department of Basic Education, Curriculum Assessment and Policy Statement, 2011).

1.5.5 Teacher pedagogical beliefs

The focus of this study is on how teachers understand and use digital play for language acquisition in grade R. While language acquisition is defined in terms of CAPS curriculum definitions for grade R, teacher beliefs are defined as knowledge and perceptions, based on practice experiences (Ertmer, 2006:7; Liu, 2011:1013).

1.6 AIM AND OBJECTIVES

Primary research question

How do teachers understand and use digital play methods for language acquisition in grade R?

Secondary questions

- What knowledge and understanding do grade R teachers have of digital play?
- What pedagogical approaches do grade R teachers use for purposes of language acquisition?
- How do grade R teachers understand the pedagogical value of digital play for language acquisition?
- What are the teachers' perceptions of the use of digital play to improve language acquisition of grade R learners?
- What are the implications for teaching practices of using digital play methods for the enhancement of language acquisition in grade R?

Aim and objectives

- To investigate the knowledge and understanding teachers have of digital play methods in grade R;
- to explore the types of technology teachers use in the class for language acquisition and how they value such methods;
- to do an empirical study of the pedagogical approaches grade R teachers use for purposes of the teaching of language acquisition;
- to investigate how teachers understand the pedagogical value of digital play for language acquisition;
- to summarise the perceptions and practices of the teachers of how digital play could improve language acquisition in grade R learners;
- to make recommendations for the use of digital technology in grade R for purposes of enhancing language acquisition.

1.7 RESEARCH METHODOLOGY

The purpose of this study is to explore in what way teachers use digital methods for language acquisition to explain how such methods can increase language acquisition of grade R learners. The following sections will be further discussed in Chapter 3.

1.7.1 Research design

This study was guided by a qualitative case study approach. This approach is an effective research design because it focuses on practical knowledge and the social context of individuals (Hesse-Biber and Leavy, 2011:256). The researcher chose to make use of a case study to gain a deeper understanding of the perceptions and experiences of grade R teachers at a particular, purposively selected primary school. Further discussion on the research design is included in 3.2.3.

1.7.1.1 Research paradigm

This research was conducted in the interpretivist paradigm. According to Henning, Van Rensburg and Smit (2004:21), this paradigm highlights experience and interpretation and is interested in accepting the world as it is from the personal practices of individuals. This, according to Yazan (2015:139), involves significance-oriented methodologies, such as interviewing or participant observations, which rely on a personal relationship between the researcher and subjects (Reeves and Hedberg, 2003:32). Observations and interviews are the key data generation methods in this paradigm (Aspers, 2004: [online]). The key words pertaining to these methods are participation, collaboration and engagement (Flick, 2018:132). The research paradigm is further discussed in 3.2.1.

1.7.1.2 Research approach

The research approach for this study is qualitative, which according to Creswell (1998:15), is "…an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem". Creswell (2012:215) states that the researcher builds a multifaceted, all-inclusive picture, analyses words, accounts complete views of informants, and conducts the study in an ordinary setting.

The reader is taken into the numerous scopes of a problem or an issue. See 3.2.2 for additional deliberations on this matter.

1.7.1.3 Research strategy

The design of this study is a case study of one school, which according to Stake (1995:102) is a bounded system where it is an entity rather than a method. A bounded system means the boundaries of the case study need to be defined, the focus and unit of analysis clarified, as well as detail provided about the phenomenon, timeframe, activities and methods (Henning et al., 2004:40). The researcher involved all the teachers teaching grade R at the selected school.

1.7.2 Research methods

1.7.2.1 Selection of participants, population and sampling

Purposeful sampling is a technique widely used in qualitative research to select and identify information-rich cases for the most current use of incomplete resources (Patton, 1999:1197). This implicates classifying and choosing individuals or groups of individuals that are knowledgeable about or experienced with a phenomenon of awareness (Creswell and Clark, 2017:178). This study made use of purposeful sampling to select a school and participants who teach grade R learners.

1.7.2.2 Data generation

The researcher conducted the research in four phases, aimed at answering the specific research questions about teacher knowledge, teaching methods, and lesson outcomes specifically related to the use of digital technology in teaching language acquisition (see 3.4.2.1 and Fig. 3.1).

Data gathering in phase one involved meetings with the teachers and the head of department to establish relationships; clarifying expectations; negotiating buy-in and participation, roles and responsibilities. A baseline focus group interview on the

teachers' views and current use of digital media in their teaching, structured according to interview methods as described by Henning et al. (2004:53) was conducted.

Non-participant observations and semi-structured individual interviews with the teachers followed during phase two. According to Cohen, Manion and Morrison (2007:97), a semi-structured interview is a given agenda with open-ended questions. During phase three the data gathered during phases one and two were organised into themes. Phase four was the feedback session in the form of a post observation focus group interview in order to validate gathered data.

The empirical questions were based on acquiring knowledge on exploring the digital environment and furthermore, how grade R learners learn language in school and how digital technology supports language acquisition.

1.7.2.3 Data analysis

Data analysis was performed in this study, which involved the coding of data, and the identification of themes or major ideas in a document or set of documents. Data analysis is the "basic way of working the data where the researcher starts with a set of data, such as a transcribed interview" (Henning et al., 2004:104).

1.8 TRUSTWORTHINESS

In qualitative research, expertise is important, and this involves regular examining, questioning and concluding the results in a theoretical way. It also involves scrutiny for bias and precision and questioning procedures and decisions with peers (Henning et al., 2004:148). Shenton (2004:64) describes trustworthiness in terms of four components: credibility, transferability, dependability and confirmability which are further unpacked in 3.5.

Credibility according to Merriam (in Shenton, 2004:64) refers to the researcher's theory of inner strength and how to answer the question about how consistent the findings with authenticity are. Triangulation or a mixture of interviewing, observation, and document analysis adds to a demanding qualitative research study (Yilmaz,

2013:323). In this study, credibility was assured by using a triangulation of methods mentioned above, such as semi-structured interviews, classroom observations, focus group interviews, debriefing sessions and confirmation by the participants that the comprehensive data collected were fair and representative.

Transferability according to Shenton (2004:69) is to see what the background of the study is in order to understand its context and how to make comparisons to other studies. Henning et al. (2004:149) are of the opinion that if all the steps of the research process are well-documented and declared the process can be replicated in a setting that is similar. The aim of this study is to ensure that future researchers can replicate this research project in another school or schools to research similar phenomena. A detailed outline of the procedure, acknowledging resources, and motivating actions as researcher, will be included.

Shenton (2004:66) explains the meaning of **dependability** to be that which is seen when research methods, that show similarities and overlap, and by using in-depth methodological description, allows other researchers to do a similar study in other similar settings. This will be further discussed in 3.5. In this study, the research methods were chosen to link and support each other, such as interviews, observations, and debriefing sessions.

Confirmability according to Shenton (2004:72), explains shortcomings of the methods used in the study, and the effects that these might have, and not allowing researchers' bias to influence any findings to come in the way of the integrity of the research results. In this study, the researcher ensured that no harm was done to any individual or institutions in the course of this research.

1.9 ETHICAL CONSIDERATIONS

Ethical guidelines are necessary to guide against the noticeable and less noticeable mayhem of research according to Mertens (1998:23). In this study this was apparent where the participants were able to pull out at any stage from the research process. The participants were fully aware of the procedures of the study and the purpose thereof. Their confidentiality, privacy and anonymity were always protected. The

researcher applied for and received ethical clearance from the University of South Africa (see Appendix A). This allowed the researcher to conduct the research according to the ethical codes of conduct and the stipulated procedures (see 3.6 for an in-depth description of ethical measures).

1.10 CHAPTER DIVISION

Chapter 1: Introduction and overview, background, problem statement, rationale, theoretical framework, aim and objectives, research methodology, research design, data generation, data analysis, trustworthiness and ethical considerations are included in this chapter.

Chapter 2: Literature review chapter has as its purpose to clarify theoretical understanding of what is involved in grade R language acquisition, what is involved in digital technology and digital play in early childhood, what teachers know about teaching language acquisition and the use of digital technology. An explanation is given of theoretical frameworks that influence the study.

Chapter 3: Research methodological options and choices about the research paradigm, approach, design and data generation methods in this chapter have the purpose to clarify methodological options and motivate choices, given the research questions.

Chapter 4: The steps in the research process are explained in this chapter. Data analysis and interpretation are shown according to the research questions. The research results and discussion make up the rest of this chapter.

Chapter 5: Summary, conclusions, recommendations and limitations of the study are presented here.

1.11 SUMMARY

The research benefited grade R teachers in teaching language to the grade R learners, using digital technology and digital play. It also contributed to the academic literature about the use of digital technology when teaching grade R learners. The next chapter consists of reviewing the literature on factors that contributed to teachers' teaching methods and the teachers' understanding thereof as well as discourse on the theoretical framing that was applied in this study.

CHAPTER 2

A LITERATURE REVIEW OF DIGITAL PLAY AND LANGUAGE ACQUISITION IN GRADE R

2.1 INTRODUCTION

The focus of this study is on teachers' understanding and their use of digital play to enhance language acquisition in grade R. The main objective is to establish what knowledge and understanding teachers have of digital play, which types of digital technology they are currently using in the grade R classroom, and how such technologies contribute to language acquisition.

The purpose of this chapter is to present a review of literature on the phenomena of digital play, language acquisition in grade R, and early childhood education in order to present a framework for analysing teacher practices. The intention is to provide an overview of literature about teachers' practices of using digital play for language acquisition in grade R.

2.2 DIGITAL TECHNOLOGY AND DIGITAL PLAY

2.2.1 The contextual understanding of digital technology

The world we live in is shaped by digital technology. The human responses to technology show how technology is becoming increasingly integrated in everyday life. The world is rapidly changing, which makes it difficult to stay informed and to fully understand what it all involves. In addition, definitions of technologies have developed beyond screen-based media. More evidence is needed to challenge moral concerns about the influence of technologies and of all the contextual and social issues in the learners' experiences of using technologies (Arnott, 2016:276).

This study explores the importance of how learning and play are transformed in this dynamic and fluid context of a digital childhood. It accepts that Information

Communication Technology (ICT) development, which subsumes digital devices/tools/processes, does not need to be viewed pessimistically, that learners are becoming victims of the pervasive and powerful multimedia. It should be observed from a more developmental view that ICT advancement contributes towards empowering learners and helping them become, inter alia, more creative and knowledgeable than ever before (Rambaree, 2010 as quoted by Berson et al., 2010:192).

Digital technology in education includes a wide variety of equipment and media used by teachers in classrooms (Berson et al., 2010:3). Such devices include computers, mobile phones, MP3 players, televisions and games, consoles and products such as DVDs, websites, games and interactive stories (Plowman, 2015:38). According to Murcia, Campbell and Aranda (2018:251) the Victoria State Government of Australia describes, on their Education and Training website, digital technologies as “electronic tools, systems, devices and resources that generate, store or process data”. This technology may also include, “social media, online games and applications, multimedia, productivity applications, cloud computing, interoperable systems and mobile devices” (Murcia et al., 2018:251). Plowman and McPake (2013:27) suggest that technology includes devices such as cell phones and computers, as well as products such as games, websites, DVDs and stories shared on these devices.

However, Arnott (2017:9) argues that definitions of digital resources are fruitless because of the quick pace of change and development of digital tools. It is therefore important to keep in mind that learners are exposed to new forms of social interaction and stimulation of their imagination through such devices/tools/processes almost daily (Plowman et al., 2013:28). Regardless of definitions, technology plays an important role in the lives of the learners as they view, read, play or create games and stories on the different devices, and teachers need to consider their practices when selecting technology and how to use it in the classroom when teaching language acquisition.

In light of the digital age, and for the purpose of this study digital learning is an important concept, defined by Murcia et al. (2018:251) as “any type of learning that is facilitated by technology or by instructional practice that makes effective use of

technology". Digital technology cannot be separated from the learning environment and already forms an important and integral part of learners' lives. The present digital childhood involves learners experiencing the world and interacting physically, socially and culturally through technology (Arnott, 2017:8). Part of the young learner's digital world is the internet and Berson et al. (2010:186) argue, "the internet is fun, educational and entertaining, as well as scary, confusing and unsafe; children, therefore, need direction to navigate this rapidly emerging and expanding technology safely".

The National Association for the Education of Young Children (NAEYC) and the Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College in the USA, reviewed its position on technology in 2012. The argument to support digital technology for learning is echoed in their position statement, *Technology in Early Childhood Programs Serving Children from Birth through Age 8*, which states that developmentally appropriate technology can enhance learners' cognitive and social abilities (Parette et al., 2013:3). The organisation also states that technology integration is effective when integrated into the environment, curriculum and daily routines.

Integrating technology in the curriculum for early childhood learners is inevitable in the digital world in which they grow up. Firstly, the possibilities for integrating new technologies within early language acquisition is an urgent need for those who are involved in educational policy and practice. Secondly, teachers have to change their pedagogical approaches accordingly. The interactive nature of digital technology enables the teacher to scaffold instructions in their pedagogical approach (Parette et al., 2013:124). Finally, learners' experiences and responses to such opportunities must be understood during this integration phase (Burnett, 2010:248). The use of open-ended apps supplements a play-based approach to learning and teaching, and with overt instructions, scaffold learners' learning (McGlynn-Stewart, Brathwaite, Hobman, Maguire, and Mogyorodi, 2018:42).

The benefit of using digital technology in the classroom is that it provides the teachers with a view into the development of the learners' thinking, which allows active control and problem solving (Couse and Chen, 2010:75). Digital technology as an integral

learning tool for enhancing the social, linguistic, and cognitive development of learners is increasingly recognised. Digital media enhances communication over time and distance (Plowman et al., 2013:29).

In addition, the value of digital technology in education has also been argued by McCarrick and Xiaoming (as quoted by Dietze et al., 2013:5) who indicate that forming friendships occurs more frequently among learners using technology than when learners are involved in table work such as completing puzzles. Their studies determined that “peer interaction was present during 63% of the computer play and only 7% of the puzzle play” (Dietze et al., 2013:5).

Together these studies outline that digital technology forms an integral part of the lives of learners and this study postulates that it should naturally form an important part of the teaching and learning in the early childhood classroom.

2.2.2 Digital technologies in early childhood education

Learners’ initial experiences of play and learning with available technologies can contribute to their learning, especially when they get enough support from teachers and parents who observe and help them with difficulties. Parents and teachers should provide learners with encouragement and praise for achievements and help them cope with their responsibilities (Plowman et al., 2013:28). However, it is also important for learners to balance technology-based activities with games, books and outdoor play. The use of technology in play-based programmes changes the way learners engage in play, exploration and their overall learning experiences (Dietze et al., 2013:2). Technologies are part of the ecological system of early learning where learners explore social experiences (Arnott, 2016:271).

Teachers must be skilled in the elements of digital technologies which include “a knowledge and understanding of digital systems and data representations as well as the processes and production skills required to collect and manage data and creating digital solutions to problems” (Murcia et al., 2018:251).

According to Murcia et al. (2018:250), an initiative was launched in Australia, which was aimed at improving the proficiency of all pre-service teachers in the use of ICT at all 39 Australian teacher education institutes. This initiative proposed that teachers should use digital technologies to improve social inclusion and facilitate child-centred learning in both formal and informal environments. Early childhood teachers can benefit from such a proposal by using digital technologies in their lessons to ensure inclusion of the learners in the learning process. It specifically directed "systemic change in pre-service teacher education by building the capacity of teacher educators and through the development of online resources to provide rich professional learning" (Murcia et al., 2018:250). This initiative targeted the development of educators' technological pedagogical content knowledge (TPACK) (also see 2.7.3). Despite this national initiative, no clear frameworks were devised for the integration of digital technologies into early years education. The Early Childhood Education in Australia has released a statement on young learners and digital technologies to inform educators' practice. They provided much-needed principles and advice for educators (Murcia et al., 2018:251) how to integrate digital technologies into the young learners' learning experiences.

The increasing attention that is being paid to digital technology, influenced by the multiple literacies of children in the 21st century, results in the young learners' growing immersion in interactive digital media. According to Berschorner and Hutchinson (2013:17), the inclusion of multimedia and computer-based print should coexist in the definition of reading and writing. The roots of literacy will emerge in digital environments, similar to those that adults frequently use, and learners should be able to use these more conventionally as they grow older. For example, the iPad and similar tablets are used in various ways for reading, writing, speaking, and listening (Berschorner et al., 2013:18). Digital and web-based applications become as important as television in the development of communication and literacy in the young learners' lives. Learners are more independent as the technology allows for self-pacing, better recalling and understanding of, for example, elements of stories.

However, since most grade R learners cannot read and write the traditional text-based communication does not apply to them. Instead, other means of communication such as using symbols to convey feelings or sending spoken messages are required. The

teaching of only puzzle-like tasks deprives the learners of the most powerful impact of computational literacy for conveying their own voices and creating their own digital artefacts (Chau, 2014:53). Papert (2005:367) states that the computer provides an opportunity for learners to create something (i.e. a computational project) for thinking about thinking.

The studies in this section provide evidence that teachers need to take into account the inclusion of digital technologies in their teaching, specifically their teaching of language.

2.2.3 The seamlessness between play and digital play

This section will firstly explore what play in early childhood comprises of and thereafter, the concept of digital play will be unpacked. Finally, the pedagogy of play, specifically digital play will be discussed.

2.2.3.1 Play

Friedrich Froebel, a German educator known as the “Father of Kindergarten” brought play into education. According to him, the learners are the seeds and the teacher is the gardener. That is how the term “Kindergarten” came about (Gonzalez-Mena, 2011:28). Grade R is part of this period of learning and development. Similarly, Piaget and Vygotsky, through introducing play as an important part of the young learner’s development, provided a *raison d’être* for child-centred learning (Berson et al., 2010:5). Piaget found that at age two, young learners begin to represent and reconstruct their experiences and knowledge in three types of play. These are the following: exploratory play (e.g. inventing new ways to achieve goals or play with objects), functional play (e.g. appropriate use of objects), and symbolic play (e.g. pretend play) (Parette et al., 2013:204). The emergent influence of digital technology is evident in these three types of play. Exploratory play and digital technology are where parents allow their young children to play with their digital technologies (e.g. mobile phone). Functional play and digital technology, in grade R, are play experiences, which reflect in filling, dumping, categorising and repeating patterns (e.g.

swipe an iPad screen). Symbolic play and digital technology show learners' ability to think by using symbols, memory and mental images. In grade R, pretend play, which is evident when learners play a digital game where they are the monster trying to find the other characters, helps process emotions in learners' lives, and helps them practise social skills, learn values, develop language skills, and create a rich imagination (Parette et al., 2013:205).

Play is educational for early childhood learners. In South Africa, policies and curricula bases for learning through play are well established. South Africa's National Plan of Action for Children 2012 to 2017 recognises the right to play and sets national goals and objectives to be met through the actions of a number of government departments to ensure it is understood (RSA, 2012:38). Similarly, the Curriculum and Assessment Policy Statement (DBE, 2011:10), highlights the importance of play by stating that learners should be provided "with adequate opportunities to play and explore the world…" Internationally, the curriculum for Kindergarten in Ontario, The Kindergarten Program Ontario (Ministry of Education, 2016) advocates a play-based approach to learning and teaching (Bers, 2018:41). According to this curriculum, play is a vehicle for learning and has innovation and creativity as its basis. Through play, young learners create meaning based on their experience, construct knowledge, and do not receive information from the teacher passively. They learn to take risks, gain a feeling of power, and build confidence and self-esteem (Gonzalez-Mena, 2011:99). Play, called the "work of children", contains meaningful work activities to help the learner relate to his or her surroundings (Parette et al., 2013:199). According to the Montessori Method of Education, a child-centred educative approach, the child is in charge of his own learning and the teacher is there to observe the child's actions (Lillard, 2011:60). The learners' self-regulation (to take turns, to follow rules); language skills (verbal communication, signing, using pictures to interact); cognition (problem-solving skills) and social competence (peer interactions and enhancement of the imagination) develop through play (Parette et al., 2013:199).

Young learners learn in two possible ways while playing, through direct experiences and through mediated experiences. Direct experiences where the learner explores objects and events directly through his or her senses, differ from mediated experiences where an adult or older learner helps to make the experience more

meaningful or manageable for the young learner (DBE, 2015:28). Through digital technology, learners are involved in direct experiences when using the technology for play. The teacher's role in mediated experiences is to enhance the learner's experiences. It is important for this study to look at the teachers' use of digital technology in the classroom to enhance language acquisition.

As Jensen, Pyle, Zosh, Ebrahim, Sherman, Reunamo and Homre (2019:24) state, "In South Africa, learning through play is accepted as a principle in practices with children aged three to six. Even so, implementation is problematic. In unregulated settings, and where there is a lack of government monitoring, ratios are not necessarily adhered to". Due to the high demand for admission to schools for five and six-year-olds, class sizes are uneven across provinces. It is true that the teachers are not all well trained; the lack of guidelines for programmes, the anticipation of the parents and the constricted views of school readiness all play a role in the unregulated classroom settings. "So, despite play-based learning being mandated, workbooks and scripted lessons continue to drive pedagogical efforts, and play is often merely associated with break time" (Jensen et al., 2019:24).

According to Pepler (2015:192) CAPS states that learners in grade R need to have a workspace with chairs and tables to sit and work, play and move around with ease. Grade R learners do well in organised and clearly marked play areas, which encourage independence, decision making, initiative and involvement. Pepler (2015:198) expands on this idea by noting that the play environment, in which the young learner is relaxed, enhances language acquisition because the learner verbalises his or her own ideas and through play expands his or her vocabulary, sentence structure and the understanding of semantics. The learner is not only a listener, but also a language user and creator of language.

Learners are not only involved in traditional play methods but since they have been born in the digital era, digital play becomes a part of their world. The notion of digital play will be discussed in the following section.

