A SYSTEMATIC REVIEW OF RESEARCH ON MULTILINGUALISM IN CHALLENGING CONTEXTS

by

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Supervisor: Professor Funke Omidire

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Declaration

I declare that the dissertation titled, *A systematic review of research on multilingualism in challenging contexts* which I hereby submit for the degree Magister Educationis, in the Department of Educational Psychology at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

28 April 2020

Kirstin Anthony

Date

Ethics Clearance Certificate

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RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER: UP 18/03/01 Omidire 18-001
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CHAIRPERSON OF ETHICS COMMITTEE: Prof Funke Omidire

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Ms Bronwynne Swarts
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This Ethics Clearance Certificate should be read in conjunction with the Integrated Declaration Form (D08) which specifies details regarding:
- Compliance with approved research protocol,
- No significant changes,
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- Data storage requirements.

Ethics Statement

The author, whose name appears on the title page of this mini-dissertation, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that she has observed the ethical standards required in terms of the University of Pretoria's *Code of ethics for researchers* and the *Policy guidelines for responsible research*.

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Kirstin Anthony

28 April 2020

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Date

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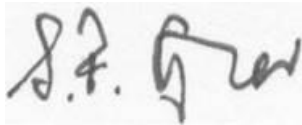
Abstract

The dissertation, of limited scope, reviewed existing research on multilingualism in challenging educational contexts. The aim was to explore and determine the state of research in the area of multilingualism in educational contexts that are considered challenging, over the time period 2010 to 2020. In addition, the dissertation of limited scope also explored the benefits of multilingualism and how the current state of research influences future research through the identification of trends and gaps. The research was collected and identified through a rigorous process whereby specific search strategies were used with particular keywords. Distinct databases such as JSTOR PsycARTICLES, Academic Search Complete, and Linguistic Collection as well as other journal and Internet resources were used to obtain 34 studies relevant to the research questions of the dissertation of limited scope. The results showed that 1) research related for multilingualism in challenging contexts of education is centred around the trends of pedagogical practices of learning, first language as the language of instruction, academic achievement and the resourcefulness of multilingualism, 2) multilingualism in 3) there is great opportunity for future research in this linguistic and academic area due to the lack of research and visible gaps in the literature over the last ten years. As there has been no previous overview, the findings provide a theoretical contribution to research on multilingualism in challenging contexts. They both encourage future research in a South African context and also indicate that research in other similar global contexts should be conducted. The findings provide an overview of relevant information for any parties that may be interested in this area of multilingualism and serve as a reference point for further research.

Key Terms: Multilingualism, education, challenging contexts, systematic review.

Declaration by Language Editor

This is to certify that I, Dr Sydney Paul Gosher, proofread and edited the mini-dissertation, "A systematic review of research on multilingualism in challenging contexts", on behalf of the author, Kirstin Anthony, in lieu of her submitting it to the University of Pretoria, for examination purposes.

I corrected punctuation, spelling, sentence construction, and minor language errors. I also checked the correspondence between in-text references and the reference list.

26 April 2010

Dr Sydney Paul Gosher   Date

List of Abbreviations

BICS:	Basic interpersonal communication skills
CALP:	Cognitive academic language proficiency
DEF	Data Extraction Form
LoLT:	Language of Learning and Teaching
L1:	First Language
L2:	Second Language
L3:	Third Language
PIRLS:	Progress in International Reading Literacy Study
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
SDA:	Secondary Data Analysis
SES:	Socio Economic Status
SLA	Second Language Acquisition
ZPD:	Zone of Proximal Development

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CHAPTER 1

INTRODUCTION

1.1 Introduction and Rationale

Multilingualism is a global phenomenon that has become the norm for many countries. A diverse linguistic repertoire is no longer the exception and is a common occurrence. This is as a result of the cause and effect of colonialism, globalisation, immigration, and the advancement of technology (Coulmas, 2018). South Africa, like many other postcolonial countries, is known for its multilingual nature as well as its diverse culture (Webb, 2002).

Diversity has a positive impact on society, although it also raises questions such as, who decides which language should be used in the formal economic and educational sectors of the country? (Alexander, 2013). Learners in South Africa (and other multilingual countries) often do not learn in their first language (L1) and for some, not even their second language (L2). However, in South Africa learning takes place in classrooms where multiple languages are represented (Makoe & McKinney, 2014). It has been suggested that this has a negative effect on the learning process (Alexander, 2013). It is assumed that these types of learning environments can be generalised to classrooms in other multilingual countries.