2.2.3.2 Digital play

Defining play is a challenge that has struggled with a conclusive solution, but it becomes mostly difficult in the context of digital play, as posited by Stephen and Plowman (2014:2). The authors further state that digital play ranges from games with pre-defined rules, through competition against a simulated partner to employing computer-generated technology in an inventive play background.

According to Arnott (2016:286) three main points need to be considered for understanding how technologies form and underwrite early childhood education practice. Firstly, technologies are not all-powerful, “deterministic artefacts that direct, scaffold or teach learners”, especially in learners’ experience and social development (Arnott, 2016:286). Secondly, learners’ digital play is quite similar to other forms of play, especially if it is integrated into well-established pedagogies and not as the dominant part of their play experience. Thirdly, in an interconnected ecological and multifaceted preschool system, digital technology forms one element of the system. In this study, digital technology is part of the mesosystem which is discussed in 2.7.1.

Young learners treat screen-based media and concrete toys in similar ways, where they manipulate images and symbols on the computer screen as symbolic play (Brooker and Siraj-Blatchford, 2002 as quoted by Arnott, 2016:272). The use of tablets and open-ended apps increase the choice of methods that learners need to make meaning. They no longer only have traditional tools such as drawing and writing, but they also have access to photography, video, audio, clip art, etc., which they can use separately or blended with traditional tools (McGlynn-Stewart et al., 2018:42).

Computers were regarded as “too abstract” for young learners during the 1980s (Li and Atkins, 2004:1716). All the new technologies that influence the nature of play and the interaction with learners changed this idea. New technologies, such as screen-based media became an integral part of early childhood education. Arnott (2016:271) further states that, over the last decade, there has been significant progress in the use of digital technology in early childhood education. There was a move away from the narrower defined exploration of the young learners’ interaction with specific resources, towards investigating digital technology in the young learners’ early learning experiences.

Theories based on the Reggio Emilia approach (an innovative approach in early childhood education which values learners' rich knowledge and focuses on creative play rather than a prepared environment learning style) make the link between the development and play of the learners' and the physical environment (Arnott, 2016:283). This brought forth the concern about the link between environment, behaviour, play and social experiences.

The playground is not a quiet place. A silent playground is not a healthy place. Learners talk while playing, climbing, and running. The Positive Technological Development Framework (see 2.7.4) proposes technologies that engage learners in play activities and behaviours such as communication, collaboration and community building. Talking is one of the forms of communication, as advocated by the (PTD) Framework (Chau, 2014:18). Learners are encouraged to talk aloud to other learners or to themselves.

One concept under digital play that has emerged is that of an online playground. Digital technology is used on online playgrounds to create an educational and fun online virtual world for learners. Playground structures foster interaction between learners, as they have to negotiate an area to play in. Online playgrounds, such as tablets, guide the attention to the learner itself (Chau, 2014:42).

In the American National Association for the Education of Young Children (NAEYC, 2012) the changing nature of play and its relationship to digital technology is reflected in the revised position statement, *Technology in Early Childhood Programs Serving Children from Birth through Age 8* (Parette et al., 2013:3). Learners' interactions with technology and media mirror their interactions with other play materials and include sensorimotor or practice play, make-believe play, and games with rules. Play is central to learners' development and learning. Therefore, learners need opportunities to explore technology and interactive media in playful and creative ways. Appropriate experiences with technology and media allow learners to control the medium and outcome of the experience, to explore the functionality of these tools, and to pretend how they might be used in real life (Parette et al., 2013:201).

ICT provides new ways of engaging learners to explore concepts and express ideas where they interpret, personalise, reshape and create learning experiences. Their capacity expands to learn through play-based experiences and investigations in the virtual world (Berson et al., 2010:9).

2.2.3.3 The pedagogy of (digital) play

Instead of seeing digital play as an end in itself, teachers need to construct playful experiences carefully in their pedagogical approach where digital technologies are the facilitating or contributing tool. These digital technologies provide a framework for understanding the critical role that such technologies can play and "has the potential to be a much richer learning environment for young learners" (Berson et al., 2010:9).

Although early childhood education is, in theory, portrayed as a child-led experience, learners' lives are rule-bound, with adults following a system of routines and appropriate practices (Arnott, 2013:286). Arnott (2016:271) states that a Digital Play Framework is assisting researchers and teachers in understanding the role of technologies in learners' play and culture. It provides a list of behaviours of young learners as they learn to use various technologies through play. These technologies are more than just screen-based media. Research shows that these technologies are embedded in cultural contexts, and therefore the studies of digital play need to be conducted in a wider ecological context (Arnott, 2016:274).

The narrowly defined explorations of the way in which young learners interacted with digital tools previously, has broadened into investigating the role and position of technologies in their learning experiences. A techno-ecological model of the digital play of young learners shows that their social experiences are shaped contextually and socially (Arnott, 2016:274). These social experiences also show that their digital play takes place in clusters, which are "multiple learners standing in close proximity to the resource and attempting to take part in some way, even if not physically controlling the technology" (Arnott, 2016:277). Such experiences exhibit a multitude of social behaviours and interactions, such as owner, spectator, parallel owners and mutual owners. This determines the way in which learners interact with the digital technology.

Researchers found that the learners could easily become socially withdrawn when they focus on a tablet or a computer screen. However, when playing with concrete coding technologies such as *Bee-Bot* (a floor rechargeable robot) and *Cubetto* (a coding toy without the use of a screen), they worked together and communicated with fellow learners as they coded the actions of the 'robot' (Murcia et al., 2018:254).

The popular board game *Robot Turtles*, "released in 2013, is designed for young learners ages 3-8 and it helps them to start thinking in computational ways while playing a traditional turn-based board game" (Bers, 2018:39). Young learners engage in imaginative play and storytelling with *ScratchJr*, using the message-programming block where characters interact with each other by sending and receiving messages. Learners select and draw characters and background graphics onto a story page. New characters, text, and settings are added and played in sequence as multiscene stories (Bers, 2018:118). This shows that play, digital or traditional, can substitute unstructured, social and playful interactions.

The argument for a pedagogy of digital play is highlighted by Bers (2018). She explains that when playing at the computer together, young learners tend to speak twice as many words per minute, than during traditional play activities that are non-technology-related play activities such as play dough and building blocks, and nine times more when talking to their classmates while working with computers as they do when working on puzzles (Bers, 2018:104).

It is important to show how the pedagogical approach towards language acquisition, which focuses on reading and viewing in the grade R classroom through play-based learning, acknowledges that the learners' environment includes digital technology that is evident in their play and social interactions.

The evidence presented in this section suggests that it is important for the grade R teachers to develop a pedagogy of digital play and recognize the role of digital technology in play when planning their lessons for language acquisition. The following section will provide the backdrop of the study, which is in grade R, the starting point of formal language and literacy teaching.

2.3 GRADE R, THE GREAT START

The foundation phase includes learners from grade R up to grade three, in which the learning content focuses on three subjects, namely Language, Mathematics and Life Skills (Pepler, 2015:3). Grade R has its own unique characteristics and should not be seen as a watered-down grade one (DBE, 2011:20). The characteristics, such as incidental learning mediated by the teacher that promotes emergent literacy, are based on how these young learners make sense of the world around them and how they acquire the knowledge, skills, values and attitudes that they will need to utilise future opportunities where they will make decisions about for example career opportunities. A traditional, prescribed classroom-based learning programme should be avoided, as it does not optimise literacy acquisition for the grade R learners (DBE, 2011:20).

Language and learning in grade R are based on the principle of integration and play-based learning according to CAPS (DBE, 2011). The importance thereof will be further unpacked. In America, learners in Kindergarten already learn to code by using computational learning to achieve it. As they are not proficient readers and writers yet, they learn to code by giving instructions (Behr, 2018:18).

Child-development is a field of science where researchers study areas within the development cycle of learners such as how they develop thinking or social skills (Gonzalez-Mena, 2011:20). The idea that Kindergarten, as grade R is known in America, is too late to begin to think about learners' learning and development started in the 1960's with the Head Start Movement. The Head Start movement, funded by the Federal Government in the USA and was available free of charge to the low-income families. This provided preschool education to the children who did not have the luxury to attend a preschool before. It became clear that the optimum development of the brain and therefore the whole child's development, which includes cognitive development and under which language is developed, depends on the way the learner develops even before birth. The grade R teacher should thus know how to teach the young learners by including cognitive stimulation during the early childhood phase (Gonzalez-Mena, 2011:31).

In this study, teachers' understanding and use of digital methods through play for language acquisition in grade R is observed and defined. Thus, this study provides an opportunity to advance our knowledge on the importance of language acquisition and development in grade R.

2.4 LANGUAGE ACQUISITION IN GRADE R

For the purpose of this study, it is important to clarify what is involved in language development in grade R as part of the foundation phase (see 1.5.2 for more detail). While the curricula documents emphasise learning to read and write, this needs to be looked at as emergent literacy. Emergent literacy is "the ongoing process of becoming literate, learning to read and write" (Gonzalez-Mena, 2011:364). It is a vital part of language acquisition. Language is defined as "a human faculty with a symbolic and infrastructural technology, such as a textual writing system, that can be used for creative, communicative, and rhetorical purposes. Language enables people to represent their ideas in texts that can travel away from immediate, interpersonal contexts (to write) and to interpret texts produced by others (to read)" (Vee, 2013:45). During the first five years, learners develop a great deal, where they begin to understand the value and functions of reading. Furthermore, learners learn cognitive skills such as organising, planning, categorising and classifying things for better understanding through language (Gonzalez-Mena, 2011:365).

Language is a complex field with many components, and it is important to make sure what foundational language skills grade R learners need to acquire, how these language skills form relationships and how success is foreseen in the long term. Language skills that are highly valued by the grade R learners' teachers and parents, are reciting of the alphabet, recognising and writing of letters, to be able to write their own names, reading signs and labels, and holding a book correctly. A language skill such as, recognising that words consist of smaller units of sounds (called phonemes) is a key early language achievement, because young learners need to use the phonemes for letter sequences, (called graphemes) in order to read unfamiliar words (decode) (Snow and Matthews, 2016:58).

Two categories of fundamental language skills are identified. The first category, the constrained skills, such as the 26 letters of the alphabet, 44 phonemes, thus phonemic awareness and letter knowledge, or a set of 20 to 30 common spelling rules, are freely teachable. The second category, the unconstrained skills, for example language skills, such as vocabulary and background knowledge, are more difficult to teach and much harder to test, but are very important for the young learner's continuing literacy success. Vocabulary is the unconstrained skill that is the most widely studied. Research shows that learners from more economically advantaged environments were more likely to benefit from programmes that promoted vocabulary learning to four- to eight-year-old learners, which is grade R through to grade three learners (Snow et al., 2016:67). Teachers tend to focus more on the constrained skills in the earlier grades, and much less on the unconstrained skills (Snow et al., 2016:57).

According to Wong and Neuman (2016:2) planned vocabulary teaching is missing from a lot of school programmes despite the importance of assistant vocabulary development in the early childhood period, especially for learners with risk influences such as poverty, and second language learners. The grade R learners are assessed on elementary tasks such as correctness and swiftness of naming letters, and identifying the first sound in a word. It is only when they reach grades two and three that they need to read orally fluently (Snow et al., 2016:61). Grade R and other preschool classrooms include learners at different levels of language development. In socio-economically different classrooms, the social class differences encompass both constrained and unconstrained skills, but the differences in unconstrained skills are greater and more tenacious. This means that a comprehensive effort to encourage good language outcomes for all learners must include grade R programmes as well as programmes for learners from birth to three years old (Snow et al., 2016:63).

The focus of this study is on teachers' understanding of digital play for language acquisition in grade R. It is important to take note of how the lack of proper language influences learners in later school years. Language refers to the capability to read and write at an adequate level of proficiency that is necessary for communication. Proficiency is what learners know as well as their ability to use their knowledge in real communication (Krugel and Fourie, 2014:225). Interventions aiming at teachers' own classroom practices are more effective than the practices aimed at increasing the

reading skills of learners in the early grades (Snow et al., 2016:69). Based on the definitions of language, the important question that impacts most on teachers' pedagogical approaches is how to include play-based language activities in the classroom that will enhance the grade R learners' ability to acquire better language usage.

In the figure below, the foundation phase language skills are identified with special reference to reading and viewing as a language skill.

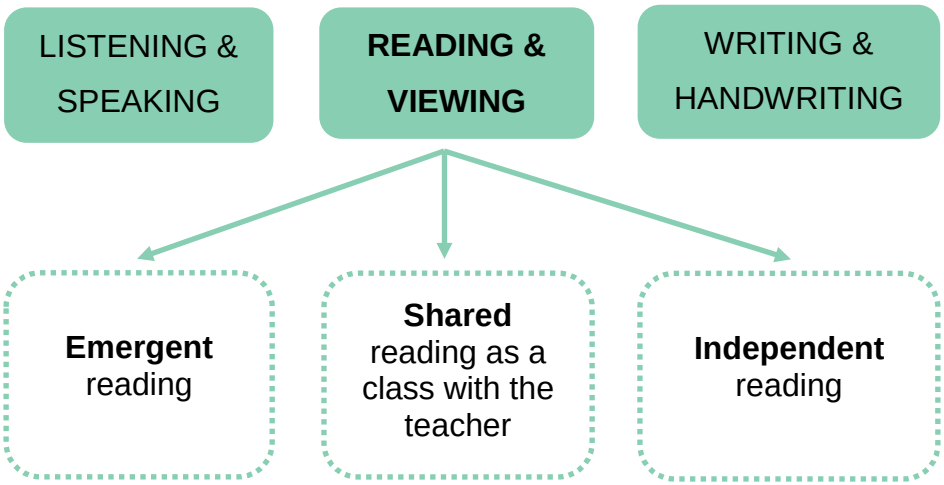

Figure 2.1 The three skills in the Home Language Curriculum according to CAPS (Department of Basic Education, 2011).

The National Curriculum statement indicates that in the Foundation Phase, the three skills in the Home Language curriculum are: Listening and Speaking; Reading and Viewing; and Writing and Handwriting (Department of Basic Education, 2011). During shared reading as a class with the teacher, grade R learners 'read' texts, such as poems, big books, posters, make links to their own experiences in the process, describe the characters, predict what will happen next in the story through the pictures, and draw their own pictures to form a story. All of the above-mentioned examples and language practices can easily be done, using digital technology, such as tablets.

According to Bers (2018:9) research shows that the foundation for language acquisition and specifically reading is formed long before grade one. Learners who do not succeed and do not improve by the end of grade one, are at a high risk of failure in other learning areas throughout school. The Early Childhood and Literacy Development Committee of the International Reading Association (2010) express their concern that the young learner under six is subject to rigid, formal pre-reading programmes with little attention to development appropriateness, individual development, or learning style (Gonzalez-Mena, 2011:380). Snow et al. (2016:57) suggest that to improve the young learner's achievement with language, to use and assess customised and varied programmes, is much better than complex programmes that are implemented as a package.

Snow et al. (2016:65) state that phonemic awareness strongly predicts successful early language learning. This is a finding stated by a 2008 review of early literacy research carried out by the National Early Literacy Panel in United States of America (Lonigan and Shanahan, 2009:4). Structured phonics instruction, the links between letters and sounds, showed similar positive effects on the better reading abilities of young learners. Learners at risk of poor reading results because of reading disabilities and low family care for reading ability, benefit the most from well-sequenced phonics instruction. The same applies to word-reading skills, which is a strong predictor of better reading outcomes, as comprehension requires the reading of words, a skill that is largely required for grade R learners (Snow et al., 2016:65, 66).

Vygotsky's concept of scaffolding is relevant for understanding how young learners learn a language, prompting and helping learners to understand what is said. Vygotsky's idea of a scaffolded pedagogical approach is a co-construction of knowledge within learner-centred activities (Gonzalez-Mena, 2011:27). It is adult-driven and based on an understanding of teacher-learner interaction as a one-way process (Gonzalez-Mena, 2011:27). Incidental learning takes place where the teacher mediates and intervenes, and emergent literacy is promoted (DBE, 2011:20).

2.5 THE SCHOOL AS ENVIRONMENT FOR GRADE R LANGUAGE ACQUISITION

School environments, rich with experiences, can help learners from home environments with fewer opportunities to enhance reading success. Teachers that focus on implementing effective language instruction in the classroom urge for appropriate assessments to map the learners' individual, group and combined needs. This enables teachers to target specific needs such as language essentials (Snow et al., 2016:65).

Makin, Campbell and Diaz (1995, as cited in Gonzalez-Mena, 2011:369) state that the language the learner is speaking, needs to be maintained and developed. Culture and linguistics should be considered in early childhood programmes as the learner grows up in a certain environment bound by culture, which includes language. Learners explore other languages in language-rich environments. For example, in the Reggio Emilia schools in Italy, conversations focus on projects that reflect the interest of the child and the adult (Gonzalez-Mena, 2011:175).

Print-rich grade R classrooms have many language-related materials, such as a library or book corner, filled with picture books, which the young learners can access during the day or a listening post where they can listen to recorded stories, and follow storybooks that accompany the recording. Active language-related activities include environments where learners take the lead retelling stories using specific materials and settings where they are encouraged to use felt boards and felt story pieces; puppet theatres with puppets; story illustrations on a roll of paper in sequence, placed in a box with one side open for them to view the written story. These improvements in classroom practices have a positive effect on learners in the classroom (Snow et al., 2016:62).

Storytelling is powerful as it involves young learners in developing language skills. Grade R learners are encouraged to dictate stories to the teacher, to select classmates who can help them act out their story while the teacher reads the story to the rest of the class. Story dictation can take place at an activity centre and story acting at circle time during their pre-lunch meeting time. Learners who shared in this acting out and telling of stories for a school year presented greater improvements in storytelling and story comprehension, vocabulary, early literacy skills, and ability to pretend (Snow et al., 2016:68).

According to Snow et al. (2016:70) learners work with the sequence of developing dramatic play by making use of small figures. They transform reality and practice mastery over how to form a story line by giving voices to the small figures when they are using language in the process. Other language-related activities involve teachers using labels on various objects in the classroom; writing on the learners' artwork; writing down what the learners tell them what they made and explaining a science experiment to a small group of learners (Snow et al., 2016:65). All of these help language acquisition in the classroom. Early childhood classrooms also have writing corners where learners can explore and play with writing (Snow et al., 2016:66).

Young learners do not write for a purpose (Parette et al. (2013:4). Their writing is a substitute for telling or sharing their experiences. They start by drawing, then scribbling, making letter-like forms, reproducing familiar sequences (own name), invented spelling, and conventional spelling. When reaching grade R, most learners have developed a sense of writing for a purpose (Kissel, 2008 as quoted by Parette et al., 2013:151). In invented spelling, the young learners write down words with some emergent phonological awareness and understanding of the alphabetic principle (Parette et al., 2013:151).

The early childhood teachers need to understand the language curriculum for grade R learners as it is an important gateway to incorporate digital technology as part of the curriculum. Programmes such as *Jumpstar Preschool games* can be incorporated in the classroom to enhance language. In this new digital environment, the inclusion of technology is inevitable as the young learners are as familiar with digital games and digital texts as with more traditional forms of play and games.

2.6 THE RELATIONSHIP BETWEEN THE USE OF DIGITAL TECHNOLOGY AND LANGUAGE

According to Berschorner et al. (2013:17) Goodman's (1986) description of the roots of literacy is a metaphor for emergent literacy characterised by the forms and functions of the literacies, which was print-based literacy. In the 21st century, the roots of literacy include knowledge about digital forms of writing and reading. Therefore, the learners' awareness of print may include knowledge about the use of the Internet and other digital tools for reading and writing, depending on the their exposure to text in digital environments. The learners' conception about print may go beyond traditional print-based texts (Berschorner et al., 2013:16).

Coding is the new literacy according to Bers (2018:24). Reading and writing are technologies of written literacy, while coding is a technology of computational literacy. The use of literacy as a model for understanding the role of coding is encouraging. Literacy, like coding, accepts the skill to produce an object from its inventor. Coding is a medium for social communication just as writing is (Bers, 2018:28).

In grade R a popular language activity involves designing and creating collages with embedded animations about the learners' favourite places, activities, or special people in their lives, such as their parents and siblings (Chau, 2014:51). This shows that learners at this age need to have activities around familiar ideas and objects in order to acquire language in a safe environment. The grade R learners are exposed to digital technology daily, so the use of digital images to design and create their favourite places, activities and people can easily be done using digital technology such as tablets. The learners then use these digital images to tell stories about, explaining why they chose that particular image, forming a sequence of images to show the storyline.

Papert and his colleagues specifically designed the first programming language, LOGO, for young learners as an educational tool. It included a technique to write stories, a method to draw with an object that has been programmed (i.e. The Robot Turtle), then it explores the environment, and plays music. This enabled the learners to explore computer programming and computational logic (Chau, 2014:27). The close relationship between the grade R learners and their familiarity with digital technology is displayed in this manner.

Computational thinking has powerful ideas that align with traditional early childhood concepts and skills. Algorithms, the first powerful idea, is a sequence of systematic steps taken in a certain order to solve a problem or achieve an end goal. Sequencing is an important skill in early childhood that involves placing items or actions in the correct order, for example telling a story in a logical way (Bers, 2018:71). Symbolic representation is another example of computational thinking concerning a powerful idea in early childhood where concepts can be represented using symbols in language to represent actions and sounds (Bers, 2018:73).

Learning to programme with tools specifically designed for young learners, like *KIBO* (a robot that allows them to code without screens) and *ScratchJr* (a programming language that runs on tablets, as well as on desktops) significantly improves a learner's ability to logically sequence picture stories (Bers, 2018:66,124). This enhances language acquisition by means of digital technology.

In a case study done in an elementary school in Massachusetts, USA, two learners learned to code and created their own interactive story with the *ScratchJr* app, which was launched in 2014 by Bers. The teacher read a story namely *Are you my mother?* by P.D. Eastman to the class. After story time she gave tablets to the learners and asked them to work in pairs to animate the story using *ScratchJr*. The learners spent a fair amount of time discussing the scenes they wanted to create and compromising how they would either draw the characters of the story or take pictures from the book to use in their story on the tablet (Bers, 2018:115). The learners engaged with language and digital technology skills concurrently and used their creativity and problem-solving skills in this project.