There is controversy surrounding the effect that more than one language has on cognitive functions and learning. The literature covering the debate is extensive and spans many years, However, the majority of it involves L2 acquisition (Barac, & Bialystok, 2012; Bialystok, Craik & Luk, 2012; Cenoz, 2003; Jessner, 1999). It was initially assumed that knowing more than one language was a disadvantage because it would confuse the individual (Bialystok, et al., 2012). However, over the years, studies have demonstrated that having acquired multiple languages can actually be beneficial for certain cognitive skills because of mental processes involved in language switching and the repression of one language (or languages) so as to use another. These skills involve cognitive skills such as attention, inhibition (Hernandez, Martinez & Kohnert, 2000), memory and executive functioning (Bialystok et al., 2012). However, more research still needs to be done on multiple languages and the influence it may

have in the education sector. Therefore, this necessitates a review of research on multilingualism.

Multilingualism is a phenomenon that holds great interest due to it being common in most environments (Cenoz & Genesee, 1998). However, despite this, there is still much research in the area that needs to be done. From previous multilingual research, in the fulfilment of other degrees, it was observed how challenging finding research related to multilingualism can be. A review is significant in order to provide an overview in this area, and to establish the existing literature and identify any inconsistencies and/or gaps in the research in order to guide future research. It will also establish the implications multilingualism - in challenging contexts - may have on practice as well as on policies.

Therefore, this study would make a significant contribution to the knowledge base related to language, multiple languages in challenging education environments, in South Africa and similar contexts, and ultimately the global field of Educational Psychology and Education.

1.2 Contextualisation

This dissertation of limited scope forms part of a larger project: "Primary learners' multilingualism intervention: Exploring the utilisation of multiple languages for teaching and learning,". This dissertation of limited scope examined studies conducted in or controlling contexts that are considered challenging. A challenging context is an environment that is seen or experienced as compromising and/or creating barriers that interfere with learning, and attaining an education (Keys, Sharp, Greene, & Grayson, 2003). A challenging context is further outlined in this chapter.

1.3 Purpose

The purpose of this dissertation of limited scope is to explore and review the existing literature regarding research of multilingualism in challenging contexts. Such an exploration will provide an overview of all relevant information related to the topic to researchers, psychologists, educators and any other persons who are interested in multilingualism, multilingualism in challenging educational environments, and multilingualism in South Africa.

The study aims to provide a comprehensive summary of the main findings and issues of research in multilingualism. It also aims to provide a reference point for further research to observe what aspects of multilingualism have been investigated and where research is lacking.

There seems to be no overview available on this type of research specifically in a South African context, and therefore this study may contribute by explaining what research still needs to be done in the area of multilingualism in a South African context and other similar global contexts.

1.4 Research Questions

1.4.1 Primary Research Question

What is the current state of knowledge on multilingualism in challenging education contexts?

1.4.2 Secondary Research Questions

- What are the benefits of multiple languages in challenging contexts?

- How does the literature in multilingualism contribute to existing and future knowledge of learning?

- What is the nature of future research required in multilingual contexts?

1.5 Working Assumptions

Owing to the nature and purpose of the study, as well as the overview of the literature and sources provided, the following was assumed: firstly, educational environments in South Africa and other countries have an influence on language learning; secondly, there are gaps and inconsistencies in multilingual research; lastly, multiple languages are beneficial in challenging school environments.