Another example of how digital technology and language acquisition in grade R can form a close relationship is Reading First, a reading programme launched in the United States, which aims to ensure that every child learns to read by grade three. Word reading accuracy and fluency are the specific goals for this programme. The five instructional practices: teaching phonological awareness, phonics, fluency, vocabulary, and comprehension strategies gained a lot of support in this reading programme (Snow et al., 2016:61). The conclusion was that it is easier to improve classroom practices with digital technology than by using the skills of the learners in

the classroom. Constrained skills are easier to improve than unconstrained skills as they have well-defined goals. Developing phoneme awareness is easy to carry out as the teacher can ask questions such as *what is the same sound*, *what rhymes with the word*, etc. It is much more complicated to teach new vocabulary. To select the right words to teach, ensuring the correct semantic context, regularly exposing learners to words, and to create situations where the learners can use these words is not an easy task (Snow et al., 2016:62).

The relationship between language and digital technology for grade R is evident where the young learners make use of digital images to create stories by placing them in a certain sequence on the digital screen. The learners are comfortable and familiar with this kind of environment, which enhances language acquisition.

2.7 THEORETICAL FRAMEWORKS

In order to clarify the role of digital technology in education theoretical perspectives are useful. Certain theories and frameworks have been developed to help understand digital technology in education and are outlined below. For the purpose of this study, Bronfenbrenner's bio-ecological theory was chosen to support this study. Apart from Bronfenbrenner, other theoretical perspectives are also relevant for understanding how teachers use digital play for language acquisition. These theories, although not the theoretical lens that will be used in this study, will be briefly discussed after unpacking and applying Bronfenbrenner's theory since they are useful in understanding the some of the concepts involved with digital play.

2.7.1 Bio-ecological framework - Bronfenbrenner

This study is about teachers' understanding of digital technology in grade R language classes. Bronfenbrenner states that the society is the factor that influences learners' development, and this is the key to his entire bio-ecological theory (Ashiabi and O'Neal, 2015:2). Bronfenbrenners' (1974:4) bio-ecological framework is useful for understanding the learners' development in terms of the relevant contexts. The framework is known as the "ecology of human development" framework and is used in "…the scientific study of the progressive, mutual accommodation, between a

growing human organism and the changing environment in which it lives" (Bronfenbrenner, 1977:514). According to this framework, a research problem is best understood in terms of the different kinds and levels of context, including for example the parenting and family processes, practices and interactions between parents and their children (Ashiabi et al., 2015:4). Bronfenbrenner (1977:514-515) initially clarifies that the world of the young child consists of four systems of interaction: microsystem, mesosystem, exosystem and macrosystem. The framework was extended in 1979 to include the chronosystem, which is concerned with the unfolding of the historical perspective of systems, and how it develops over time (Bronfenbrenner, 1979:39). Each of these systems depends on the roles people play in the child's life and the activities they are engaged in (Vélez-Agosto, Soto-Crespo, Vizcarrondo-Oppenheimer, Vega-Molina and Garcia Coll, 2017:901). In the field of early childhood education, Bronfenbrenner's ecological theory has been in frequent use for well over twenty years (Ashiabi et al., 2015:1). This theory allows for better understanding of education and the problems attached to it (Ashiabi et al., 2015:3). As mentioned in 2.7.4, it is important to remember that the use of technology should enrich and support the expected development and extension of the learner's ecological framework (Berson et al., 2010:39).

Based on Bronfenbrenner's outline (1994:39-41) the elements of this framework for the purpose of this study is shown in the figure below and are briefly discussed. It is evident that the central person in the microsystem in this study is the teacher but this role is not limited and therefore also includes learners, peers and the school. The mesosytem is the relationship between the microsystems and the different knowledges role players from the microsystem bring with them. The exosystem in this study will include the community, the cluster of school and even the district office of the Department of Basic Education (DBE). The macrosystem is the cultural and political context that the teachers find themselves in and can also include their own attitudes, values and beliefs. Lastly the chronosystem, which comprises the environmental events, historical events and major life changing events, such as the development of technology in a changing digital world (Herselman, Botha, Mayindi and Reid, 2018:2). The systems of Bronfenbrenner's theory with relevance to this chapter is depicted in Figure 2.2 and is further discussed below.

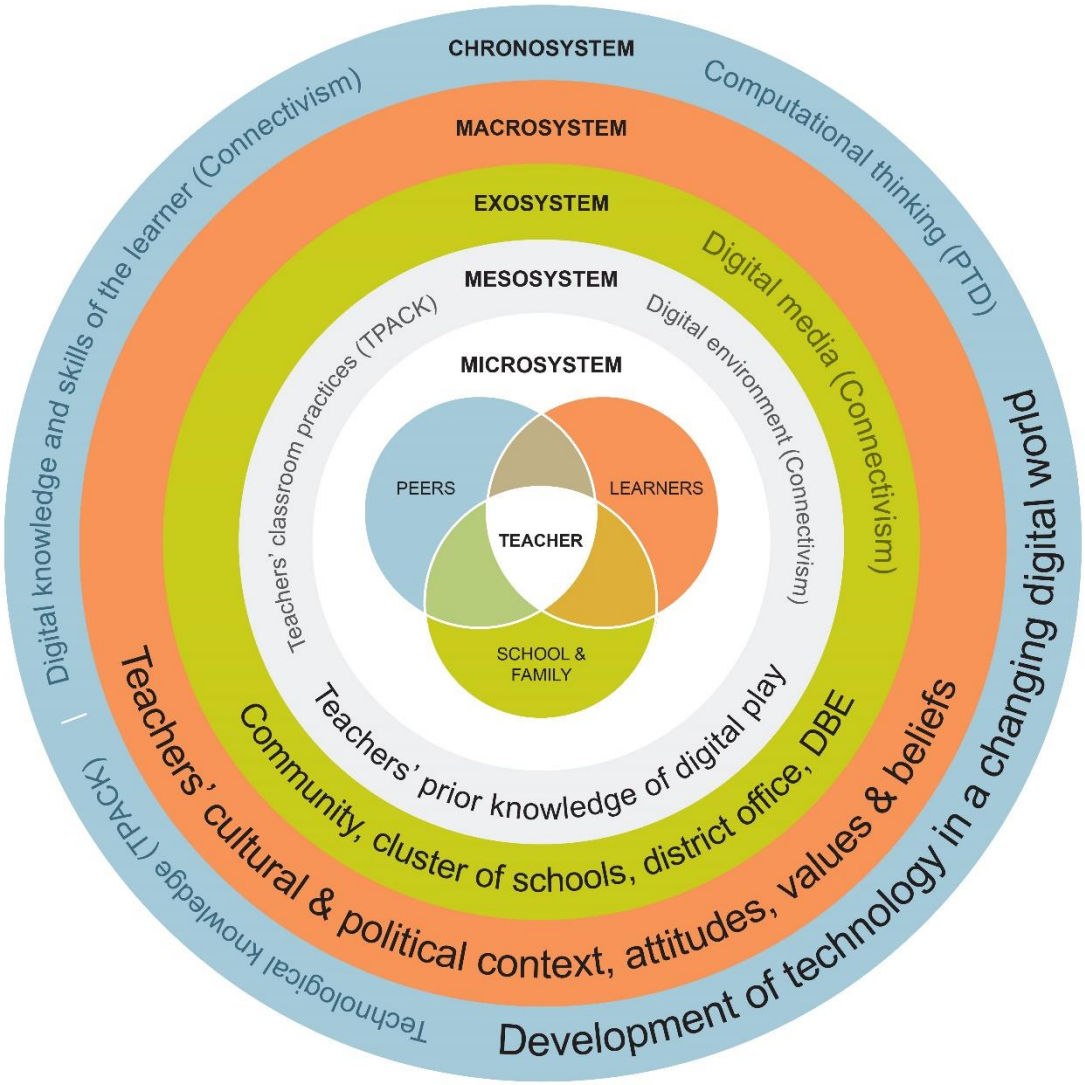

Figure 2.2 Bronfenbrenner's ecological systems theory in relation to other theoretical frameworks

1. Microsystem

A microsystem is "the complex network of relations between the developing person and the environment in an immediate setting" (Bronfenbrenner, 1977:514). The idea behind microsystems is not derived from geography but the person's degree of participation in any system. The school class also forms a microsystem for the child (Ashiabi et al., 2015:5). If the learner is exposed to digital technology at home, it is the world the young learner lives in and needs to be taken into consideration when lessons are planned.

It is important to look at the microsystem in which the teacher engages to include the learners, school and family as the immediate psychological environment and how they experience trust and interaction with the important people in these environments (Vélez-Agosto et al., 2017:906). The teachers' use and understanding of digital technology in the classroom was observed and how they interacted directly and indirectly with their learners as part of the microsystem.

2. Mesosystem

A mesosystem comprises "the interrelations among major settings containing the developing person at a particular point in his or her life" (Bronfenbrenner, 1977:515). The real power of mesosystems is that they help to link two or more systems in which the teacher, child, parent and family live as well as the interconnectedness between direct environments, e.g. the local community (Bronfenbrenner, 1977:525). According to Ashiabi et al. (2015:2) the mesosystem produces the connections between the teacher and the microsystems. This means connections between the knowledge that the teachers and the learners bring from prior interactions and experiences with language acquisition and digital play.

In this study, the mesosystem represents interactions among family, school, and peer groups. The teachers' prior knowledge of digital play is then evident in the classroom. Using this framing for analyses will contribute to a contextualised understanding of how teachers use digital technology in their literacy classes. This links closely to the TPACK theory where the teachers' technological, pedagogical and content knowledge are acknowledged in their classroom practices. The teacher has an interconnectivity with the people in the microsystem, as well as to the online/global community through technology (Herselman et al., 2018:4).

3. Exosystem

An exosystem is an extension of the mesosystem and involves formal and informal social structures affecting the individual. These structures include the local, provincial and national departments or units that are involved in grade R such as the district

office, or the Department of Basic Education. Moreover, the exosystems are the external psychological environments we live in (Bronfenbrenner, 1977:515). In the life of a child for example, this means that the parent does not have to be physically at the school their child attends to experience what goes on in the school. They are psychologically present at the school. Exosystems are the contexts the learner experiences indirectly and yet they have a direct impact on them. Teachers must realise that stress at home will have a negative impact on the learners' behaviour in the class. In the same way, the use of digital technology can place extra stress on the learner and have an influence on their performance (Parette et al., 2013:125).

In this study, the psychological presence of parents influences the learners' digital play behaviour and teachers need to consider this influence when using digital technology in the classroom.

4. Macrosystem

A macrosystem refers to the larger cultural context (Eastern vs. Western culture, national economy, educational, political, social, and legal systems), of which micro-, meso-, and exosystems are the concrete indicators (Bronfenbrenner, 1977:515). The macrosystems we live in influence what, how, when and where we carry out our behaviour and relations. The macrosystems hold together the many threads in our lives. All the beliefs, services, and support for families, children and their parents, are open to weakening (Vélez-Agosto et al., 2017:906). It is therefore important to acknowledge the power of the macrosystems in peoples' lives and in the influence on young learners as part of the larger cultural context.

The macrosystem includes the teacher's cultural and political context as the centre of the ecosystem, and also the value that the teacher places on digital play. In addition, this system is about how the Western and the African contexts shape what teachers do in their classrooms. This is important for the current research as we have diverse classrooms and digital exposure in South African schools, yet the use of technology blurs the borders between the contexts at play.

5. Chronosystems

Chronosystems can be described along a continuum of time and place. It includes change or reliability over time, not only in the characteristics of the person, but also of the environment in which that person lives (Bronfenbrenner, 1994:40). In terms of this framework, the history of relationships in families may explain the parent-child relationship much better than the existing dynamics in the family.

In this study, the chronosystem is about the different environments and relationships one needs to take into consideration, such as the fact that a completely new generation of learners, familiar with digital technology are now in the classrooms. This is largely due to the changing nature of relationships which include digital forms of communication and interaction. The chronosystem involves lifetime involvement of the teachers and can involve occasions in the environment and in the life of the teacher and the learner, which modifies him or her (Herselman et al., 2018:4). The teacher with little or no knowledge of digital technology needs to be vigilant about incorporating digital technology in their lessons to ensure that their teaching methods are in line with the new generation of children growing up in the digital era and who are familiar with digital technology.

Bronfenbrenner's (1994:39-40) bio-ecological theory is relevant for the analysis of the multiple systems which influence the lives of the teachers and learners in this study. Teachers need to be aware of the systems operating in their own lives. The systems of the learners and the teachers are linked and form a new system on its own.

2.7.2 Connectivism

The field of education has been measured to recognise the influence of new learning tools and what they mean to learning. Neumann and Neumann (2017:6) state that young children are capable of using tablets independently, while parents and teachers use tablets to scaffold young learners' emergent literacy.

Siemens's (2005:6) theory of connectivism provides understanding of knowledge, skills and tasks learners need to display in a digital era. Connectivism is the integration

of principles explored by chaos, network and complexity and self-organisation theories. According to this theory, learning is no longer seen as an inside, personal activity, but a skill, which involves how new tools, such as tablets and smart phones, are utilised in the learning process (Siemens, 2005:5). In addition, connectivism as theoretical framework involves how new tools, such as tablets and smart phones, which are utilised in the learning process to enhance teaching methods are incorporated into the learning environment (Siemens, 2005:5).

Connectivism further highlights that acquiring new information is an ongoing process. It starts with the individual and allows learners to remain current in their field through the connections that they form (Siemens, 2005:6). In this study, the theory of connectivism links to Bronfenbrenner's chronosystem where the new digital environment of the learner needs to be taken into account by the teacher.

2.7.3 Technological, Pedagogical and Content Knowledge Framework (TPACK)

For this study, it is important to understand teachers' knowledge development. Mishra and Koehler's formulation of the Technological, Pedagogical and Content Knowledge Framework (TPACK), a new framework for teacher knowledge, is outlined in Koehler et al. (2014:102) where they state that teachers are required to process knowledge that connects the affordances and limitations of these new technologies in order to transform content. There are three major knowledge components, which form the foundation of the TPACK framework, namely content knowledge, pedagogical knowledge and technological knowledge. According to Koehler et al. (2014:102) technological knowledge refers to what the teachers know about traditional and new technologies and the role knowledge about technology can play in effective teaching. Pedagogical knowledge refers to the teacher's knowledge about a variety of instructional practices, strategies and methods to promote learners' learning. Content knowledge refers to any subject-matter knowledge a teacher is teaching (Koehler et al., 2014:102).

The application of this theory resonates with Bronfenbrenner's mesosystem where relations are in ever expanding circles, which is important for this study in the sense that the teacher has to be responsive to using digital play in the classroom. The

teacher needs to combine traditional teaching methods and digital pedagogies in their teaching practice to enhance their technological knowledge in the classroom.

2.7.4 Positive Technological Development Framework

Positive Technological Development (PTD) is a framework developed by Marina Bers in 2018, with a playground approach to coding. Learners use this framework to code using robotic toys and learn in playful ways. Furthermore, the Positive Technological Framework (2.6.4) “shows that learners nowadays learn to apply the computational thinking they acquire to other aspects in their lives where they communicate with much more confidence. PTD describes and identifies six positive ‘C’ behaviours with technology. Three of the ‘Cs’ behaviours enrich the intrapersonal domain (competence, confidence, character) and address social aspects such as content creation, creativity, and choices of conduct. The other three Cs discourse the interpersonal domain (caring, connection, contribution) and look at social aspects for example communication, collaboration, and community building (Bers, 2018:98). All six behaviours play an important role in acquiring language. Learners communicate better and acquire language to talk with confidence.

PTD notifies the design of digital places so that learners can practice new technologies to become better individuals and to make the world a better place. Learners learn powerful ideas from computer programming and then apply computational thinking to other aspects of their lives. PTD was inspired by Constructionism developed by Papert (1980:152) and its focus is on tools for helping learners learn by doing, making, and programming. Together with his colleagues Papert created the LOGO programming. Together with applied developmental psychology, specifically positive youth development, a theoretical framework called Positive Technological Development, was formed which is summarised in Figure 2.3 below.

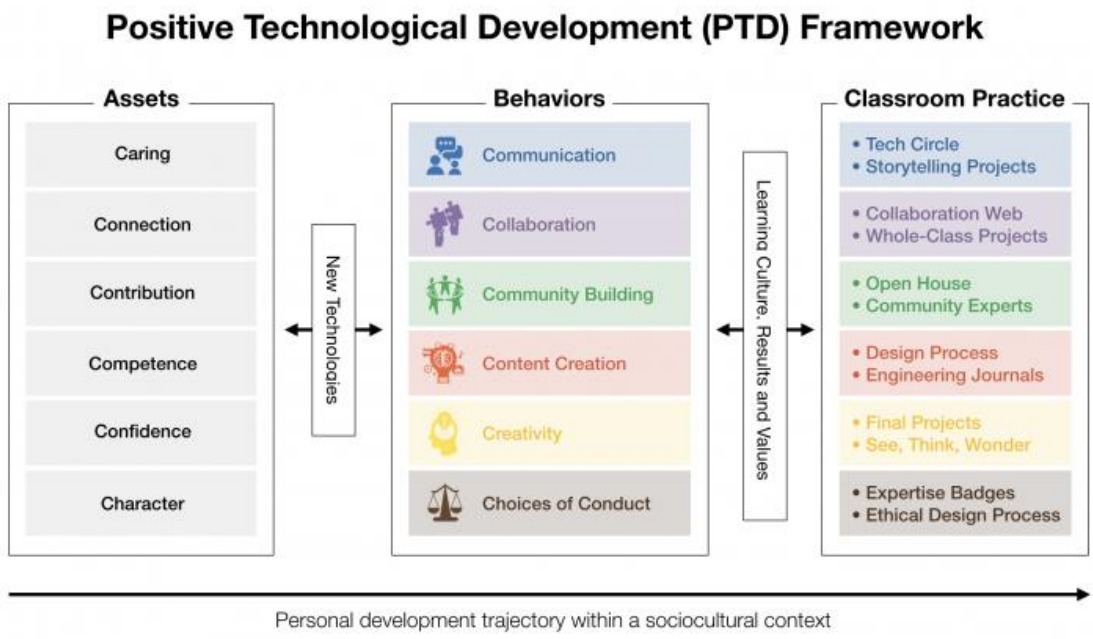

Figure 2.3 The PTD framework, including assets, behaviours, and classroom practices (Bers, 2018:13).

The PTD theoretical framework is of great value to this study as it focuses on the role of digital play for language acquisition, and the learners' direct involvement with it.

The theoretical perspectives outlined in this chapter, are relevant to understanding teachers' use of digital technology in the grade R classroom. Bronfenbrenner's bio-ecological system theory is the theory of human development and is used to express the process of human socialisation. According to Ashiabi et al. (2015:2), it is key to understanding education. Therefore, Bronfenbrenner's theory specifies the objective of this study more distinctly than the other frameworks mentioned above.

The use of digital play for language acquisition has been highlighted. Theories such as Connectivism, the TPACK theory and the Positive Technological Development Framework (PTD) enrich the different systems in Bronfenbrenner's ecosystem model. In order for the research to be successful, the parts in the other theories that enrich the Bronfenbrenner's eco system theory, will be incorporated.

2.8 SUMMARY AND CONCLUSION

Presenting a review of literature on the phenomena of digital play, and language acquisition in grade R, clarifies the meanings and interpretations of the key concepts used in this study. This provides an overview of what is involved in the digital world, what digital play is about, the current pedagogical approaches to early childhood education, as well as the nature of language and literacy acquisition in grade R. Furthermore, it is essential to conceptualise this study in the chronosystem according to the chronological events, specifically the development of technology in a changing digital world. The teachers' attitudes towards digital technology was the focus of the macrosystem. This highlighted the fact that teachers are still reluctant to include digital technology in their lessons. A contributing factor, which is located in the mesosytem, is the fact that the parents at home create an environment, which includes the use of digital technology. The exosystem emphasises the need to implement a teaching programme that meets the different needs of both the learners and the community. Finally, in the microsystem the grade R learner was placed in a context of digital technology and should get all the opportunities available to enhance their education, especially language acquisition in grade R. In conclusion it seems that these various ecosystemic factors have a determining effect on the language acquisition of grade R learners.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 PURPOSE AND INTRODUCTION

The purpose of this study is to describe how teachers use digital methods for language acquisition in order to clarify how such methods can improve language acquisition of grade R learners. For this purpose, chapter 3 clarifies the methodological options and choices with reference to the research approach, design and methods. In addition, challenges of trustworthiness and ethics are considered.

3.2 RESEARCH PARADIGM, APPROACH AND DESIGN

3.2.1 Research paradigm

According to Creswell (2009:6) "… a paradigm or worldview, is a basic set of beliefs or assumptions that guides researchers' inquiries. These assumptions are related to the nature of reality (ontological issue), the relationship of the researcher to that being researched (epistemological issue), the role of values in a study (axiological issue) and the process of research (methodological issue)".

Interpretivist approaches intend to understand human experience, because experiences are constructed socially (Mertens, 2015:78). The interpretivist researcher tends to rely upon the participants' views of the situation being studied and to recognise the impact on the research of their own background and experiences (Creswell, 2012:224). According to Stake (1995:99), "most contemporary qualitative researchers hold that knowledge is constructed rather than discovered" and therefore "constructivism and existentialism should be the epistemologies that orient and inform the qualitative case study research" (Stake, 1995:100). Stake (1995:100) also posits that researchers therefore have to make sure that the knowledge they create (constructivism) is their individual responsibility for the authenticity of his or her own

choices (existentialism). The researcher interprets the gathered information, to report on the knowledge gathered in order to measure some phenomena (interpretivism).