1.6 Concept Clarification

1.6.1 Multilingualism

The basic definition of multilingualism is an individual or community that utilises three or more languages. The utilisation of various languages can occur separately or simultaneously

(switching between languages) (McArthur, 1992). Yet, in terms of the interested and vast amount of bilingual research available, many have defined multilingualism from a more bilingual standpoint. These views develop 'more than one (language)' as a universal term used in the acquisition of several languages (European Commission, 2007; Li, 2008). It is clear that bilingualism and multilingualism are often thought of as compatible terms due to both involving language acquisition and having some shared characteristics. However, these similarities do not equate to being identical and should not be used interchangeably (Aronin & Hufeisen, 2009). Multilingualism is not as simple as just being able to practise several languages (Aronin, 2019). Multilingualism is an interdisciplinary phenomenon, and it can also be explored from an individual or societal viewpoint (Cenoz, 2013). Individual multilingualism relates to the subjective characteristics of an individual acquiring and using several languages. Research into exploring individual multilingualism focused on personal and societal multilingualism and is related to context and the use of languages in a community. However, there is a wide range of aspects involved in societal multilingualism such as the status and value of the language/s in society, the language policies and utilisation (formal and informal) related to specific contexts. The existence of a multilingual society does not mean that the population is multilingual, and all languages are acquired (this is termed proximate multilingualism). Yet, social multilingualism is seen as being on a continuum, while on the opposite end of proximate multilingualism is integrative multilingualism. Integrative multilingualism is the exposure to and practice of the languages of context (Aronin, 2019). Multilingualism has also been defined according to proficiency, where one's native-like speaking ability in each language is usually the rule of measurement (Cenoz, 2013). It is also determined by the dimension of usage, a characteristic used to define multilingualism, where each language is practised with the ability to alternate between them (Cenoz, 2013).

This dissertation of limited scope comprehends the extensive history behind multilingualism and the complexity involved in investigating this field of language acquisition; therefore, for the purpose of this review, multilingualism is defined as acquiring multiple languages based on proficiency. This said proficiency is based on a deficiency in communication skills as a result of literacy issues, compounded by the informal education of African languages in South Africa and other multilingual educational spaces. The studies included are not limited to either individual or societal multilingualism. Quantitative and qualitative studies were

included with multilingual participants as well as studies exploring multilingual educational contexts.

1.6.2   Challenging Contexts

'Challenging contexts' is a term difficult to define due to it having many components that contribute to an environment that is challenging. A challenging context can be defined as any physical or social difficulties people may face that hinder their success. Challenging contexts are also defined by the denial of human rights in particular environments (Ungar, 2010). An environment is challenging if there are communities with low socioeconomic status (SES) and social status, which are affected by poor facilities, poor health and high rates of violence (Keys, et al., 2003). According to this study, challenging contexts refer to any issues that may be present in an educational context such as lack of resources, violence, poor teacher training, overcrowded classrooms, etc. as well as social issues such as child-headed households, HIV, and crime.

1.7 Theoretical Framework

Some theories suggest that social contexts and language are tools in development (Cockcroft, 2009). One such theory is Lev Vygotsky's Social Constructivist theory, which includes the interaction of language and thought and its interaction with social environments. The theory was developed in an educational environment that encompassed social turmoil and different social and cultural groups in classrooms (Kozulin, 2003). South African classrooms have similar characteristics as multicultural classrooms are a reality, where language and culture are often linked (Webb, 1995). Therefore, Vygotsky's social theoretical framework is applicable in South African classrooms, as well as any educational space that involves the use and development of languages.

Vygotsky's theory views children as being actively involved in their learning. It views learning from a sociocultural perspective (Conkbayir & Pascal, 2014). Psychological tools, such as the language of a particular society, are internalised by the individual and used for cognitive processes involving memory and perception (Kozulin, 2003). Language plays an essential role when learning takes place in interactions with others, i.e. the connection between individuals and the environment (Conkbayir & Pascal, 2014).

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An acquired language is a means of developing cognition and making sense of the world. However, the world relevant to the individual's historical, cultural and social knowledge is transmitted by early caregivers. This primary socialisation is the foundation on which an individual communicates with others as well as solving problems in his or her social environment. Language has different forms of development, starting as an external social interaction and developing into internal speech which is essential in cognitive development and necessary for self-regulation thought processes. Language and thought are initially separate processes that only become interdependent later on during childhood (Conkbayir & Pascal, 2014). The development of higher mental functions like language occurs at certain times and places, which are determined by innate processes. This particular time of development and mediation is referred to as the Zone of Proximal Development (ZPD) (Vygotsky, 1968).

The ZPD is determined by the child's potential to achieve knowledge independently and to develop further with the support of others and their environment (Conkbayir & Pascal, 2014). The development of individuals' current knowledge in reaching their potential is also dependent on the condition of mediation received by the child. In an ideal learning environment 'more knowledgeable others' support their peers to reach the same level through sharing knowledge (Vygotsky, 2001).

This study is interested in challenging contexts and the multilingual individuals in these contexts; therefore, social interactions are significant. The challenging elements, as well as the use of multilingual languages that occur in these contexts, will affect the child's learning processes. Vygotskian theory stipulates that development and learning take place in supportive social contexts with the help of other more knowledgeable individuals, yet individuals in these less advantageous situations may not have the necessary resources and mediators to facilitate adequate development and this, therefore, will influence learning and language acquisition (Kozulin, 2003).

1.8 Research Paradigm

Multilingualism is an observable social phenomenon that can be analysed thematically. This study is based on reviewing the phenomenon of multilingualism by gathering data through a secondary data analysis (SDA) (Mouton, 2001), that was objectively reported upon and can

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be generalised. It was essential that this dissertation of limited scope clearly understood and stated the assumptions that formed the basis of the data collected, as well as acknowledged and accounted for the fact that this type of analytical approach cannot control data collection errors originating in the original study (Mouton, 2001).

Therefore, by the nature of this study, the epistemology is a qualitative systematic analysis. This involves the understanding or making sense of data that was not presented by the researcher. It requires prior knowledge and understanding the context in which the data was obtained. This involves content analysis whereby specific content is selected based on specified criteria. The organisation of procedures involved in secondary data equates to a systematic approach. Providing a detailed outline of the procedures is significant as consistency minimises errors. The researcher was not able to locate any prior systematic review conducted on multilingual research in educational contexts that involves challenges or is deemed challenging (Mouton, 2001).

1.9 Research Design

This study is a systematic review analysing and synthesising past and current research related to research on multilingualism, specifically in challenging contexts using a descriptive research review design. Using a summary of data this design is useful when describing the current state of a particular phenomenon. The design's purpose is to describe, explain, and confirm findings. The research design of this study is further discussed in Chapter 3.

1.10 Ethical Considerations

The process of obtaining approval from the University of Pretoria Human Research Ethics Committee will be done through the submission of an ethics form and a proposal describing the research and its purpose.

As a systematic review is based on existing research, the dissertation of limited scope used exploration work that is already in the public domain. The dissertation was obligated to use the original results of the included studies, without modification, as well as providing the correct source of the study to ensure that the authors are credited for their work. It also had to consider the ethical implications of the included studies. However, it is not always possible to determine if the research reviewed practised the correct ethical protocols as not all articles

include information regarding ethical considerations and procedures. Therefore, a strict procedure and specific search strategies with specific and relevant filters was adhered to throughout the entire process of conducting this dissertation of limited scope (discussed in Chapter 3).

The review was objective in its interpretations and conclusions. All findings were based on facts and data provided from studies that met the inclusion criteria and ethical procedures. There was total openness and transparency in the collection, analysis, and interpretation of the data obtained and how it is presented. There was also no misconduct involving fabrication, falsification or plagiarism in the review (Boddy, et al., 2010).

1.11 Quality of Criteria

The study followed specific qualitative procedures based on particular inclusion criteria in order to identify, evaluate and collect relevant research studies for the review. Specific keywords were used in searching through the various platforms, and restrictions put into place. Specific inclusion criteria for each randomly selected study were then used also to ensure the quality of the included studies. This also helped to minimise publication bias or extraneous factors influencing the conclusion of the review. The inclusion criteria, as well as advantages and disadvantages, are discussed further in Chapter 4.

1.12 Outline of the Study

This dissertation of limited scope is divided into five chapters. Chapter 1 of the study focuses on the rationale of the study. It also presents the ethical principles that the study adhered to and practised throughout the research process.

Chapter 2 highlights the available past and current literature on multilingualism, research in multilingualism, perspectives on multilingualism and multilingualism in challenging contexts.

Chapter 3 presents the research approach of the study, which includes the processes involved in data collection, the inclusion and exclusion criteria and the process of the systematic review. It also discusses the theoretical framework and research design that guides it. The

benefits and limitations of the methodological approach are also examined. It also provided summary tables related to each search strategy.

Chapter 4 examines the results of the systematic review used to analyse the data obtained from the included studies. It also presents the results and findings from the meta-analysis. The analysis is supported by qualitative studies for narrative and explanation purposes.