For this study it was important to describe and understand teachers' practices in the use of digital technologies in teaching language to grade R learners. The researcher wanted to clarify what teachers know about digital technology and observed their methods, to learn from them what digital technologies were used and how these digital technologies were used in the classroom to enable the grade R learners to acquire language. According to Cohen et al. (2007:26), the interpretive paradigm strives to understand and interpret the world in terms of its actors. This paradigm is appropriate since the study was aimed at describing the views of the grade R teachers, their subjective perceptions and experiences of using digital play in their lessons.

3.2.2 Research approach

The research approach for this study was qualitative. Qualitative research involves, inter alia, the use of interviews and observations, and the aim is not only to find out what happens, and how it happens, but why it happens the way it does. Yazan (2015:142) refers to three principles of data genration to use in qualitative research: multiple sources of evidence, creating a case study of evidence and maintaining a chain of evidence (obvious links between the questions asked, the data collected, and the conclusions drawn). This helps "follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions" (Yin, 2002:83).

In this study, the principles of data generation were included in the baseline focus group interview, the non-participant observation of the teachers' lessons, the semi-structured individual teachers' interviews after the researcher's observation of their lessons, and the post observation focus group interview. The multiple sources of evidence in this research as identified by Yazan (2015:142) refers to the teachers, their lessons and their semi-structured interviews. The case study of evidence in this study is the school as a bounded system. Lastly, the chain of evidence started in this study with a baseline group interview with all the participants and ended with a focus group interview with all the participants at the end of the study.

Additionally, qualitative research focuses on knowing what leads to important understanding, recognising good sources of data, and intentionally and unintentionally testing out the reliability of their judgements and strengths of interpretations. This involves sensitivity and scepticism (Yazan, 2015:143). The qualitative approach is relevant since it enabled the researcher to understand, interpret and co-create how digital technologies were used in classroom settings, and through qualitative data generation methods, enabled the researcher to understand how digital play can enhance language acquisition in grade R.

3.2.3 Research design

The research design is the plan that is created to enable the researcher to answer the research questions. This study was a case study involving one school. According to Stake (1995:2) a case study is a bounded system which is an entity rather than a method. A bounded system means the boundaries of the case need to be defined, the focus and unit of analysis clarified, as well as detail provided about the phenomenon, time frame, activities, and methods (Stake 1995:3). Yazan (2015:139), compared different case study research approaches and noted that Merriam (1998:xiii) similarly defines a qualitative case study in terms of “an intensive, holistic description and analysis of a bounded phenomenon such as a program, an institution, a person, a process, or a social unit”. Stake (1995:xi) defines a qualitative case study as a “study of the particularity and complexity of a single case, coming to understand its activity within important circumstances”.

In qualitative research, the quality is not determined by the number of participants, but by how knowledgeable participants are. According to Creswell (2016:7), if a large number of participants are studied, the richness of learning from a few and the depth of understanding specific individuals are lost. Therefore, in this study, the single case was decided on, based on the resourceful nature of the grade R environment at one primary school and the knowledge of the respective grade R teachers.

In the case of this school, the specific focus was to study the methods the teachers use in teaching language acquisition, through digital technology focused on digital play, as it was observed over a period of four weeks, where teachers used different

methods to teach. The selection of only one school was to observe the use of digital technology in grade R classes and allow gathering of in-depth information on the phenomenon.

3.3 RESEARCH QUESTIONS

3.3.1 Primary question

How do teachers understand and use digital play methods for language acquisition in grade R?

3.3.2 Secondary questions

a) What knowledge and understanding do grade R teachers have of digital play?
b) What pedagogical approaches do grade R teachers use for the purposes of language acquisition?
c) How do grade R teachers understand the pedagogical value of digital play for language acquisition?
d) What are teachers' perceptions of the use of digital play to improve language acquisition of grade R learners?
e) What are the implications for teaching practices of using digital play methods to enhance language acquisition in grade R?

The above-mentioned questions resemble the aims of the study, which strives to provide insight into understanding teachers' approaches to digital play and the influence thereof in language acquisition for grade R learners.

3.4 RESEARCH METHODS

3.4.1 Selection of participants

The researcher focused on one specific school as a bounded system, involving all teachers teaching grade R learners (eight teachers), which included the head of

department of grade R. The case in this study was bound within grade R in one primary school and the unit of analysis is digital play. The school was taken as a case example of schools in the area where technology resources are available and where teachers are known to be innovative in their teaching, specifically by incorporating digital technology.

Since there was a need to target a particular group for the qualitative data generation of this study, the method of sampling was purposive. Within the above-mentioned research site, which was selected according to the availability and use of digital technology, the researcher gained access to participants, namely grade R teachers. They all have the option to use technology in their classrooms and in teaching language.

Merriam (1998:66) suggests that "purposive or purposeful sampling usually occurs before the data are gathered, whereas theoretical sampling is done in conjunction with data collection". This implicates classifying and choosing individuals or groups of individuals that are knowledgeable about or experienced with a phenomenon of awareness (Creswell and Clark, 2017:172). This study made use of purposeful sampling to select a school that teaches grade R learners in terms of the following criteria. The school:

- must be registered with the Department of Education following the national CAPS curriculum for grade R
- must be a well-functioning urban school with grade R teachers
- should consist of more than one grade R class
- was expected to use technology and specifically digital technology in the grade R classes

Furthermore, the researcher negotiated with the teachers to participate in this study as co-researchers to also benefit from this study on the use of digital technology in the teaching of language acquisition.

3.4.2 Procedure and data generation methods

3.4.2.1 Introduction

The figure below shows the four phases of the research process and clarifies how this study was conducted. Thereafter, the phases of data generation, with mentioning of the data generation techniques in each phase, are discussed below.

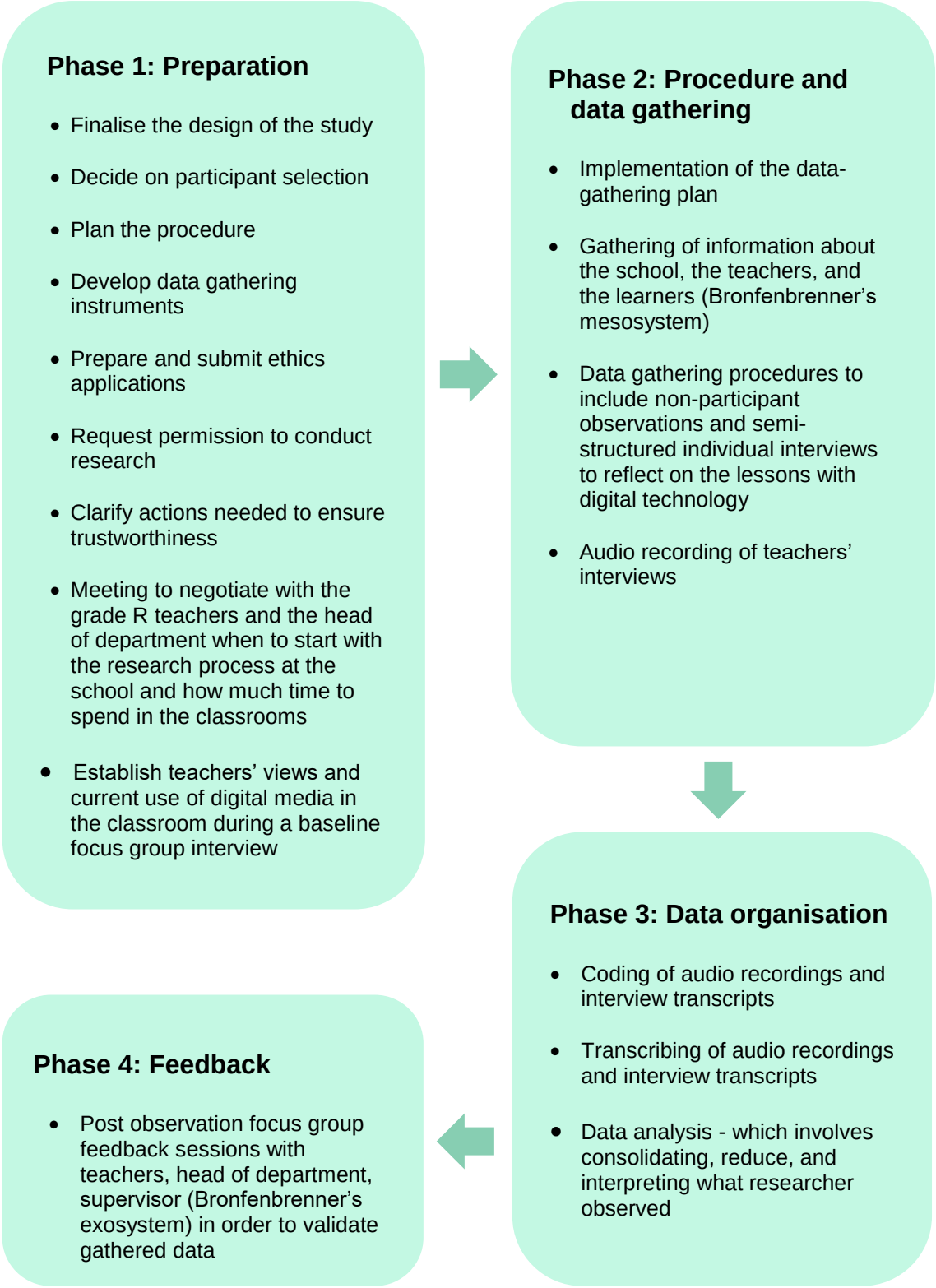

Figure 3.1 Procedure of empirical study

3.4.2.2 Phase 1 – Preparation phase

During the preparation phase, the following was finalised:

Design and procedure of the empirical study

Decisions about participant selection

Data gathering instruments to be used

Ethics application and permission to conduct the research from the Gauteng Department of Education (GDE), the School Management Team (SMT), the School Governing Bodies (SGB) and the grade R teachers

Measures to ensure trustworthiness clarified

Part of this preparation was to clarify the procedure of the empirical study, i.e. the "what" and the "how" of meeting with teachers, logistics, planning lessons, the use of voice recordings, and the classroom set-up. This involved gaining entry to the school, meeting and setting up of the research in terms of establishing a relationship with the group of grade R teachers and the grade R head of department, clarifying the research purpose, goals, scope and methodology process, and their agreeing to participation in the process. This links to the idea as stated by Henning et al. (2004:21) that the participants "are not considered to be passive vehicles but have certain inner capabilities which can allow for individual judgements, perceptions, and decision-making autonomy".

3.4.2.3 Phase 2 - Procedure and data gathering

This phase was the implementation of the data-gathering plan: the baseline focus group interview, the grade R teachers' lesson presentations, non-participant observation, and the post-observation reflection and evaluation interview session. Four weeks, during April and May 2019 were allowed for this. The data generation phases for this study are outlined as follows:

Step 1: Introductions, orientation and agreement. This step involved meeting with the teachers to explain the purpose of the study, establishing relationships, clarifying expectations, negotiating buy-in and participation, and stating roles and

responsibilities. According to Yilmaz (2013:313), it is important “to develop a close, empathetic relationship with the subjects being studied”. This worked well because it established trust and rapport with the participants who felt included and part of this research as co-researchers.

Step 2: Baseline focus group interview. In the course of this step, data gathering started with a baseline focus group interview involving all the grade R teachers on their views and current uses of digital technology in their teaching of language acquisition through play, structured according to interview methods as described by Yilmaz (2013:315). According to Yilmaz the researcher must avoid making any judgements and “should make their orientation, predispositions, and biases explicit”. It is important to avoid loaded interview questions and prejudiced answers. This baseline focus group interview involved questions about the current use and knowledge of digital technology in the classroom to enhance language acquisition through digital play (see appendix B). The answers to this interview provided the researcher with data that was useful in addressing the research questions. Questions such as: *What digital technology do you use in the classroom? What methods do you use to develop language acquisition using digital technology? What digital games do the learners play in your class?* were asked. The researcher conducted the interview in a suitable venue, taking a voice recording using an audio recorder and notebook after the participants gave their consent.

Step 3: Non-participant observation of teachers’ digital practices: According to Yilmaz (2013:312) qualitative research is an “interpretive approach to study people, cases, phenomena, social situations and processes in their natural settings in order to reveal in descriptive terms the meanings people attach to their experiences of the world”. In light of this, non-participant observations (see Appendix C) were conducted where teachers had the opportunity to present lessons using digital methods to develop specific language acquisition skills. The data gathering was done by using audio recordings of the lessons, writing field notes. The personal involvement and partiality of the researcher gave an insider’s point of view (*Emic*) (Yilmaz, 2013:315) and an empathetic understanding of the participants, which was very useful to this study since it allowed the teachers to feel comfortable having the researcher in their classrooms.

According to Creswell (2012) observation can be seen as a series of steps where the researcher can either be a complete participant or a complete observer, where everything is recorded for later listening.

Step 4: Semi-structured interviews with individual teachers after lesson observations. For the purpose of this study, semi-structured interviews were conducted where according to Creswell (2012:217), one or more participants, were asked open-ended questions and their answers documented. These were half-hour sessions with all eight participants at the school. The participants were asked the same series of pre-recognised questions (Denzin and Lincoln, 2000:649). According to Creswell and Poth (2017:133) "for one-on-one interviews, the researcher needs individuals who are not hesitant to speak and share ideas and needs to determine a setting in which this is possible". Audio recordings and field notes were made of these sessions. The interviews focused on the teachers' experience of the lesson; their reflection on their methods of digital play for language acquisition; how they experienced their learners' responses to their methods, and what recommendations they will make to other teachers about the use of the specific digital methods for language acquisition. This highlighted the crucial interaction and inseparability between the knower (teacher) and the known (lesson content and teacher's knowledge) (Yilmaz, 2013:314). This was a follow up on the baseline focus groups' questions and discussions (see semi-structured interview schedule Appendix D). Interviewing in this study allowed the researcher to ask particular questions, which allowed some degree of control over the information received while allowing the participants to express their practices (Creswell, 2012:218).

Step 5: Post observation focus group interview. This step in the research process consisted of a review, reflection and feedback session. After all the non-participant observations were completed, a final focus group discussion was held with all the grade R teachers to validate the gathered data. Nieuwenhuis (2007:90) stated that focus group interviews are based on the hypothesis that group collaborations will be productive in broadening the choice of responses, triggering overlooked details of experience, and releasing hang-ups that may otherwise discourage participants from disclosing information. According to Creswell and Poth (2017:133) "the interaction among interviewees will likely yield the best information when the interviewees are

similar and cooperative of each other… care must be taken to encourage all participants to talk and to monitor individuals who may dominate the conversation".

The teachers were asked to engage in self-evaluations of their lessons, and what they plan for the future in terms of the use of digital technology in their lessons. The teachers as a group discussed the concepts of teaching with digital media. They reflected on the lesson outcomes, lesson methods, and the benefits of using digital technology in the classroom and how it was applied to the teaching of language (see Appendix E post observation focus group interview). This reality of the teachers was socially constructed and the inquiry value-bound (Yilmaz, 2013:314). It is important to note that the individual teacher's points of view and experiences are clearly illustrated in the detailed and descriptive data that is necessary to deepen the understanding of the variety the teachers bring to the research (Yilmaz, 2013:315).

3.4.2.4 Phase 3 – Data organisation and analysis

The data analysis phase, which means the ability to capture the understanding of the data in writing, following Yilmaz (2013:317), Creswell (2012:282), and Flick (2018:335) involved coding and content analyses. The detailed data analysis will be discussed further in 3.4.3.

3.4.2.5 Phase 4 – Feedback sessions

The researcher reported the main findings to participants in the school, namely the teachers and the head of department for grade R. This was also done for the Gauteng Department of Education, and the school management team.

Frequent debriefing sessions were planned after each phase, between the researcher and the different stakeholders such as the teachers, school management, and study leader. This ensured that the researcher maintained trustworthiness and got feedback on the progress of the study from the school's perspective as one means of triangulation. According to Yilmaz (2013:315) the qualitative researcher distributes their findings in the first-person narrative with a mixture of the researcher's and the participants' viewpoints.

3.4.3 Data analysis

In qualitative research, data analysis is about reading the data that was collected and breaking the data down into themes, categorising it and thereafter building it up again in novel ways, elaborating on and interpreting it. According to Yazan (2015:145) Merriam defines data analysis as the process of making sense out of the gathered data, which involves consolidating, reducing, and interpreting what participants have said and what the researcher has seen and read. Creswell (2012:212), states that the analysis of qualitative data generally takes place in six steps: organising and management of data using field notes, audio recordings and interviews; categorising or classifying data according to themes; data interpretation through summarising the themes and examining similarities and/or differences. Finally, strategies were used to confirm the truth of the findings of the themed data. The data were triangulated to confirm the accuracy of the findings of the themed data.

Content analysis is the elementary way of functioning with the data where the researcher started with a set of data, such as a transcribed interview (Flick, 2018:132). According to Creswell (2012:213) the first phase of data analysis is to get a general view of all the collected information by using observational field notes, interview transcriptions and notes about the audiotaped interviews. The next phase is to reduce the data to a few themes or categories. Thereafter the themes or categories are summarised in similarities and/or differences. Lastly, the data is displayed in diagrams, tables or graphs. In this research, the collected data involved the study of the audio recordings taken during the interviews with the teachers, the non-participant observation of the teachers' lessons and field notes taken during the interviews and lessons.

The process of analysing the data then followed and involved the breaking of the data into small units that were coded, themes or major ideas identified, and analysed for pattern identification and interpretation. These themes answered the research questions and reached the objectives of the research. The researcher read the transcripts of all the interviews conducted before starting the coding process. This was done to get an overall impression of the content of the interviews. It is known as an open coding process or an inductive process (moving from specifics to generalised

conclusions). The researcher then provided a holistic interpretation once all the sets of data were coded and categorised (Yilmaz, 2013:320).

The researcher created several displays of information. Five tables, one showing the main themes derived from the data collected (see Table 4.1). The second table display the background and biographical data of the participants (see Table 4.2). The third and the fourth tables present the coding of the participants (see Table 4.3), and the coding of the data type (see Table 4.4). The fifth table exhibit the advantages of digital play for language acquisition (see Table 4.5). A bar chart stating the participants' years of experience in grade R teaching was another form of displaying the data gathered and analysed (see Figure 4.1). Three pie charts were used, one presenting the participants' understanding of digital play (see 4.2), the second one showing the balance between digital technology and traditional pedagogy (see 4.3) and the third pie chart displaying the participants' responses on the contribution of digital play towards language acquisition (see 4.4). These displays are used to visualise the information and represent it by case, subject or by theory. It entailed sorting the text into categories and codes (Creswell, 2012:240).

Stake (1995:74) states that in direct interpretation, the researcher looks at a single case and then draws meaning from it without looking for multiple cases. It is about pulling the data apart and putting it back together in meaningful ways. This method was applied to the data of this study by using one school as the case study involving the eight, grade R teachers, taking the collected data, analysing, sorting, categorising, coding and putting it together to understand the participants' responses. New insights and patterns were sought around the existing phenomena of digital play for language acquisition in grade R.

3.5 MEASURES OF TRUSTWORTHINESS

Qualitative research involves evaluating the trustworthiness of reported observations, interpretations, and generalisations (Flick, 2018:389). Trustworthiness according to Cohen et al. (2007:105) might be "… addressed through the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher." It also

involves checking for bias, precision, questioning procedures and discussions with peers (Yilmaz, 2013:320). Qualitative research could be influenced by different biases. Some are known and others not (Saunders and Lewis, 2012:136). Trustworthiness can be described in terms of four components: credibility, transferability, dependability and confirmability (Yilmaz, 2013:319). These components are discussed below in relation to how they were applied to this study.

Credibility is about using appropriate research methods, getting to know participants before the start of the project, the use of triangulation incorporating a variety of methods, such as observations, and interviews, debriefing sessions, and giving more information about the researcher concerning qualifications and experience (Flick, 2018:392). According to Merriam (in Shenton, 2004:64) credibility refers to the researcher's theory of inner strength and how to answer the question about how consistent the findings are with authenticity. Triangulation is when "researchers make use of multiple and different sources, methods, investigators, and theories to provide corroborating evidence" (Creswell, 1998:202). A triangulation of methods was used in this study such as interviews, observations and debriefing sessions.

Transferability is reached if the results of a qualitative study are transferable to comparable situations. Profuse description of the setting, context, people, actions, and procedures studied is needed to ensure transferability (Yilmaz, 2013:320). The aim of this study was to ensure that this research project can be repeated in another school or schools to research similar or related cases.

Dependability implies the procedure of selecting, qualifying and relating research strategies, procedures and methods that is checked through a process of auditing (Yilmaz, 2013:320). This auditing trail is created in order to check the procedural reliability of the data generation and recording; synthesising of the data by categorising the data according to themes, definitions and relationships; interpretations of findings; and the reports produced with their links to the existing literature (Flick, 2018:393). Shenton (2004:71) translates dependability to reliability, where it is clarified that if the research were repeated in the same environment, with the same procedures and with the same participants, similar outcomes would be

achieved. In this study, the dependability and links between data, literature and processes will become discernible in the section on the discussion of the findings.

Confirmability is when the findings are constructed on the analysis of the composed data and surveyed through an auditing process, i.e. the assessor approves that the study findings are grounded in the data and conclusions based on the data are logical and have clarity, high effectiveness or descriptive power (Yilmaz, 2013:320). Shenton (2004:72) refers to confirmability as the qualitative researcher's similar apprehension with impartiality. In this study, the supervisor and participants reviewed the broad descriptions of the data collected during post observation feedback sessions to ensure that the conclusions were accurate and confirmable.

3.6 ETHICAL CONSIDERATIONS

In this study participation was voluntary and the participants could withdraw from the study at any time. The confidentiality, anonymity and secrecy of the participants were always protected. See 1.9 for an in-depth description of ethical considerations in this study.

3.7 CLOSING REMARKS

The researcher planned and followed the research methodology as indicated and will share findings and conclusions in the following chapter. A critical analysis of the data findings and a report on data sources used has been provided.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The purpose of this chapter is to present the results of the study according to the research questions as stated in chapter 3 (see 3.3). It contains the findings of the analysis of data gathered through a baseline focus group interview with the teachers, non-participant observations in the classrooms, semi-structured individual interviews, and the post observation focus group interview. The chapter is organised by firstly explaining the steps involved in the research process. Thereafter, the data is analysed by organising it according the research sub-questions and then interpreted according to the themes of this study. The chapter concludes by highlighting the application of the theoretical data in relation to the collected data.

4.2 THE RESEARCH PROCESS

During phase one, a visit was paid to the school where the researcher met with the principal of the school, the head of department of grade R, as well as the grade R teachers to establish relationships and to agree to allow the researcher to observe in their classes. Thereafter, during a baseline focus group interview (see 3.4.2.3 step 2), initial information was gathered on teachers' understanding and use of digital media and the use of digital play in the classroom for language acquisition. The empirical questions asked were asked to ascertain the teachers' knowledge and understanding of digital technology and how to use it in the classroom to assist the grade R learners in their language acquisition (see Appendix A).

Phase two followed with non-participant observations (see Appendix B). The researcher visited all eight grade R classes and sat in during lesson presentations, making field notes of the interaction between the teachers, learners and digital media, and the digital play activities related to language acquisition (see 3.4.2.3 step 3).

Another form of data generation during this phase involved collecting data from semi-structured individual interviews (see 3.4.2.3 step 4), which were conducted to clarify some of the data collected during the non-participant observations. The empirical questions (see appendix C) that guided this phase focused on finding out grade R teachers experience with, inter alia, digital games and digital play.

Phase three involved the coding of audio recordings and interview transcripts and data analysis which involves consolidating, reduce, and interpreting what researcher observed.

The last phase, phase four, involved the post observation focus group interview. This session was used to give feedback and to validate the collected data. Questions were asked in order to determine the change in the teachers' views on the use of digital play for language acquisition in the grade R class (see Appendix D).

4.3 DATA ANALYSIS

The data collected during the different phases will be presented according to the secondary research questions and data generation method. The analysis is structured according to the five secondary research questions, in order to answer the main research question. The main themes that emerged will be presented as part of the answers of the secondary research questions as outlined in Table 4.1.

Table 4.1 Main themes derived from data

Primary research question	How do teachers understand and use digital play methods for language acquisition in grade R?
Secondary research questions	**Main themes**
1. What knowledge and understanding do grade R teachers have of digital play?	Knowledge and understanding of digital play • Teachers' use of digital games/media in the classroom • Teachers' skills and knowledge to explain and integrate digital games/media in the lessons • Teachers incorporate digital play in lessons • Teachers use specific methods of digital games in the classroom
2. What pedagogical approaches do grade R teachers use for the purpose of language acquisition?	Pedagogical approaches of grade R teachers for the purpose of language acquisition. • Teachers link lesson outcomes to digital games
3. How do grade R teachers understand the pedagogical value of digital play for language acquisition?	The pedagogical value of digital play for language acquisition. • Teachers relate what learners experience to what is seen in the classroom • Learners' communication during digital play
4. What are teachers' perceptions of the use of digital play to improve language acquisition of grade R learners?	How digital play improves language acquisition. • New knowledge learners acquire during digital play • Language acquisition in other subjects • Learners' recall due to digital games
5. What are the implications for teaching practices of using digital play methods to enhance language acquisition in grade R?	Teaching practices for enhancement of language acquisition. • Different learning when learners play digital games • Learners' adaptive behaviour when using digital games in the classroom

4.3.1 Biographical data

Background data of participants

Table 4.2 illustrates the biographical data of the participants and their number of years' teaching experience. All eight participants are female teachers with between 4 and 41 years of experience in teaching and with between 3 and 34 years of grade R specific teaching experience (see Figure 4.1). Table 4.3 and 4.4 indicate the codes that were assigned to the participants and the data type for the purpose of referencing the data throughout this chapter.

Table 4.2 Background and biographical data of participants

Participant	**Gender**	**Age**	**Number of years teaching experience**
Participant 1	Female	61	34
Participant 2	Female	35	12
Participant 3	Female	54	32
Participant 4	Female	63	33
Participant 5	Female	27	5
Participant 6	Female	64	41
Participant 7	Female	38	13
Participant 8	Female	26	4

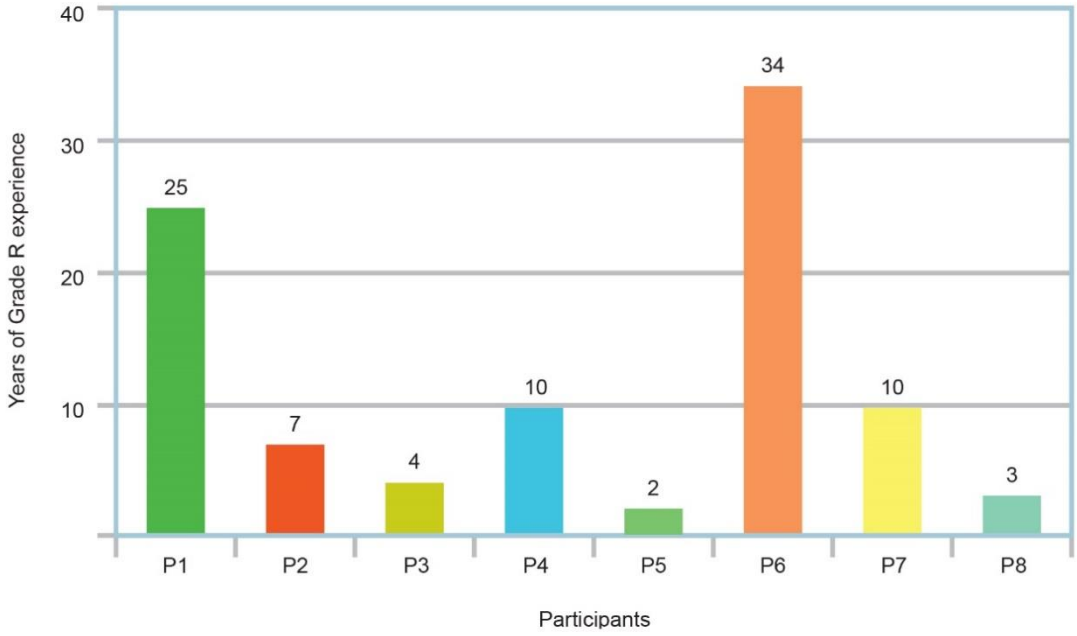

Figure 4.1 Participants' years of teaching experience in grade R

Table 4.3 Coding of participants

Participant	Code
Participant 1	P1
Participant 2	P2
Participant 3	P3
Participant 4	P4
Participant 5	P5
Participant 6	P6
Participant 7	P7
Participant 8	P8

Table 4.4 Coding of data type

Data Type	Code
Baseline focus group interview	BFG
Semi-structured individual interview	SSI
Field notes (Classroom observations)	FN
Post observation focus group interview	POI

4.3.2 Interview and observation data

This section presents the results according to the research questions as described in chapter 3 (see 3.3). The rationale of this method is to enable the researcher to answer the main research question by looking at the different data generation phases and the secondary research questions asked during those phases.

Secondary research question 1: *What knowledge and understanding do grade R teachers have of digital play?*

During the baseline focus group interview the first research question was posed to the participants to establish their knowledge and understanding of digital play. From the eight participants, seven indicated that they have knowledge of digital play and that they understand the concept of digital play, as indicated in Table 4.4 below. Interestingly, participant 1 who indicated that she does not have knowledge of digital play said that although she is not an expert, she does “understand the possibilities of using it in the classroom”. She also said she is willing to learn more about it.

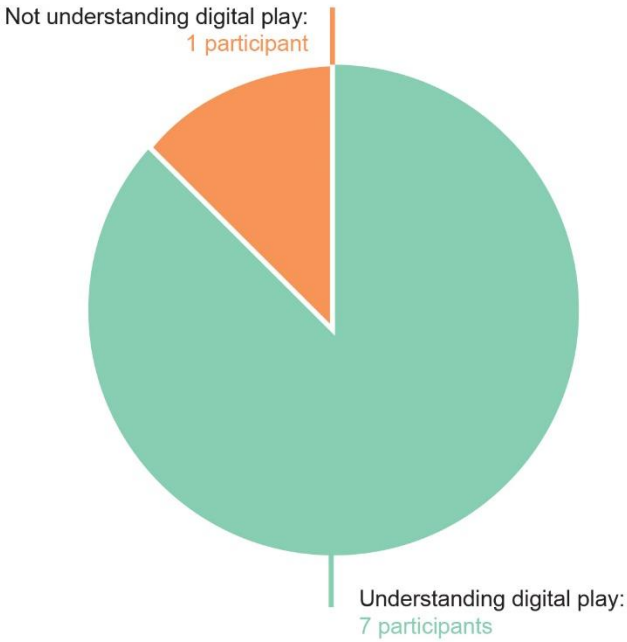

Figure 4.2 Participants’ understanding of digital play.

The seven participants confirmed that they have knowledge and understanding of digital play with phrases such as:

- “It works well for the teaching of sounds and phonemes.” (P8, FN, 43-44)
- “The digital play stimulates communication with the learners.” (P2, FN, 32-33)
- “Learners arrive in class with a lot of technological competence, because they have digital games at home.” (P6, BFG, 170)
- “One learner even showed me how to operate the tablet by saying: ‘Teacher you have to press that button’…” (P6, BFG, 47)

During the classroom non-participant observations, two participants (participant 7 and 8) used digital games as part of their lesson presentations. The purpose of the games was to assist with language acquisition. The other six participants (participant 1, 2, 3, 4, 5 and 6) made use of digital media when presenting lessons such as PowerPoint and YouTube videos projected on a screen from their laptops or smart phones.

Participant 7 and 8, who used digital play, supplied the learners with tablets on which uploaded games to support language acquisition were played. In both cases, the participants explained how the games worked. It was observed that the learners were all familiar with the tablets and they started playing immediately. One of the two participants assisted a learner who had trouble to get the story to play again when the learner pressed the wrong button by mistake and the tablet switched off.

During the semi-structured individual interviews, the six participants who did not use digital play during their lessons remarked that they still need to know more about the use of digital games for language acquisition but are willing to try it. Participant 3 remarked: “I read an article about the advantages of digital media and digital games. It made me realise that the continuous flow of new images on the screen keeps their attention. Because they are exploited the whole day, especially at home, to digital entertainment, this is what they are used to. It is difficult to keep their attention with traditional teaching material. They are used to a constant flow and change of images on a screen” (P3, POI, 1-5).

It became clear during the semi-structured individual interviews that all eight participants use traditional games for language acquisition as well as, to teach sounds, new vocabulary, sequencing of instructions and “guess the missing word” in their classes. Four of the eight participants (participants 1, 2, 5 and 6) said that they have searched for digital games, focused on language acquisition, but they could not find something suitable. It is apparent from this analysis of the data that the majority of the grade R teachers in this study do have an understanding of the value of digital play for language acquisition but still fall back on traditional games in their classrooms.

Secondary research question 2: *What pedagogical approaches do grade R teachers use for purposes of language acquisition?*

The researcher questioned participants regarding pedagogical approaches used for purposes of language acquisition. Only participant 4 answered that she does not plan her lessons around digital media but instead used traditional resources such as flash cards.

All the other seven participants (participants 1, 2, 3, 5, 6, 7, and 8) planned their lessons around technology and media available to them. Participant 1 stated, “When visuals on the projector are accompanied by sounds, the learners remember the sound better. I think it is because they experience it with more senses. I use the screen sometimes in the same way as traditional flash cards to teach them new sounds” (P1, POI, 6-10).

In the same way, participant 2 replied, “I use a PowerPoint presentation to show them the different sounds, e.g. an [a], then on the next slide pictures of words which contains an [a]. This works for me. In grade R we don’t want to teach them to read, only to recognise the different sounds in a word” (P2, SSI, 18-22).

Two of the other participants (participants 3 and 5) mentioned that they play audible sounds, then they show slides with the sound, letter or a picture of a word containing that sound in it, and the learners must make the connection between what they hear and see. Another two of the other participants (participants 7 and 8) mentioned that they show the learners a short video of a story without sound, and they then have to

compose their own story. Sometimes they stop the video somewhere and the learners must predict the rest of the story. Participant 6 allows the learners to watch the whole story on their tablets and when they are all done, she asks them comprehension questions to establish if they listened and understood what they saw, and to introduce them to new vocabulary that is associated with the particular story.

During the non-participant classroom observations, it became clear that three of the participants (participants 1, 3 and 6) were using digital technology on that specific day during their lessons. Participant 1 showed a picture of autumn on the computer and they had a conversation around hot drinks during cold days. Participant 3 used an overhead projector to show pictures of safety hazards around the house and the learners named and explained the hazards. Participant 6 showed three PowerPoint slides and asked the learners to compose a story around the pictures. Five participants (participants 1, 2, 3, 5 and 6) used more traditional pedagogical methods such as poems, songs, flash cards, storytelling, and identifying words that rhyme to learn new sounds and words. Figure 4.3 points out the relation between participants using digital technology and those using traditional pedagogical methods for language acquisition.

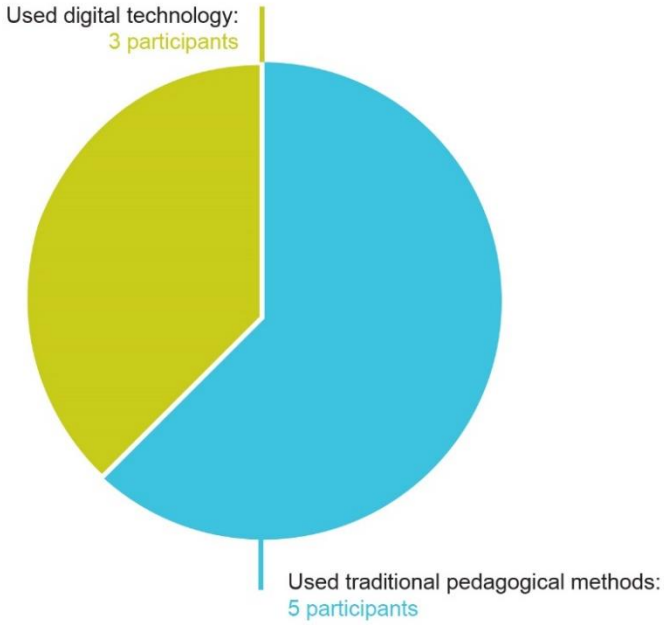

Figure 4.3 Digital technology vs traditional pedagogy

During the semi-structured individual interviews, five of the eight participants (participant 3, 5, 6, 7, and 8) said that they regularly blended traditional pedagogical methods with digital technology. The remaining three participants said that they still used more traditional pedagogical approaches than just digital ones. This empirical evidence highlights that the majority of the grade R teachers in this study still rely more on traditional pedagogies rather than digital ones.

Secondary research question 3: *How do grade R teachers understand the pedagogical value of digital play for language acquisition?*

During the baseline focus group interview, all the participants confirmed that digital play for language acquisition has great value. It has great value in terms of authentic learning, communication, logical thinking, hand-eye coordination, perceptual skills of learners, and learners' eagerness to participate. According to participant 6, learners remember better when they see and hear something, "I find that the learners hear and remember the sounds much better when they see and hear it at the same time" (P6, SSI, 9-13). Participant 8 explained that because learners live in a digital world and they are exposed to digital games and technology at home, they connect easier with the learning material if it is also presented to them in digital format, "The learners grow up in a digital world. It is therefore easier to learn from a tablet or other digital device" (P8, POI, 6-10). The value for her is thus that it breaks down communication barriers because they use in class what they are familiar with at home.

Participant 6 mentioned that the value for her lies in the fact that when the learners are busy on their tablets, there is a lot of communication and interaction between the learners. They share the same world and experiences and they communicate about their interaction with the story or game on the tablet with one another. Digital play, according to her, stimulates interaction and communication, and that is of huge pedagogical value as mentioned, "In group work digital play enhances communication skills. The learners are eager to show each other what they achieved and to assist where someone needs some help" (P6, POI, 7-14). Participant 5 also claimed that learners link what they experience digitally in the classroom with events in real life more easily. They make connections and relate what they see to their worlds, which is emphasised in her statement, "The learners see what is happening on the screen

and link it often to something that happened at home or what happened to their mom or dad at work" (P5, POI, 4-8).

During the baseline focus group interview, the researcher asked the participants if they think the learners will miss digital media when it is not incorporated during the classroom lessons. The teachers were unanimous in their response that they cannot take it away. Learners will definitely miss it. They will feel detached and disconnected because digital media is an integral part of the world in which they live.

What the participants said during the baseline focus group interview was confirmed during the non-participant classroom observations. The researcher observed the excitement of the learners once the teacher instructed them to switch on their tablets. In one of the classes, they had to watch a story on the tablet. While watching, the learners were engaged, and the moment they were done, they interacted about what they saw and shared story elements with one another. This was further proven during the observations where the researcher noticed that when digital play was used, the participation of learners was much more engaged than in classes where it was not used. It was observed that learners related to pictures on the screen and linked it to stories from their own experience, which they then shared.

During the semi-structured individual interviews participants 5, 6, and 8 confirmed that the value of a digital pedagogical approach for them is the fact that when learners play digital games on their devices, they are more focused and committed than when playing traditional games such as building a puzzle. Their attention spans are much longer, and they understand immediately what they are supposed to do. They can keep themselves engaged much longer with digital games than when playing with clay or building blocks. They are also considerably more independent.

Seven of the participants (participants 1, 2, 3, 5, 6, 7 and 8) also said that they were very positive about the value of digital play. They confirmed that it enhances communication skills and the learners are much more involved with what happens in class. Only participant 4 was not convinced that language acquisition could benefit from digital games as indicated in Figure 4.4.

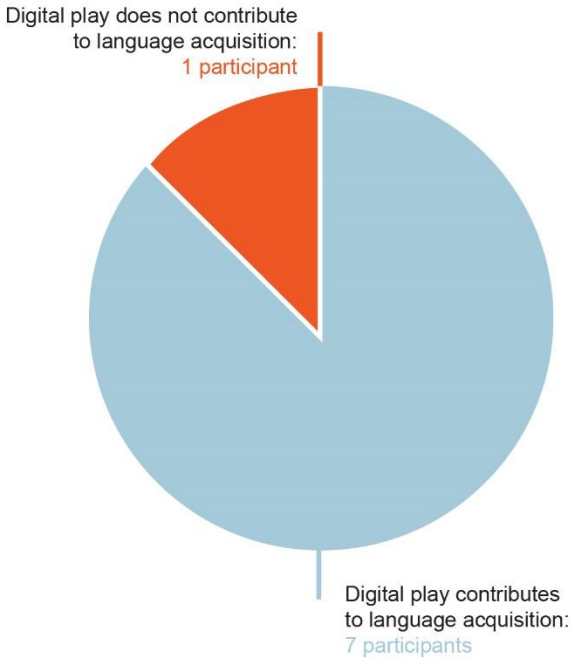

Figure 4.4 Participants' responses on the contribution of digital play towards language acquisition

Participant 8 was very positive about the pedagogical value of digital play for language acquisition largely because learners are clearly at ease using digital technology. She stated, "Their vocabulary enhances. It directs their thinking in new ways and it offers a variety of challenges to learners." (P8, FN, 60-63). She also added that they should be provided with more opportunities in class to use the tablets. Data clearly illustrates that the majority of the grade R teachers in this study recognize the pedagogical value of digital play in the classroom.

Secondary research question 4: *In the teachers' view, how does the use of digital play improve language acquisition of grade R learners?*

Almost all the participants confirmed during the baseline focus group interview that the use of digital play improves language acquisition in one or more ways. They were in consensus that the learner's vocabulary is enhanced. When they hear the words

and sounds, it helps them with pronunciation, “I find that the learners hear and remember the sounds much better when they see and hear it at the same time” (P6, SSI, 9-13). They remember new vocabulary more easily when they can make the connection between the picture or story, the sound and the word, and they recall new vocabulary better when they see the same or similar visuals again, “Learners who are for example not familiar with how to milk a cow, are amazed to see it on the digital screen. They understand the process then much better. I find they learn new words in the process much easier” (P8, SSI, 24-29). It therefore helps them to make associations, which is an important component of language acquisition. They concluded that it especially improves vocabulary and it helps with sound and letter recognition. Table 4.5 below lists the benefits for language acquisition using digital play according to the participants. However, participant 4 complained that there are not enough digital games available, which focus specifically on language acquisition.

Table 4.5 Benefits of digital play for language acquisition

Benefits for language acquisition	**Participants’ confirmation**
Vocabulary is enhanced	1, 5, 8
Better pronunciation	4, 6, 8
Remember better	5, 6, 7
Make connections	1, 4, 8
Make associations	1, 3, 6
Improve sound and letter recognition	1, 2, 3, 4, 6, 7

The non-participant observations corroborated the data that were collected during the baseline focus group. It became clear during the observations that what the majority of the participants said during the baseline focus group interview, about having knowledge and understanding of digital play, can be interpreted as confirmation of each other’s thinking. Participants confirmed the value of digital play in their practice

in the classroom, which was witnessed during the non-participant observations. No new data were observed.

Only participant 2 admitted that she never used digital play in other subjects, but she could see the value of it. However, during the semi-structured individual interviews, two of the participants (participant 4 and 5) mentioned that language acquisition even occurs during the presentation of the other subjects such as mathematics, especially where digital games were incorporated since learners were picking up new vocabulary during these instances. They communicate about the problems they must solve. Participants 6 and 7 also mentioned the fact that learners acquired new words during subjects such as life orientation. The digital learning experience, not only in specific language teaching activities, has an impact on and enhances language acquisition. As data indicates, the majority of the grade R teachers in this study agree that digital play improves language acquisition of the grade R learners.