Chapter 5 is the discussion and interpretation of the results explaining the similarities, differences and trends in the research, as well as possible guidelines for future research. This chapter also includes the limitations and recommendations for future systematic reviews and research on the topic.

1.13 Conclusion

The chapter focused on providing a rationale and the purpose of reviewing literature related to multilingualism in challenging contexts. The chapter discusses the contextualisation and theoretical framework guiding the entire dissertation of limited scope. It also provides an outline of what to expect from the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Multilingualism is currently one of the most significant social occurrences in the world, and in many contexts highly valued (Ruiz de Zarobe & Ruiz de Zarobe, 2015). Multilingualism, often being the rule and not the exception over the last few decades, has resulted in extensive research into what it means to have acquired multiple languages. The intention of many studies was, and still is, to understand the social, linguistic and individual aspects of multilingualism. However, through the years and as research and the world have progressed, the perspectives, aims, and goals of multilingual research have shifted and evolved (Ruiz de Zarobe & Ruiz de Zarobe, 2015). This is an indication of the vast range and availability of numerous research studies related to multilingualism. Consequently, the widespread and global interest in multilingualism calls for and justifies the necessity for a systematic review regarding research into multilingualism, yet the limited scope of the dissertation exerts restrictions. Therefore, the purpose of this review is to focus on past and current research in regard to multilingualism in challenging contexts, specifically related to education. The research needs to meet specific criteria in order to understand and clarify what the present perspective on multilingualism is both locally and globally, as well as identify gaps in research in order to guide future studies.

The review explores variables that are difficult to define in spite of the immense amount of research available; therefore, multilingualism will be defined in terms of the review and its research questions, while also exploring the debate on language acquisition. It also considers the role of multilingualism in society, as it is a multidimensional phenomenon that affects various aspects of society such as language use, acquisition, and practices, which further necessitate an understanding of global and local views of acquiring multiple languages. Current literature in multilingualism in challenging contexts, specifically in education, is also explored, as the societal area most affected by multilingualism is education (Ruiz de Zarobe & Ruiz de Zarobe, 2015).

2.2 Multilingualism

All human beings have the natural ability to communicate through spoken language. However, language is more than just the psychological explanation of utterances or verbal actions but rather it is also a means of transferring values and cultural competence (Martí, Ortega, Idiazabal, Barrena, Juaristi, Junyent, Uranga, & Amorrortu, 2005). This makes language, consequently, the foundation of any society. Throughout history, language and civilisation have been interrelated (Okal, 2014), and one's environment is often the main determinant of the acquisition of language or languages (Martí, et al, 2005).

Acquiring more than one language is globally common because cultures and diverse linguistic groups do not live in isolation from each other, but rather multiple languages can usually be found coexisting in one region (Grosjean, 1989). People are then exposed to various languages in informal (environments outside the classroom) and formal (educational institutions) settings. Therefore, the acquisition of language is influenced by home and school environments, sociocultural status and its role in society (Cenoz & Genesee, 1998), as well as, in some instances, language/s reinforced by policies (Edwards, 1994). Other influences are proficiency, the age of learners, and the interaction between languages (Ruiz de Zarobe & Ruiz de Zarobe, 2015).

There is no clear-cut consensus on a definition of multilingualism, due to its complicated dynamic nature and the limited research available. The general notion is that multilingualism is a term given to an individual with the language capacity of three or more languages (Cenoz & Genesee, 1998). The European Commission (2007) has a similar definition, stating that it is a term used for individuals or groups consistently participating in more than one language in their daily activities. To a large extent, this is the accepted approach; if an individual can communicate in a language, he or she is considered to be competent and have acquired it. However, it was Harris & Hodges (1995) who put forward the proposition that acquisition is dependent on proficiency, and communicative competence is not enough. From a societal level, multilingualism is the use of three or more languages within a community/ society/space/environment/context, which does not necessarily mean that everyone in that space is competent or proficient in those languages (Cenoz, 2013).

The proficiency notion of acquisition differs according to two different levels. At the one end of the spectrum, a native-like competence involving maximum proficiency that is found in

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monolinguals is expected for each acquired language (Cenoz & Genesee, 1998; Bassetti & Cook, 2011, Cenoz & Gorter, 2011) while others state that proficiency ranges according to need and motive.