Secondary research question 5: *What are the implications for teaching practices when using digital play methods for the enhancement of language acquisition in grade R?*

During the baseline focus group interview participants responded to the researcher's empirical question "What do you as teachers see and hear that the learners experience during their digital play? How does this contribute to their language acquisition?" as follows:

- "A lot of self-discovery takes place during digital play. It helps language acquisition in the sense that learners have to formulate questions that they want to ask with the new vocabulary they got from the particular game they are playing at that moment." (P1, FN, 30-31).
- "They learn listening skills, especially during digital story time because they must remember the detail of the story in order to answer comprehension questions afterwards" (P7, FN, 28-31).

- “I observed learners during play time mimicking what they saw earlier on a youtube video. They even used the language, tone of voice, intonation and vocabulary of the characters in the video.” (P4, FN, 8-10).

All the participants agreed that times have changed, and that teaching practice has to adapt to the new demands that the digital era is making on education. They also agreed that there was no possibility that one could go back to how teaching was done in the past. Participant 6 remarked, “Television and computer games at home have changed the way in which learners perceive the world. Teaching practices and pedagogy have to accommodate the changing environment in society. If not, we are going to lose the learners. That is the world they understand and live in. We must meet them there; otherwise we wouldn’t be able to teach them.” (P6, BFG, 43-48).

During the classroom non-participant observations, the researcher saw how digital play during mathematics and life orientation also contributed to language acquisition and how three of the participants used the opportunity to integrate language acquisition with the other subjects. The evidence for this was that according to participant 4 the learners engaged in activities of completing patterns and distinguishing between longer versus shorter when playing matching games as well as guessing games which require language. Participant 5 said that the learners acquire new knowledge in life orientation and maths while learning new words. Participant 7 said that the learners’ language improved in other subjects and they could do the memory games because of previous similar types of games in maths and science.

Participant 2 claimed during the semi-structured individual interviews that “digital games can easily be incorporated in the class. It only takes a bit of planning and the will to do it.” (P2, POI, 1-6). Participant 3 further remarked, “When using digital games, learners don’t even know that they are busy learning. They learn in a playful way. They think they are playing, but they are actually learning.” (P3, SSI, 10-12).

Yet another participant (participant 5) mentioned, “they explore a lot while playing. The digital games give them the opportunity to do that.” (P5, POI, 9-11). Participant 8 stated that “digital play provides the learners with different ways of knowledge

acquirement." (P8, POI, 16-20). The same participant (participant 1) who stated previously that she does not use digital play, confirmed again that she feels learners must touch objects while learning, not only click on a digital mouse (P1, POI, 11-13). Seemingly, from this delineation of the data, the grade R teachers in this study place value on digital play for enhancing language acquisition. The learners formulate questions more clearly, make use of new vocabulary, and develop listening skills while involved in digital play.

4.4 DATA INTERPRETATION

4.4.1 Introduction

The research questions of the study and themes that derived from the questions guided the interpretation of the data collected. The data gathered from the baseline focus group interview, classroom observations, field notes taken during classroom visits and semi-structured individual interviews, as well as the post observation focus group interview were studied and organized into the common themes and reported below. The themes were derived by means of a thematic analysis, planned for in Chapter 3. This analysis made use of the procedures advocated by Creswell, 2012:240 (see 3.4.3) and Flick, 2018:132 (see 3.4.3) who list content themes by data type and collate them into broader categories.

4.4.2 Theme 1: Knowledge and understanding of digital play

Stemming from the first research question, the theme, knowledge and understanding of digital play, was based on a statement from Murcia et al. (2018:251) who remarked that teachers must be skilled in the elements of digital technologies, because as Arnott (2016:271) confirmed, technologies are part of the ecological system of early learning. It was therefore necessary to establish the teachers' awareness of digital play. The baseline focus group interview with the participants established that 87% of the participants see themselves as teachers who have knowledge of and who understand digital play.

During the classroom non-participant observations, the technological devices such as computers, mobile phones, digital games, interactive stories and videos as listed by Berson et al. (2010:3), Plowman (2015:38) and Murcia et al. (2018:251) were used by the grade R teachers. Tablets were also handed out to learners to play games or to listen to stories. The participants confirmed, in line with Snow et al. (2016:65) that digital play contributes to the learners' phonemic awareness, and their interaction and communication as Bers (2018:104) also remarked.

The six participants who did not use digital play during the lessons observed by the researcher, stated during the post observation focus group interview that although they used digital technology such as data projectors and laptops, they still needed to know more about the use of digital games. Murcia et al. (2018:251) also underline the fact that teachers must be trained in the different digital technologies. The data also revealed that teachers are required to have the necessary knowledge and skills of digital pedagogies to support the digital technologies (see 4.3.2). Murcia et al. (2018:250) refer to an initiative in Australia which aims at improving the proficiency of teachers in ICT. Jensen et al. (2019:24) remark that the lack of government monitoring is the cause of ratios not being adhered to, which results in the lack of relevant training. This study indicates that the teachers are not well-trained in digital technologies and pedagogies and furthermore, that there is a lack of guidelines for programs to use in South Africa.

4.4.3 Theme 2: Pedagogical approaches of grade R teachers for the purpose of language acquisition

During the baseline focus group interview seven of the eight participants confirmed that they plan their lessons around digital media as a pedagogical approach to present their lessons. Parette et al. (2013:124) make a strong argument to integrate technology in the curriculum for early childhood and state that teachers must change their pedagogical approaches accordingly. According to Parette et al. (2013:7) the interactive nature of digital technology enables the teacher to scaffold instructions in their pedagogical approach.

Theme 2 was derived from the evidence collected during the non-participant classroom observations and the post observation focus group interview which indicates that teachers blend traditional and digital pedagogical methods, and that they are keen to explore more digital possibilities in the future, especially when it comes to language acquisition. This links to Berschorner et al. (2013:17) who made the statement that the roots of literacy will emerge in digital environments. Murcia et al. (2018:251) also promote the integration of digital technologies into the young learners' learning experience.

The fact that one participant does not plan lessons around technology, and three said that they still use more traditional pedagogical approaches than digital ones, confirm the concern expressed by Jensen et al. (2019:24) and Murcia et al. (2018:25) that teachers must get more training in digital technologies and how to integrate such tools and practices in the learning experiences of young learners.

4.4.4 Theme 3: The pedagogical value of digital play for language acquisition

From the observations and interviews, the third theme in this study proved that most participants are positive about the value of digital play for language acquisition. Only one participant (participant 1) remarked that she is not convinced "that language acquisition could benefit from digital games." The rest of the participants made comments about the value they had experienced (see 4.3.2, RQ2 &RQ3).

Participant 1 commented that the use of digital technology stimulates communication between learners and that they interact much more when playing digital games than when playing for example with clay, is supported in her argument by McCarrick and Xiaoming (see Dietze et al., 2013:5). They identified that forming friendships and interactive communication "is much higher among learners using technology than when learners are involved in table work such as completing puzzles." This is also in agreement with Bers (2018:104) who stated that when playing at the computer "young learners tend to speak twice as many words per minute, than during traditional play activities that are non-technology-related play activities. This includes play activities such as play dough and building blocks, and nine times more when talking to their classmates while working with computers as they do when working on puzzles."

One of the participants mentioned the fact that learners remember better, when they see and hear something. Her argument is supported by Berschorner et al. (2013:18) who remarked that technology allows for better recalling and understanding of, for example elements of stories.

4.4.5 Theme 4: Digital play improves language acquisition in different ways

Theme 4 was established during the baseline focus group interview with all participants confirming that digital play enhances the vocabulary of learners. In agreement, Pepler (2015:165) states that play gives younger learners the opportunity to expand their vocabulary, sentence structure and the understanding of semantics.

Participant 8 mentioned that sometimes she stops the digital story and asks the learners to predict the rest of the story, or plays the story without sound so that the learners can make up their own dialogue, meets the expectations of CAPS (DBE, 2011) (P8, FN, 26-29). CAPS states that grade R learners, when it comes to stories, books and poems, must be able to describe the characters and predict what will happen next in the story. CAPS also makes mention of the fact that learners must link the story to their own life experiences. Participant 6 mentioned that often, in class, learners link what they see in a story or something they experience during digital play, to their own life experiences (P6, BFG, 147-150).

4.4.6 Theme 5: Teaching practices for enhancement of language acquisition

The final theme, which speaks to teaching practices for language acquisition was extracted from empirical data and literature. The teachers were in unison that teaching practices for the enhancement of language acquisition, has many challenges. Teaching practice has to keep pace with technological developments, and they confirmed that their teaching practice has to adapt to the new demands that technology is making on the pedagogical practice. This is also the view of Plowman et al. (2013:28) who said that learners are exposed to new and different forms of social interaction and stimulation within the digital world in which they are living, therefore

teachers need to consider their practices when deciding on which technology, and how to use it in classroom when teaching language acquisition.

One participant observed that the practice of using technology in class makes the learners more independent and they explore more. Berschorner et al. (2013:18) confirms this by stating that learners are more independent as the technology allows for self-pacing and discovery. However, it was apparent that the learners did not have the courage or freedom to explore using the digital devices is in contrast to literature findings (see 2.2.3.2 Arnott, 2016:272) that teachers should encourage the learners to use the digital devices. Furthermore, the participants confirmed that all three types of play, identified by Piaget (see 4.3.2), are present when learners engage in digital play. They are in consent with Parette et al. (2013:204) who remarked that exploratory, functional and symbolic play is incorporated in digital play.

4.4.7 Interpretation of findings in terms of the theoretical framework

Bronfenbrenner's ecological framework (see Figure 2.2 and 2.7.1) was applied to understand the learners' development in terms of the relevant contexts related to the participants and phenomenon of this study. According to this framing, the world of the teacher consists of five systems of interaction, which will be interpreted below according to the data of this study.

4.4.7.1 Microsystem

In this study, the microsystem has the teacher at the centre, but it also includes the learners and the school. The classroom forms a microsystem for the teacher. It became clear in this study that the learners are exposed to digital technology at home (see 4.3.2), which is another microsystem. The learner lives in this world. Digital technology is taken into consideration when lessons are planned. Some of the learners were more involved with the digital technology than others. Teachers used this opportunity to add the learners' comments about digital technology they use at home to what they experience in the class. This is an effort to combine and facilitate the transfer from home to classroom and contributes to the combination of microsystem.

4.4.7.2 Mesosystem

The mesosystem is the relationship between the microsystems, the teacher, the learners and the school, but in this study, it also includes the family. The grade R teachers had to consider their own knowledge of digital play, as well as the relationship between digital technology and the learners' prior knowledge thereof and the exposure that they get from home (see 4.3.2) "Learners arrive in class with a lot of technological competence, because they have digital games at home." (P6, BFG, 170). To create a conducive learning environment, the teacher, by trying to bring what is already part of the microsystem at home into the learning environment, creates homeostasis by using digital technology in class.

4.4.7.3 Exosystem

The exosystem in this study includes the community, the cluster of the school and the district office of the Department of Basic Education (DBE). It is an extension of the mesosystems and it involves social structures that influence the individual. Although the parents are not physically present in the classroom their psychological presence in the learners' lives are eminent in the fact that the learners are used to digital technology at home. The world around and outside the classroom is fully digital (see 4.3.2) "Because they (*the learners*) are exploited the whole day, especially at home, to digital entertainment, this is what they are used to. It is difficult to keep their attention with traditional teaching material. They are used to a constant flow and change of images on a screen" (P3, POI, 1-9). Everything happens or is happening online and in the virtual world. By using digital technology in a playful manner in class and for language acquisition (see 4.3.2), connects the learners to the exosystem, where digital connectivity is a sine qua non.

4.4.7.4 Macrosystem

The teachers' values and beliefs are part of the macrosystem. It is also the political and cultural context in which the teachers' find themselves. The macrosystem holds the various threads in peoples' lives together. In the macrosystem the world is moving

into the Fourth Industrial Revolution and the era of Artificial Intelligence and learners are exposed to diverse technologies. By already introducing digital technology as a way of learning and promoting language acquisition in grade R, learners become accustomed to and skilled in the new digital context in which they have to work, live and survive. In this study, it was clear that the learners were confident using digital technology (see 4.3.2) “One learner even showed me how to operate the tablet by saying: ‘Teacher you have to press that button’…” (P6, BFG, 47).

4.4.7.5 Chronosystem

The chronosystem in this study is the environmental events, historical events and major life changing events such as the development of technology in a changing digital world that can affect both the teacher and learner. At the chosen school a new digital classroom equipped with digital tablets was established for the teachers to use for their teaching. The participants in this study recognised the need to include digital technology and specifically digital play in their lessons as it is part of the learners’ changing world (see 4.3.2). Technology is driving the future and somebody who is not technologically literate might be regarded as illiterate in future, it is therefore crucial that learners are exposed to technology, not only at home, but in school. History is created via technology in the current paradigm. The use of digital technology in the classroom will become a future reference and this study encourages the use of digital play for language acquisition.

4.5 SUMMARY

The summary of the themes and data, as discussed in the answers to the secondary research questions have been unpacked in this chapter and outlined in Table 5.1. The research questions and themes provide insight into answering the main research question of this study, how do teachers understand and use digital play methods for language acquisition in grade R?

4.6 CONCLUDING REMARKS

This chapter presented the results from the five secondary research questions. The data acquired from the interviews, classroom observations and field notes yielded insightful information about how grade R teachers understand and know how to incorporate digital media in the classroom. The participants held specific ideas, but a variety of common categories were eminent. Through the analysis of the results, new insights and findings were developed that will contribute to the academic understanding around the pedagogical value and use of digital play for language acquisition.

This chapter also discussed the results in detail and compared the findings to the literature discussed in chapter 2, which also serves as a triangulation for this study. The findings were supported by literature and the researcher was able to answer the research questions which are provided in the following chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This study aimed to investigate the knowledge and understanding teachers have of digital play methods for language acquisition in grade R, and the different types of digital technology and digital methods they use in the classroom. Furthermore, the research was conducted by way of an empirical study of the pedagogical approaches grade R teachers use for purposes of teaching language acquisition, and an investigation of the pedagogical value of digital play for language acquisition.

The purpose of this chapter is to summarise the findings in terms of the research questions on the knowledge and understanding of the teachers on how digital play improves language acquisition for grade R learners; and to make recommendations for the use of digital technology in grade R for purposes of enhancing language acquisition. Using the findings and the theoretical framework as a foundation, the implications for using digital play methods to acquire language in grade R is discoursed, after which the limitations of the study and possible future research areas are given.

5.2 OVERVIEW

The overview is presented in terms of a summary of each of the chapters below. In the summary of the previous four chapters' key points were highlighted that were of importance in this research and conclusive of the results. This overview informs the synthesis of the findings and presentation of recommendations.

Chapter 1

In Chapter 1, an overview and background to this study was presented. Details on the problem statement, rationale for the study, the research questions, and definitions of the key concepts, theoretical framework and the research methodology of the study were provided. A preliminary literature review was offered in this chapter that showed how grade R teachers teach language to the grade R learners, using digital technology and digital play.

Chapter 2

This chapter consists of an in-depth review of the literature on factors that contribute to teachers teaching methods and the teachers' understanding thereof. By presenting a review on the phenomenon of digital play, and language acquisition in grade R, the meanings and interpretations of the key concepts used in this study are clarified. The structure of this study was organised according to Bronfenbrenner's framework to clarify the factors that were in question. The ecosystemic factors have a determining effect on the language acquisition of grade R learners. This is evident in the development of digital technology in the chronosystem. The attitude of the teachers towards digital technology was the focus of the macrosystem. The parents create at home an environment that includes digital technology that forms part of the leaners' mesosystem. The need to implement a teaching programme that meets the different needs of both the learners and the community is shown in the exosystem. The grade R learner in context with digital technology, represents the microsystem.

Chapter 3

This chapter deliberated the qualitative research approach and interpretive paradigm that was implemented as the basis of this study. The data generation methods, such as a baseline focus group interview, non-participant observations of the teachers' lessons, semi-structured individual teachers' interviews, and a post observation focus group interview ultimately provided an explanation to the in-depth data gathered. To ensure that this study was authentic, accurate and complete, credibility and trustworthiness were addressed.

Chapter 4

With the intention of presenting the findings that were produced by this study, this chapter analysed the data generated from the results of the five secondary research questions. This data produced perceptive information about how grade R teachers understand and know how to incorporate digital media in the classroom. The participants detained specific ideas, but a diversity of common ideas was distinguished. The analysis resulted in new insights and findings that were developed that will add to the academic understanding around the educational value and use of digital play for language acquisition. The results were discussed in detail and the findings compared to the literature discussed in chapter 2. This chapter was meaningful since it supports the discussion of the results of this study.

5.3 SUMMARY OF RESEARCH FINDINGS

5.3.1 Key scholarly findings related to the findings of this study

In this section, a summary of the literature as presented in Chapter 2 and supported with data from Chapter 4 was discussed.

Figure 5.1 is a summary of the key findings. The diagram indicates how the different research sub-questions and corresponding themes contributed to answer the main research question in this study and which will be unpacked in the discussion below.

SECONDARY RESEARCH QUESTIONS	THEMES	QUESTION ANSWERED ACCORDING TO DATA GENERATION
QUESTION 1	Teachers' knowledge and understanding of digital play	Grade R teachers have knowledge and understanding of digital play. The majority, however, confirmed they need to know more about digital technology, especially about the use of digital games.
QUESTION 2	Pedagogical approaches teachers use for language acquisition	The majority of grade R teachers plan their lessons with a digital pedagogical approach in mind, but they still use a mixture of traditional and digital pedagogical approaches in their lesson presentations.
QUESTION 3	Teachers' understanding of the pedagogical value of digital play for language acquisition	The grade R teachers see the pedagogical value for language acquisition in the interpersonal communication between learners and the fact that they recall and understand words and concepts better when using digital play.
QUESTION 4	Teachers' view of the role of digital play to improve language acquisition	Teachers confirm that the use of digital play improves the language acquisition of grade R learners. It helps them to enhance their vocabulary, sentence structures and understanding of semantics. It also helps them to address the CAPS goals for grade R learners regarding language acquisition.
QUESTION 5	The implications for teaching practices for the enhancement of language acquisition	Adaptation to constant change of technology is one of the biggest implications for teaching practice when using digital play methods for the enhancement of language acquisition in grade R. Teachers must of necessity stay updated and clued up about the newest and latest digital developments, to ensure they keep up with the learners.

MAIN RESEARCH QUESTION:

How do teachers understand and use digital play methods for language acquisition in grade R?

ANSWER:

The grade R teachers need to use a mixture of traditional and digital methods when teaching the grade R learners. The teachers realise that using play and then specifically digital play are important when facilitating language acquisition to the grade R learners.

Figure 5.1 Data-analyses according to the research questions

It is important to establish what knowledge and understanding teachers have of digital technology for the use of digital play to establish how to incorporate it into the grade R classroom and to make sure teachers understand the value of using digital media and especially digital play in their teaching.

From the literature, it became clear that teachers must be knowledgeable in the elements of digital technologies as it is part of the ecological system of early learning (Murcia, et al., 2018:251; Arnott, 2016:271). The grade R teachers in this study made use of technological devices such as computers, mobile phones, tablets and software for interactive stories and videos as listed by several scholars (Berson et al., 2010:3, Plowman, 2015:38 and Murcia et al., 2018:251). There is a contradiction between the data gathered and the literature as observed during the data generation, which highlighted that although most of the participating grade R teachers were enthusiastic to use digital technology, they lacked the knowledge and understanding to use digital play.

The fact that teachers must be trained in the appropriate use of different digital technologies is obvious from various studies (see 2.2.1 Parette et al., 2013:124, McGlynn-Stewart et al., 2018:42). Teachers are not well-trained in digital technology and there is a lack of culturally appropriate guidelines for programmes to use in South Africa as well as contextually relevant ideas on how to integrate these into learning experiences for young learners (Murcia et al., 2018:251, Jensen et al., 2019:24). None of the participants in this study had any previous formal training on how to use the different digital technologies in their classrooms. They all learned by means of trial and error how to use and incorporate digital technology in their lessons.

A strong point was made from the data gathered, that even those participants who were reluctant to use digital technology acknowledged the value thereof as the young learners live in a digital technological era.

From the literature reported in chapter 2 (see 2.2.1) it was evident that teachers use various pedagogical approaches for the purpose of language acquisition. Traditional and technological methods are used either separately or in combination. The argument by the participants that digital technology must be integrated into the

curriculum for early childhood and therefore teachers must change their pedagogical approaches accordingly is supported in literature (Parette et al., 2013:124).

Digital technology's interactive nature enables the teachers to scaffold instructions in their pedagogical approach. The participants in this study stated that they would want to incorporate digital technology in their lessons to assist the traditional methods they use. They indicated that integrating digital technology with concrete materials for language acquisition in grade R would give them a broader scope in which to work. Furthermore, teachers used pedagogical approaches that were supported by and supportive of digital technologies. Albeit rudimentary methods, the significance is that grade R teachers can and should support language acquisition through the way in which they teach, and one such means is by using technology. What the researcher did not find is the application or inclusion of a clear digital pedagogy in the grade R classroom. Instead the paucity of technological use was blamed on the school for not having enough digital technologies.

The participants indicated that digital play contributes to the learners' phonemic awareness, their interaction and communication, which is supported by researchers (Bers, 2018:104). During the non-participant classroom observations, it was obvious that more than half of the participants used digital technology to do phonemic awareness with the learners. This is significant as it suggests that the learners, coming from a digital era, remember better when digital technology is used as aid in the teaching process.

It was stated by researchers (see 2.2.2) that it is imperative for teachers to be skilled in the elements of digital technology in order to understand the pedagogical value of digital play in the grade R classroom (Murcia et al., 2018:251). This was confirmed in this study by the imperative need for incorporating digital play in the language lessons.

The participants in this study, even those who were reluctant to incorporate digital technology in their classrooms became increasingly enthusiastic about the long-term pedagogical value thereof through the use of digital play to enhance language acquisition. They were in consensus that learners in this digital era are keener to learn with the use of digital technology. They felt strongly about the fact that there

should be training for the teachers on how to incorporate and use digital play in order to be more effective in the classroom.

The statement by the participants that learners understand and recall elements of stories better, expand their vocabulary and improve their concept of phonics through the use of digital technology, is argued for in literature (Berschorner et al., 2013:18; Pepler 2015:165). As confirmed in literature, learners often express themselves better through play than in words (Pepler, 2015:164).

CAPS states that grade R learners must be able to describe the characters and predict what will happen next in a story (DBE, 2011). CAPS also makes mention of the fact that learners must link the story to their own life experiences. Language acquisition through digital play fits within the CAPS framework and this study highlighted the pedagogical approaches in the participants' lesson planning. Participants incorporated digital technology to encourage the learners to interact with the pictures and storytelling in order to predict the story line.

Literature reviewed confirmed evidence from the empirical data that self-discovery is made to a large extent by learners when engaging with digital technology, and that the learners formulate questions using new learned vocabulary through digital play to contribute to their language acquisition. To this end, teachers need to reconsider their practices (Plowman et al., 2013:28; Berschorner et al., 2013:18).

The gathered data also established that learners engaged in digital play which is in agreement with the literature that confirms that the learners play by exploring, by making it functional, and using it in a symbolic way (Parette et al., 2013:204). The discrepancy was that although the learners were eager to explore the digital technology on their own, the teachers wanted to control the situation and did not allow the learners to be creative.

The claim by literature stating that digital play takes place in clusters where the learners stay close to the digital technology, attempting to take part in some way (Arnott, 2016:275), was confirmed with what was observed in the classroom where the learners were eager to stay in control of their own digital devices.

In this study, teaching practices were specifically linked to how digital play is used for language acquisition. The data inveterate that teaching practices were challenged by digital technology and therefore teachers should adapt to include these digital technologies in the classroom (see 4.4.5). These findings are important because the way in which new generation of digital learners learns through technological play needs to be taken into consideration when lessons are planned.

5.3.2 Key empirical findings

The key empirical findings will be presented according to the empirical data, as well as in relation to Bronfenbrenner's theoretical framing employed in this study.

5.3.2.1 Key empirical findings according to empirical data

This study aimed to answer the research question: *How do teachers understand and use digital play methods for language acquisition in grade R?* The following summary of the findings will provide the answer to this research question.

Empirical data were collected to answer the research questions of this study and proved that the grade R teachers see themselves as having knowledge of and understanding digital play methods. In addition, it was evident that digital play contributed to the learners' phonemic awareness, their interaction and communication.

Interestingly, data made it clear that not all of the grade R teachers used technology equally and those that do use it do not use it often, or effectively. This shows an inconsistency with the literature, which states that because of the quick pace of change and development of digital tools it is important to keep in mind that the learners are constantly exposed to new forms of stimulation through these digital devices (Plowman et al., 2013:28). Current practices that were evident in the data exposed that participants blend traditional pedagogies with digital ones (see 4.3.2: Q2). The lack of using traditional pedagogies effectively, is mainly because the grade R

teachers do not feel comfortable with digital media nor are they familiar with how to integrate such tools and practices with the learning experiences of the young learners.

However, data indicated that there is a want and need to develop the teachers' pedagogical practices of digital media, especially in the use of digital games and for language acquisition (see 4.3.2: Q4). Regarding the value of digital play for language acquisition, it was clear from the data that most of the participants regard digital play as valuable because of, inter alia, the communication, interaction and deeper learning it promotes (see 4.3.2: Q3). The researcher was surprised by the fact that although the teachers agreed and confirmed that their teaching practices should be adapted to accommodate the digitally adept learners, they did not make an effort to change the way they teach.

Empirical data highlighted that digital play enhances the vocabulary of learners and makes learning more authentic. Furthermore, it was evident that the practice of using technology in grade R makes the learners more independent and they tend to explore more (see 4.3.2: Q3). Moreover, data was produced to show that in order to keep the pace with technological development, the teaching practices in grade R have to adapt to the new demands that technology is making on the pedagogical approaches (see 4.3.2: Q5). What the researcher did not find is a more positive attitude from the teachers who are not using digital devices in the classroom to make plans to obtain these devices and start using them for language teaching. It was also obvious that the learners did not have the courage to explore with the devices nor did they have the freedom to use the technologies independently or creatively.

5.3.2.2 Key empirical findings according to Bronfenbrenner's theoretical framework

The theoretical framework used in this study has been adapted to illustrate the key findings of this research as seen in Figure 5.2 below. These findings will be integrated into the research conclusions in the next section.

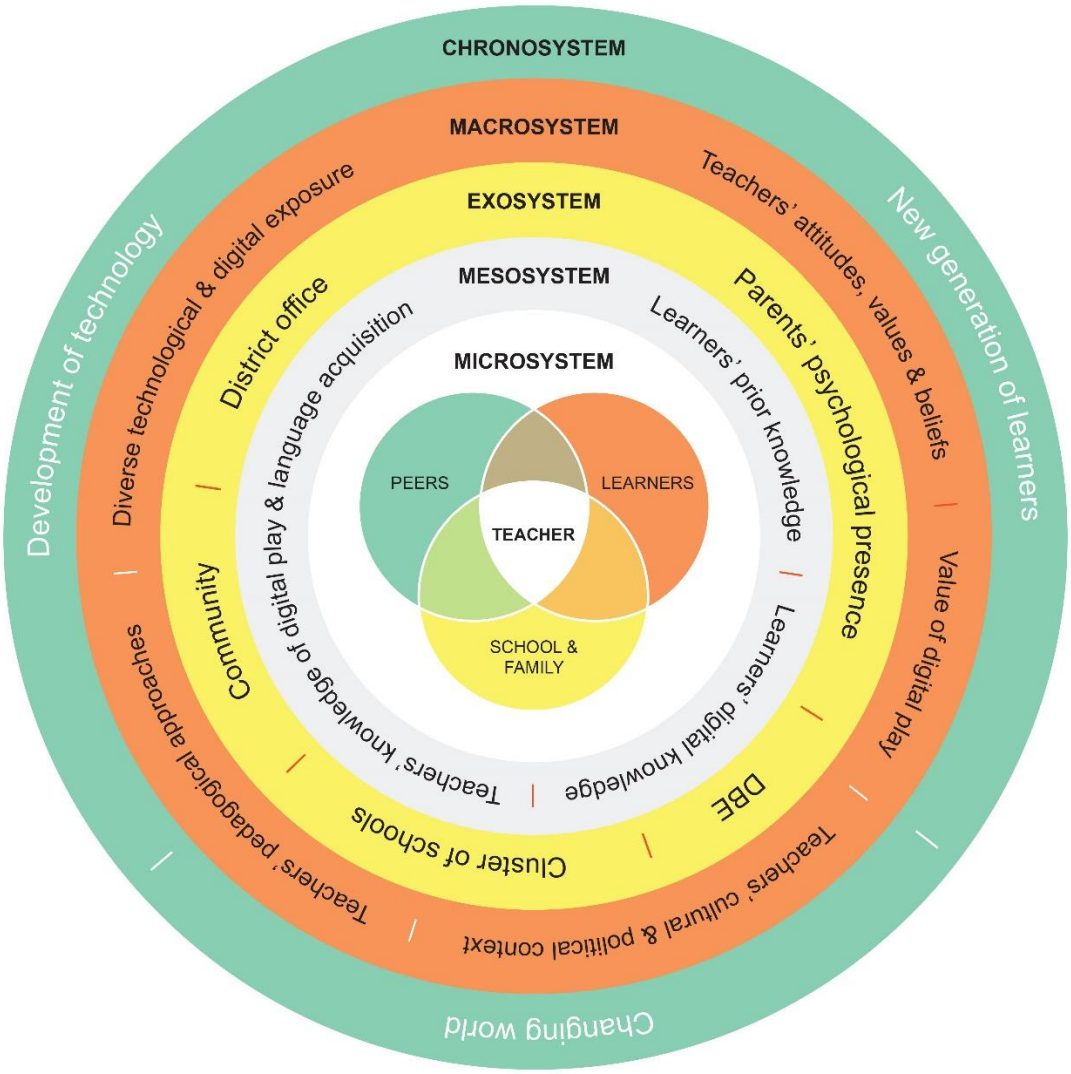

Figure 5.2 Key findings according to the framework of Bronfenbrenner

5.4 RESEARCH CONCLUSIONS

In this paragraph, the research conclusions will be presented in an attempt to answer the initial research questions. The different sub-questions contributed to answer the main research question. This section is an extension of the figures presented as 5.1 and 5.2 above.

Question 1, *What knowledge and understanding do grade R teachers have of digital play?*, explored teachers' knowledge and understanding of digital play. The literature

findings as referred to in 4.4.1 show teachers must be skilled in the use of digital technology in early learning. After the findings were presented the conclusion was made that grade R teachers have knowledge and understanding of digital play. The majority, however, confirmed that they need to know more about digital technology, especially about the use of digital games. This fits into Bronfenbrenner's theoretical framework where the teachers are the centre of the microsystem for the purpose of this study. The teachers' use of digital technology for language acquisition were observed in the classroom which links to Bronfenbrenner's mesosystem where the teachers' knowledge of digital play for language acquisition is evident in the classroom.

Question 2, *What pedagogical approaches do grade R teachers use for the purposes of language acquisition?* investigated the pedagogical approaches teachers use for language acquisition. The importance of including digital approaches in teaching is confirmed by the literature as discussed in 4.4.2. The majority of grade R teachers plan their lessons with a digital pedagogical approach in mind, but they still use a mixture of traditional and digital pedagogical approaches in their lesson presentations. Furthermore, there is a connection to the macrosystem where diverse technological and digital exposure to learners in the classroom was highlighted.

Question 3, *How do grade R teachers understand the pedagogical value of digital play for language acquisition?*, enquired about teachers' understanding of the pedagogical value of digital play for language acquisition. Literature as discussed in 4.4.3 supports the statement that grade R teachers see the pedagogical value for language acquisition in the interpersonal communication between learners and the fact that they recall and understand words and concepts better when using digital play. This connects closely to the microsystem where the teacher included the learners' own digital knowledge in the teaching process.

Question 4, *What are teachers' perceptions of the use of digital play to improve language acquisition of grade R learners?* asked the question about the teachers' view of digital play's role to improve language acquisition. Teachers confirm that the use of digital play improves the language acquisition of grade R learners. It helps them to enhance their vocabulary, sentence structures and understanding of semantics. It

also helps them to address the CAPS goals for grade R learners regarding language acquisition. The literature related to this topic is discussed in Chapter 4 (see 4.4.4). The exosystem highlights the influence the state has on the education of the learners by setting specific goals.

The last secondary research question namely question 5, *What are the implications for teaching practices of using digital play methods to enhance language acquisition in grade R?*, researched the implications for teaching practices for the enhancement of language acquisition. Adaptation to constant change of technology is one of the biggest implications for teaching practice when using digital play methods for the enhancement of language acquisition in grade R. Teachers must stay abreast of the newest and latest digital developments, because the learners are well-informed.

For the purpose of this study, the chronosystem involved taking into consideration a new generation of learners who are familiar with digital technology in the classroom and the use thereof for language acquisition through digital play.

The main research question namely, *How do teachers understand and use digital play methods for language acquisition in grade R?*, can thus be answered as follows: grade R teachers are well aware of the fact that they need to teach using a mixture of traditional and digital methods, as the grade R learners grow up in a digitally rich environment. The teachers also realise that using play and then specifically digital play, when teaching language to the grade R learners are of great importance. However, they are still hesitant to incorporate the change in their teaching methods, as there are still not sufficient digital devices and digital support material available.

5.5 RECOMMENDATIONS

5.5.1 Digital pedagogies in teacher education

During teachers' education at tertiary level, more attention must be given to their curricula where attention should be given to digital pedagogical approaches and how to integrate subject and digital knowledge to create learning experiences in class. It is important for higher education institutions to examine the methods currently used by

early childhood teachers. Furthermore, teacher preparation programmes that include digital pedagogy should form a vital part in preparing teachers to become skilled in the use of digital media and digital pedagogies.

5.5.2 Practical technological skills for teachers

Through this study it became evident there is a need to do more for the enhancement of existing and especially older teachers' digital knowledge and to equip them with skills on how to use digital technology in class to improve their teaching of a learning area such as language acquisition. This could include digital technology courses made available for teachers who are currently teaching and who are not equipped with the necessary knowledge and skills to incorporate digital technology in the classroom.

5.5.3 Digital games

This study proved that the digital games and apps that are available for language acquisition are not suitable for the South African context. It is therefore recommended that the app developers and researchers create content that is contextually relevant to accommodate the diverse needs of teachers and learners in South Africa.

5.5.4 Digital resources

School governing bodies can equip classrooms with the latest digital devices to make it easy for teachers to incorporate the use of technology during their teaching. The school governing bodies could arrange fundraising events or get sponsors to help provide the necessary funds to the schools to buy the digital devices, games and the applicable software.

Schools must have the necessary digital devices available in class for learners to explore and use for learning. Most learners have access to many technological devices at home. If it is also available at school, it will facilitate the learning experience because they then step into a world already known to them and it will bridge the gap

between the world in which they live and the school environment. Schools should further provide the necessary funds for teachers to obtain various digital games and digital programmes on the digital devices to link to the themes they teach in class.

5.5.5 Learner centred learning

It was evident in this study that learning with digital devices is mostly teacher centred and not learner centred. This is in contrast with what the literature recommends where the learners need to be creative in using digital games to acquire language as quantified by (Berschorner et al., 2013:18). Teachers should be encouraged to allow the learners to take ownership of their own learning while playing digital games.

5.5.6 Policy guidelines

Although this study did not look at policy, it did find that learners are comfortable and confident in using technology to learn. To adapt to the new digital era and to link to the Fourth Industrial Revolution, the education policy should be adapted to include digital technology and the use thereof in the curriculum. Clear guidelines must be stated on how to use and incorporate these digital technologies in the teaching and learning processes.

5.6 AVENUES FOR FURTHER RESEARCH

Although this study provided valuable awareness into teachers' understanding and use of digital play methods for language acquisition, it was not without restrictions. Therefore, further research on the following is recommended.

5.6.1 Availability of digital games for language acquisition

During the data generation stage, many teachers complained that there are not a lot of digital games available, specifically with the aim to assist in language acquisition. Future research can be done to investigate the potential for developing material to fill this gap, or to investigate how existing material can be applied to teach language

acquisition through digital play. The learners must be able to listen to their own language while learning. Therefore, more contextually and culturally appropriate digital resources for language acquisition need to be researched and developed to fill the need in schools as we live in a diverse country with different needs and preferences.

5.6.2 Investigating a broader spectrum of schools

This study was conducted in a single school in an above average income suburb. To get a picture of the national situation in South Africa regarding the use of digital technology for language acquisition, further research should be conducted which includes a more diverse sample of schools.

5.6.3 Changing and influencing teachers' education

Future research can also be conducted to explore how the implementation and use of digital devices will influence and change teacher education and how to prepare teachers to teach in the digital era.

5.7 LIMITATIONS OF THE STUDY

The fact that this research has only been done in a single school in an urban environment, with only eight participants, limits the generalisation of the results. Results on a similar study in a rural area may differ completely. In addition, studies including more schools where a comparison can be done between schools with no available digital technology and schools with some digital technology can be done. This might show the necessity of using digital technology for language acquisition.

Due to the qualitative nature of this study, the research is subjective and could be influenced by diverse biases. This study therefore has limitations, of which some are known and others not (Saunders et al., 2012).

With regard to the techniques and procedures used for data generation, the method could have contained inaccuracies in the form of loaded interview questions and prejudiced answers (Yilmaz, 2013:315).

5.8 CONCLUDING REMARKS

This study was not only a journey for the researcher but also for the participants. Some of them were initially very reluctant to even talk about digital technology and the use thereof in their classrooms, but ended up, during the last interview, being excited about incorporating the digital technology in their teaching and specifically to use play to encourage language practice in the classroom.

This research has provided new insights into the need for change in pedagogical approaches for the digital era in which the grade R learners are growing up. This digital era links to Bronfenbrenner's chronosystem, which highlights the new generation of learners that are comfortable with digital technology and playing digital games.

Literature brought many factors that drive the teachers in schools to the fore, but there is limited evidence of the ideal learning that takes place in the digital context of the learners' environment. The teachers and the learners' environment forms part of the microsystem, as well as the mesosystem according to the theoretical framework of Bronfenbrenner.

This research aimed to contribute to the literature by determining the teachers' knowledge of digital technology and how this could be used in classrooms for language acquisition. The interviews that were conducted with the teachers provided a clear understanding of what teachers know about the use of digital media in the classroom.

This study further adds to literature through empirical research by providing valuable insights into the understanding of the concept of digital play and an understanding of the value thereof, specifically for language acquisition. Furthermore, the results of this study have the potential to contribute to the improvement of both teaching and

learning by providing insights into the use of digital technology for language acquisition.

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Appendix A: Ethical clearance certificate

UNISA university of south africa

UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2019/02/13

Ref: **2019/02/13/44582463/28/MC**
Name: Mrs LM van der Westhuizen
Student: 44582463

Dear Mrs van der Westhuizen

Decision: Ethics Approval from 2019/02/13 to 2022/12/13

Researcher(s): Name: Mrs LM van der Westhuizen
E-mail address: leonie@ca2000.co.za
Telephone: +27 83 263 2645

Supervisor(s): Name: Dr D Hannaway
E-mail address: hannad@unisa.ac.za
Telephone: +27 72 435 2782

Title of research:

Teachers' understanding and use of digital play for language acquisition in grade R

Qualification: M. Ed in Early Childhood Development

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2019/02/13 to 2022/02/13.

*The **low risk** application was reviewed by the Ethics Review Committee on 2019/02/13 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

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2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date **2022/02/13**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number **2019/02/13/44582463/28/MC** *should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Kind regards,

Prof AT Motlhabane
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Appendix B: Baseline focus group interview

Title of research: Teachers' understanding and use of digital play for language acquisition in grade R.

Purpose: To establish initial teacher knowledge of the group about language teaching, digital technology, digital games in grade R and how games can be used for language development.

1. What digital games have you used before and which ones work best for teaching language in the classroom?
2. What digital methods do you use in class for teaching any of the language skills required by CAPS (e.g. reading stories, doing phonics and word recognition)?
3. What are your experience in the classroom of using digital technology in the classroom?
4. What is different in the way the learners react when using digital methods instead of traditional methods to teach grade R language?
5. What are your views about the methods used for the development of language in grade R?
6. What language component(s) are best taught with digital technology such as tablets and smart phones and how are they best taught? Explain more.
7. What difference can the use of digital games make in the development of language in the classroom?
8. What are the requirements for language development according to CAPS?
9. What difference does it make to use these digital technology methods for language acquisition?

Appendix C: Observation schedule of teachers' digital practices

Purpose: to document in as much detail as possible the actual teacher practices of using digital play methods in the teaching of language.

1. Teacher's use of digital games in the classroom.
2. Teacher has skills and knowledge to explain and integrate digital games in lessons.
3. Teacher shows ways how to incorporate digital play in lessons.
4. Teacher uses specific methods of digital games in the classroom.
5. Teacher links lesson outcomes to digital games.
6. What teachers' used in their lesson (songs, rhymes, sounds, stories, etc.).
7. Teacher relates what she sees, hears to what the learners experience in their digital games.
8. Learners talk more than usual to each other and the teacher while playing digital games.
9. Teacher mentions new things learners acquire because of digital games (e.g. new words, expressions, facts, etc. because of digital games they played.
10. Teacher highlights the things the learners remember better because of what they see/experience in their digital games.
11. Obvious language acquisition in other themes/subjects.
12. Teacher explains what is different when learners play digital games, for example revision when a video clip is shown again.
13. Teacher talks about learners' adaptive behaviour since playing digital games, such as their attention is held longer when using digital games in the classroom.

Appendix D: Semi-structured interview schedule for individual teachers' interviews after observation of lessons

1. Have you ever attended a course about digital games and the use thereof in the classroom? Can you tell me more about it?
2. Have you had any formal training in the use of digital games in the classroom? If so, tell me more about the training.
3. Have you read am articles about digital games? If so, did it have any influence on the use thereof in your classroom?
4. What language games do you let the learners play in class? Explain the games in more detail.
5. What pedagogical approaches do you use for language acquisition? (Songs, sounds, rhymes, google, etc.).
6. Explain how you use any language game in the class for language acquisition.
7. Do you currently use any digital games with the learners for language acquisition? Tell more about it.
8. Do you see that learners learn new words through digital play? If they do, do they use them? Explain more.
9. Do learners remember things better when seen and/or heard digitally?
10. What language aspects are addressed with the language games you let the learners play?
11. What are the implications of the use of digital methods for enhancing language acquisition in grade R (revision, etc.)?
12. What were the lesson outcomes for your language lessons using digital games?

Appendix E: Post Observation Focus group interview

1. Have you watched the learners when they play digital games? How does it differ from when they play traditional games?
2. Do you see any pedagogical value in the use of digital play in the classroom? Explain what you mean by that (bigger variety to the learners, part of the learner's world, communication opportunities, etc.).
3. Do you think digital games improve the learners' language use? Tell me more about it.
4. Do you see language acquisition in other subjects/themes, which are taught through digital play?
5. Do you think digital games can be used successfully in the classroom to enhance language acquisition of the learners? Explain what you observed to state your opinion.

Appendix F: Requesting permission from principal to conduct research

February 2019

LETTER OF CONSENT FOR RESEARCH

Dear Principal

I am an MEd student from the University of South Africa, interested in studying how digital media can be used in well-established grade R classrooms. The topic of my study is *Teachers' understanding and use of digital play for language acquisition in grade R*.

I request to do my study at your school because of your well-established grade R department, and the access your teachers already have to the use of digital media in their classrooms.