Determining a native standard is a very subjective issue and yet learning languages in school environments is often measured according to monolingual native speakers' ability (Cenoz & Genesee, 1998; Zabrodskaja, 2013). However, there are many critiques of this traditional perspective, rendering this type of measurement for multilingualism as inadequate and problematic. There are variations among same language speakers such as pronunciation, vocabulary, linguistic style, literacy abilities (Cenoz, & Gorter, 2011), goals, and preferences (Zabrodskaja, 2013), which are often not taken into consideration. Research from this perspective often includes educated individuals with superior linguistic skills (Cenoz, & Gorter, 2011).

One also needs to consider the notion of a true monolingual as research indicates that any exposure to a language, even the most minimal interaction with additional languages, can influence one's L1 (or other non-native languages) (De Angelis 2007). However, this view also does not take into consideration social contexts related to language.

Another language acquisition view that does not consider a social aspect is the psycholinguistic view wherein the focus is on general cognition based on theories such as schema theory (see Gagné, 1985), and an information processing model (Anderson, 1983). This view measures performance according to native language competence (Cenoz, & Gorter, 2011). The cognitive view has been critiqued from a socio-contextual perspective for not being more mindful of variability across various contexts. A socio-contextual view places importance on the interpersonal aspects of communication because it is a social construct (Cenoz, & Gorter, 2011). The use and modification of language occur according to social needs (Grosjean, 1992). Languages are also dynamic; they do not develop in the same manner. The key questions are: what constitutes a native speaker and what degree of competence is enough to determine whether a person is monolingual, bilingual, or multilingual? (Vertovec, 2007). Also, the boundaries between bilingualism and multilingualism are not easily established (Vertovec, 2007). Language competence is unique and acquired according to requirements of the environment - thus gauging multilingualism according to monolingual standards is unrealistic (Zabrodskaja, 2013.) Bialystok and Hakuta

(1994) also argued that acquiring an additional language successfully is dependent on adequate levels of L1 proficiency. Therefore, the proficiency of one's L1 plays an integral role in learning other languages. For these reasons, to acquire a language is a complex phenomenon and attempting to place individuals into categories does not give an accurate account of the reality of language acquisition (Vertovec, 2007).

Language proficiency should be viewed as being on a dynamic continuum and evaluated according to how well the individual performs in the areas of speaking, reading, listening and writing (Chin & Wigglesworth, 2007). According to Pearl & Lambert's (1962) theory of balanced and unbalanced proficiency, it is assumed that many multilinguals are most likely to have unbalanced proficiency where their response rate and competence in each language are not equal. This is due to multilinguals having acquired language for specific uses in particular environments (Skutnabb-Kangas & McCarty, 2008). This view is closely linked to Cook's (1992) theory that individuals acquire the exact number of languages that they need in order to accurately interact and adequately complete activities in their various environments. On the other hand, ultimate attainment of languages can be achieved and be beneficial in an academic environment, according to some bilingual studies (see Brice & Brice, 2008; Gathercol, 2010; Lugo-Neris, 2010). Wong-Filmore (1992) presented a paper at Bilingualism: A Clinical Forum discussing the viewpoint that (balanced) multilingualism is possible when particular aspects between person and environment are met, namely: meeting communicative needs, access to (high proficiency) speakers of the language who also provide support and feedback, and time to adequately learn the language. However, there is limited current literature regarding the proficiency debate, especially involving multilingualism.

Language proficiency can also be defined by social and academic contexts. There are two major types of proficiency shared between social and academic language. The Basic Interpersonal Communication Skills (BICS) are language skills necessary for social contexts and day-to-day communication. Cognitive Academic Language Proficiency (CALP) is an academic language, which is necessary for children's success in school environments (Cummins, 1999). According to Cummins (1999), it is important that these two levels of language are seen as separate because misconceptions on language proficiency can lead to poor academic performance. It is also essential that cognitive skills are included in bilingual (or more) learning, as language is a key component associated with the learning dynamics in the classroom. Cummins's (1984) continuum model (see Figure 1.1) of BICS and CALP,