For my study I would like to involve all the grade R teachers from your school and work with them as a group as well as individually. The study is planned to be six weeks in duration – during which I would like to meet with teachers, request and agree on their participation which would involve participating in two (2) interviews and allowing me to observe the teaching of lessons.

I plan to make use of interviews and observations with all the grade R teachers. The first interview is a baseline focus group interview to gain an understanding of what the teachers know about the use of technology in their classrooms. The second interview is a semi-structured interview with individual teachers to understand teachers' experiences of the observed lessons. The final interview is a post-observation focus group interview to discuss how they teach and how technology plays a role in acquiring language in grade R. Non-participant observations (which means that I will look at the environment, the learners and teachers from an 'outsider' perspective) will also be conducted, to further understand the teaching and learning environment in grade R. Audio recordings of the interviews and the lessons observed will be made for research purposes only.

I shall gain the necessary permission from the various role-players (the Department of Education, the ethical committee at the University of South Africa and the teachers) to conduct my study. Once permission has been granted, I shall arrange a convenient time with the teachers to begin my data generation without infringing on their teaching or learning time.

I will ensure confidentiality and anonymity by omitting teachers' names in any publications and blurring out faces in any picture where the person wishes to remain unknown. Only my supervisor and I will have access to the raw data. I would also like to assure you that teachers will not be harmed in any way. Please be informed that the respective research may be terminated should you or your teachers wish to end participation in this study. Similarly, should the data generation process elicit negative outcomes, participation in my study will be terminated.

Taking part in this study will hopefully give your school the opportunity to reflect on their technological environment, and to gain insight into the teaching and learning. It will also potentially highlight, to various role players, the strengths and weaknesses of using technology as a tool for teaching and learning. The benefit of this study is in the development of new methods of teaching language to grade Rs using digital media.

Should you agree please sign the letter of consent below.

Should you require any further information, please feel free to contact me.

Your approval and assistance is greatly appreciated.

_____

Mrs Leonie van der Westhuizen
Student
Cell: +27 832632645
Email: leonie@ca2000.co.za

_____

Dr D Hannaway
Supervisor
Department of Early Childhood Education
Faculty of Education, University of South Africa

PERMISSION FOR RESEARCH AND WRITTEN CONSENT – PRINCIPAL
I……, principal of the school, have read this letter which requests my permission for my school to be part of this study. I have understood the information about the study, and I know what is expected of my/their participation. I am willing to take part in this study and herewith grant /do not grant ☐permission for my school, ……. to be involved in the study on technology-based teaching and learning in grade R. I am aware that the sessions will be recorded with the participants for further reference. If any research is published, the name of the participant, as well as confidentiality, anonymity and privacy of participant will be protected at all times. Principal's name (print) ……. Principal's Signature…….. Date: ……

Appendix G: Requesting permission from teacher participants to conduct research

February 2019

LETTER OF CONSENT FOR RESEARCH

Dear Teacher

I am an MEd student from the University of South Africa, and I am required to do research as part of my post-graduate studies. The topic of technology is of particular interest to me and I have, therefore, chosen *Teachers' understanding and use of digital play for language acquisition in grade R* as my focus.

It was my aim to select one school in Pretoria that is technologically rich. Since I am exploring the use of technology as a tool for teaching in grade R, I am focusing on grade R teachers. I would therefore like to request your consent to involve you in my studies. Firstly, I would like to meet with you, at school, to explain the nature and intent of my study. There will be three sets of interviews. The first interview is a baseline focus group interview where I would want to understand your specific profile with regard to using technology for teaching. I will like to arrange a time that will be suitable for you to visit your class to observe your use of digital technology to acquire language. The second interview is a semi-structured individual interview with individual teachers to ask a few questions to discuss teachers' experiences of the observed lessons. The third and final interview is a post observation focus group interview, to discuss how teachers teach and how in acquiring language in grade R. All the meetings with you will take place at school, as it is a familiar environment. Please note that all sessions will be audio recorded for future reference by my supervisor and me.

I can assure confidentiality and anonymity by omitting your name in any publications and blurring out faces in any picture where the person wishes to remain unknown. Only my supervisor and I will have access to the raw data. I will also assure you that you will not be harmed in any way through the research. Please be informed that the

respective research may be terminated should you wish to end participation in this study. At similarly, should the data generation process elicit negative outcomes, your participation in my study will be terminated.

Taking part in this study will give you the opportunity to reflect on the technological environment and to gain insights into your own teaching. It will also potentially highlight, to various role players in grade R, the strengths and weaknesses of using technology as a tool for teaching and learning.

Please read the Participant Information Sheet.

Should you agree please sign the letter of consent below.

Should you wish to query anything further, please feel free to contact me.

Your assistance is greatly appreciated.

_____

Mrs Leonie van der Westhuizen
Student
Cell: +27 832632645
Email: leonie@ca2000.co.za

_____

Dr D Hannaway
Supervisor
Department of Early Childhood Education
Faculty of Education, University of South Africa

PARTICIPANT INFORMATION SHEET (for teachers)

Date: _____

Title: TEACHERS' UNDERSTANDING AND USE OF DIGITAL PLAY FOR LANGUAGE ACQUISITION IN GRADE R.

DEAR PROSPECTIVE PARTICIPANT

My name is Leonie van der Westhuizen. I am doing research under supervision of Dr Donna Hannaway, a senior lecturer in the Department of Early Childhood Education at UNISA, towards a Master of Education degree at the University of South Africa.

WHAT IS THE PURPOSE OF THE STUDY?

This study is expected to collect important information that could provide a range of ideas on the activities that could be used to understand the use of digital technology to acquire language through play in grade R learners. The study will ascertain the impact of digital play on teaching language in grade R.

WHY AM I BEING INVITED TO PARTICIPATE?

You are invited because you fall into the relevant age group that this study targets. The study focuses on learners in grade R. I obtained your contact details from your school principal.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study involves interviews and observations with you which will be audiotaped. You will be asked questions relating to how digital technology is used in your school. Furthermore you will be asked to explain how you involve your learners in using digital technology for language acquisition.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The study might disrupt you in your daily routine. However, you will suggest the most convenient time for you to avoid distractions from your school work.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings.

A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

HOW WILL THE RESEARCHER PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet at UNISA for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no reimbursement or any incentives for participation in the research.

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study has received written approval from the Research Ethics Review Committee of the CEDU, Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW LONG WILL THE INTERVIEWS OR/AND FOCUS GROUPS CONTINUE AND WILL THEY BE RECORDED?

Focus group interviews are planned for 60 minutes and will be audio recorded for research purposes only. Semi-structured individual interviews are planned after observation of lessons. These interviews are planned for 30-40 minutes each.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Leonie van der Westhuizen on 0832632645 or email leonie@ca2000.co.za. The findings are accessible for 5 years.

Should you require any further information or want to contact the researcher about any aspect of this study, please contact Leonie van der Westhuizen on 0832632645 or email leonie@ca2000.co.za.

Should you have concerns about the way in which the research has been conducted, you may contact Dr Donna Hannaway on this email: hannad@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

_____

Leonie van der Westhuizen

PERMISSION FOR RESEARCH AND WRITTEN CONSENT - TEACHER
I,……., a teacher at the school, have read this letter, which requests my permission for my school to be part of this study. I have understood the information about the study as in the participant information sheet and I know what is expected of my participation. I am willing to take part in this study and herewith grant ☐/ do not grant ☐ permission to be involved in the study on technology-based teaching and learning in the grade R. I am aware that the sessions will be recorded with the children for further reference. If any research is published, the name of the participant, as well as confidentiality, anonymity and privacy of participant will be protected at all times Teacher's name (print) ……. Teacher's signature…….. Date: ……

Appendix H: Information letter to the parents

February 2019

INFORMATION LETTER

Dear Parent

I am an MEd student from the University of South Africa, and I am required to do research as part of my post-graduate studies. The topic of technology is of particular interest to me and therefore I have chosen: *Teachers' understanding and use of digital play for language acquisition in grade R,* as my focus.

Since I am exploring the use of technology, such as tablets, as a tool for teaching in grade R through digital play, I am only focusing on grade R teachers.

I plan to do my research observing the teachers and their activities in the class.

The observation will only take place during the second term and will only be a once-off observation per class. This research is done with the approval of the Department of Education and the principal of the school.

Should you need any further information, please feel free to contact me.

Your understanding is greatly appreciated.

_____

Mrs Leonie van der Westhuizen
Student
Cell: +27 832632645
Email: leonie@ca2000.co.za

_____

Dr D Hannaway
Supervisor
Department of Early Childhood Education
Faculty of Education, University of South Africa

Appendix I: Requesting permission from GDE to conduct research

Cover letter:

Dear Director of Research

LETTER OF CONSENT FOR RESEARCH

I am an MEd student from the University of South Africa, interested in studying how digital media can be used in well-established grade R classrooms. The topic of my study is *Teachers' understanding and use of digital play for language acquisition in grade R*.

I request to do my study at one of your schools with a well-established grade R department, and the access the teachers already have to the use of digital media in their classrooms.

For my study I would like to involve all the grade R teachers from the school and work with them as a group as well as individually. The study is planned to be six weeks in duration – during which I would like to meet with teachers, request and agree on their participation, which would involve participating in two (2) interviews and allowing me to observe the teaching of lessons.

I plan to make use of interviews and observations with all the grade R teachers. The first interview is a baseline focus group interview to gain an understanding of what the teachers know about the use of technology in their classrooms. The second interview a semi-structured interview with individual teachers to understand teachers' experiences of the observed lessons. The final interview is a post-observation focus group interview to discuss how they teach and how technology plays a role in acquiring language in grade R. Non-participant observations (which means that I will look at the environment, the learners and teachers from an 'outsider' perspective) will also be conducted, to further understand the teaching and learning environment in grade R. Audio recordings of the interviews and the lessons observed will be made for research purposes only.

I shall gain the necessary permission from the various role-players (the Department of Education, the ethical committee at the University of South Africa and the teachers) to conduct my study. Once permission has been granted, I shall arrange a convenient time with the teachers to begin my data generation without infringing on their teaching or learning time.

I will ensure confidentiality and anonymity by omitting teachers' names in any publications and blurring out faces in any picture where the person wishes to remain unknown. Only my supervisor and I will have access to the raw data. I will also reassure you that teachers will not be harmed in any way. Please be informed that the respective research may be terminated should the principal or the teachers wish to end participation in this study. Similarly, should the data generation process elicit negative outcomes, participation in my study will be terminated.

Taking part in this study will give the school the opportunity to reflect on their technological environment, and to gain insights into the teaching and learning. It will also potentially highlight, to various role players, the strengths and weaknesses of using technology as a tool for teaching and learning. The benefit of this study is in the development of new methods of teaching language to grade Rs using digital media.

Should you require any further information, please feel free to contact me.

Your approval and assistance is greatly appreciated.

Please receive this application to do research in a specific school in Centurion.

Please see details about the selected school and ethics arrangements.

Signed:

Mrs Leonie van der Westhuizen
Student
Cell: +27 832632645
Email: leonie@ca2000.co.za

GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

For admin. use

GDE RESEARCH REQUEST FORM

REQUEST TO CONDUCT RESEARCH IN INSTITUTIONS AND/OR OFFICES OF THE GAUTENG DEPARTMENT OF EDUCATION

1. PARTICULARS OF THE RESEARCHER

1.1	**Details of the Researcher**
Surname and Initials:	Van der Westhuizen L M
First Name/s:	Leonie Magdalena
Title (Prof / Dr / Mr / Mrs / Ms):	Mrs
Student Number (if relevant):	44582463
SA ID Number:	5408260081088

1.2	**Private Contact Details**
Home Address	***Postal Address (if different)***
322 Boekenhout Street	***P O Box 8464***
Eldoraigne	***Centurion***
Centurion	

Postal Code: 0157	***Postal Code: 0046***
Tel: N/A	
Cell: 0832632645	
Fax: N/A	
E-mail: leonie@ca2000.co.za	

2. PURPOSE & DETAILS OF THE PROPOSED RESEARCH

2.1	*Purpose of the Research (Place cross where appropriate)*
Undergraduate Study – Self	
Postgraduate Study – Self	X
Private Company/Agency – Commissioned by Provincial Government or Department	
Private Research by Independent Researcher	
Non-Governmental Organisation	
National Department of Education	
Commissions and Committees	
Independent Research Agencies	
Statutory Research Agencies	
Higher Education Institutions	

2.2	*Full title of Thesis / Dissertation / Research Project*
Teachers' understanding and use of digital play for language acquisition in grade R.	
2.3	**Value of the Research to Education (Attach Research Proposal)**
Improvement in the use of digital media in the teaching of language development of grade Rs.	

2.4	**Date**
Envisaged date of completion of research in GDE institutions	**May 2019**
Envisaged date of submission of Research report and Research Summary to GDE	**August 2019**

2.5	**Student and Postgraduate Enrolment Particulars (if applicable)**

Name of institution where enrolled:	**UNISA**
Degree / Qualification:	**Master of Education in Curriculum studies**
Faculty and Discipline / Area of Study:	Department of curriculum studies
Name of Supervisor / Promoter:	Dr Donna Hannaway (Department of Early Childhood Education)

2.6	**Employer (where applicable)**
Name of Organisation:	Centurion Academy
Position in Organisation:	Head of Department Early Childhood Education
Head of Organisation:	Mr T Schoeman
Street Address:	1023 Bank Ave Centurion
Postal Code:	1057
Telephone Number (Code + Ext):	012 663 6333
Fax Number:	
E-mail:	theo@ca2000.co.za
2.7	**PERSAL Number (GDE employees only)**

3. PROPOSED RESEARCH METHOD/S

(Please indicate by placing a cross in the appropriate block whether the following modes would be adopted)

3.1 *Questionnaire/s (If Yes, supply copies of each to be used)*

YES		**NO**	**X**

3.2 ***Interview/s (If Yes, provide copies of each schedule)***

YES	**X**	**NO**	

3.3 ***Use of official documents***

YES		**NO**	**X**
If Yes, please specify the document/s:			

3.4 ***Workshop/s / Group Discussions (If Yes, Supply details)***

YES		**NO**	**X**

3.5 ***Standardised Tests (e.g. Psychometric Tests)***

YES		**NO**	**X**
If Yes, please specify the test/s to be used and provide a copy/ies			

4. INSTITUTIONS TO BE INVOLVED IN THE RESEARCH

4.1 ***Type and NUMBER of Institutions (Please indicate by placing a cross alongside all types of institutions to be researched)***

INSTITUTIONS	**Write NUMBER here**
Primary Schools	1
Secondary Schools	
ABET Centres	
ECD Sites	
LSEN Schools	
Further Education & Training Institutions	
Districts and/ or Head Office	

4.2 Name/s of institutions to be researched (Please complete on a separate sheet if space is found to be insufficient)

Name/s of Institution/s
Laerskool Rooihuiskraal, Centurion

4.3 Districts where the study is to be conducted. (Please indicate by placing a cross alongside the relevant district/s))

District			
Ekhuruleni North		***Ekhuruleni South***	
Gauteng East		***Gauteng North***	

Gauteng West		***Johannesburg Central***	
Johannesburg East		***Johannesburg North***	
Johannesburg South		***Johannesburg West***	
Sedibeng East		***Sedibeng West***	
Tshwane North		***Tshwane South***	*X*
Tshwane West			

If Head Office/s (Please indicate Directorate/s)

4.4 Number of learners to be involved per school (Please indicate the number by gender)

Grade	***1***		***2***		***3***		***4***		***5***		***6***	
Gender	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**
Number												

Grade	***7***		***8***		***9***		***10***		***11***		***12***	
Gender	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**	**B**	**G**
Number												

4.5 Number of educators/officials involved in the study (Please indicate the number in the relevant column)

Type of staff	***Educators***	***HODs***	***Deputy Principals***	***Principal***	***Lecturers***	***Office Based Officials***
Number	**8**	**1**				

4.6 Are the participants to be involved in groups or individually?

Groups	**X**	*Individually*	**x**

4.7 Average period of time each participant will be involved in the test or other research activities (Please indicate time in minutes)

Participant/s	Activity	Time
Teachers	Baseline Focus group interview	60 min
Teachers	Classroom observations	50 min per lesson
Teachers	Semi-structured individual interviews	30 min per teacher
Teachers	Post observation Focus group interview	60 min

4.8 Time of day that you propose to conduct your research

During school hours (for limited observation only)	**X**	**After School Hours**	

4.9 School term/s during which the research would be undertaken

First Term		**Second Term**	**x**	**Third Term**	

CONDITIONS FOR CONDUCTING RESEARCH IN GDE

Permission may be granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted:

1. ***The District/Head Office Senior Manager/s concerned, the Principal/s and the chairperson/s of the School Governing Body (SGB) must be presented with a copy of this letter.***
2. ***The Researcher will make every effort obtain the goodwill and co-operation of all the GDE district officials, principals, SGBs, teachers, parents and learners involved. Participation is voluntary and additional remuneration will not be paid;***
3. ***Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.***
4. ***Research may only commence from the second week of February and must be concluded by the end of the THIRD quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.***
5. ***Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.***
6. ***It is the researcher's responsibility to obtain written consent from the SGB/s; principal/s, educator/s, parents and learners as applicable, before commencing with research.***
7. ***The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institution/s, staff and/or the offices visited for supplying such resources.***
8. ***The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study <u>may not appear</u> in the research title, report or summary.***
9. ***On completion of the study the researcher <u>must</u> supply the Director: Education Research and Knowledge Management ,with electronic copies of the Research Report, Thesis, Dissertation as well as a Research Summary (on the GDE Summary template).***
10. ***The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.***
11. ***Should the researcher have been involved with research at a school and/or a district/head office level, the Director/s and school/s concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.***

DECLARATION BY THE RESEARCHER	
1. I declare that all statements made by myself in this application are true and accurate.	
2. I accept the conditions associated with the granting of approval to conduct research and undertake to abide by them.	
Signature:	
Date:	**28 January 2019**

DECLARATION BY SUPERVISOR / PROMOTER / LECTURER	
I declare that: (Name of <u>Researcher</u>): Leonie van der Westhuizen	
1. is enrolled at the institution / employed by the organisation to which the undersigned is attached.	
2. The questionnaires / structured interviews / tests meet the criteria of: • ***Educational Accountability*** • ***Proper Research Design*** • ***Sensitivity towards Participants*** • ***Correct Content and Terminology*** • ***Acceptable Grammar*** • ***Absence of Non-essential / Superfluous items*** • ***Ethical clearance***	
3. I will ensure that after successful completion of the degree / project an electronic copy of the Research Report / Thesis / Dissertation and a Research Summary (on the GDE template) will be sent by the researcher to the GDE.	
Surname:	**Hannaway**
First Name/s	**Donna**
Institution / Organisation:	**Unisa**
Faculty / Department (where relevant):	**Early Childhood Education**
Telephone:	**0124294148**
Fax:	
E-mail:	**Hannad@unisa.ac.za**

Signature:	
Date:	**2019-01-28**

ANNEXURE A:

ADDITIONAL INFORMATION FOR GROUP RESEARCH

This information must be completed by **every** researcher/ student who will be visiting GDE Institutions for research purposes.

By signing this declaration, the researcher / students accepts the conditions associated with the granting of approval to conduct research in GDE Institutions and undertakes to abide by them.

Supervisor/ Promoter / Lecturer's Surname and Name……

DECLARATION BY RESEARCHERS / STUDENTS:

Surname & Initials	**Name**	Tel	**Cell**	**Email address**	**Signature**
Van der Westhuizen	Leonie	N/A	083 2632645	leonie@ca2000.co.za	

N.B. This form (and all other relevant documentation where available) may be completed and forwarded electronically to Gumani.mukatuni@gauteng.gov.za; Dineo.Mashigo@gauteng.gov.za The last 2 pages of this document must however have the original signatures of both the researcher and his/her supervisor or promoter. It should be scanned and emailed, posted or hand delivered (in a sealed envelope) to Gumani Mukatuni, 7th flour, 6 Hollard Building, Main and Simmonds Streets, Johannesburg. All enquiries pertaining to the status of research requests can be directed to Gumani Mukatuni on tel. no. 011 355 0775 or Dineo Mashigo on tel. no. 011 355 0336.

Appendix J: Language editing certificate

Language Editing Certification

Mariëtte Postma
141 Palm Street
Doringkloof
0157
mariette.postma@gmail.com
012 667 3938/084 506 2989
2 November 2019

I, Mariette Postma (5804180059081), certify that I have language edited the thesis below:

TEACHERS' UNDERSTANDING AND USE OF DIGITAL PLAY FOR LANGUAGE ACQUISITION IN GRADE R

By Leonie Magdalena van der Westhuizen

For a Magister degree in Education in the Department of CURRICULUM AND INSTRUCTIONAL STUDIES at UNISA

Dr Mariette Postma

PhD Educational Linguistics

Account details

Dr M Postma

Absa Lyttelton

Branch code: 632005

Account number: 4079467217

Certification

Fully accredited member of the

South African Translator's

Institute (SATI)

Membership Number: 1000114

Appendix K: Turnitin report

turnitin

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Leonie Van Der Westhuizen
Assignment title:	Dissertation/ Thesis
Submission title:	Teachers understanding and use of...
File name:	Leonie MED Combined draft 10 20 ...
File size:	4.1M
Page count:	148
Word count:	36,717
Character count:	204,141
Submission date:	21-Oct-2019 07:01PM (UTC+0200)
Submission ID:	1197357400


TEACHERS' UNDERSTANDING AND USE OF DIGITAL PLAY FOR LANGUAGE ACQUISITION IN GRADE R

by

LEONIE MAGDALENA VAN DER WESTHUIZEN

Submitted in fulfilment of the requirements for the degree

MASTER EDUCATIONIS

in

CURRICULUM AND INSTRUCTIONAL STUDIES

in the

COLLEGE OF EDUCATION

of the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: DR DONNA HAMMAWAY

DATE: November 2019

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