although based on L2 acquisition, can be used in multilingual contexts. According to the model there are two aspects that affect language proficiency: a) context embedded and context reduced communication, and b) cognitively demanding and cognitively undemanding. If a learner cannot understand/ interact with his or her teacher, even poorly, then learning is based on the context related to communication, i.e. the embedded context where learning can only achieve BICS. Yet, when contextual cues are available to the learner, it is then context reduced allowing for CALP to be attained. When a learner only acquires underdeveloped proficiency it is cognitively undemanding, but if a learner can communicate on a deeper level (analyse, synthesise) and achieve academic success then it is cognitively demanding, also resulting in CALP acquisition. Therefore, multilingualism is a global phenomenon that involves acquiring multiple non-native languages according to one's environment and social interactions (Cenoz & Genesee, 1998).

Content reduced (difficult to relate to)

Content embedded (experience related)

Cognitively undemanding
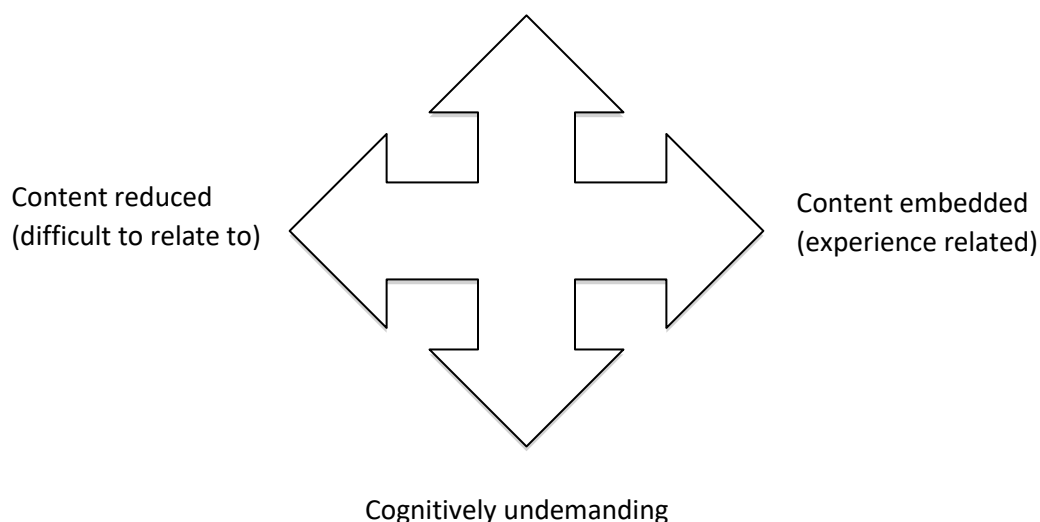
Figure 1.1 Cummins (1984) continuum model of BICS and CALP

2.3 Research in Multilingualism

Extensive research has also been conducted on the implications of learning more than one language, although this has mainly involved second language acquisition (SLA) (Cenoz & Genesee, 1998; Butler, 2012). A general search on any information platform will indicate that extensive research that has been dedicated to SLA and research on learning more than two languages has in fact been present for many years. Some of the earliest researchers in

multilingualism did not investigate the systemic qualities of multilingualism but they simply acknowledged that it warranted its own field of study (Braun, 1927, & Vidomec, 1963 in Aronin, & Hufeisen, 2009). Multilingualism has been, and in some cases, still investigated with a one-size-fits-all method and grouped with SLA and bilingual studies and results (Aronin, & Hufeisen, 2009). Yet, multilingualism is a specific phenomenon with its own characteristics that differ from bilingualism, and is not equivalent to two monolinguals (Aronin & Hufeisen, 2009; Ruiz de Zarobe & Ruiz de Zarobe, 2015). Some researchers have also indicated that a bilingual bias is present in multilingual research, which assumes that linguistic processes are the same for individuals who acquire two languages and those who acquire more. This is usually the case in research where there has been no control placed on the number of acquired languages and participants are all identified as L2 individuals (De Angelis, 2007). Although more research is needed in this area, over the years research on multilingualism has increased and multilingual awareness has improved. This was partly due to Ulrike Jessner and Jasone Cenoz who in 1998 decided that Third Language Acquisition (L3) needed a separate conference as a means of distinguishing multilingual research from SLA. Since then research dedicated to multilingualism has increased (Aronin & Hufeisen, 2009).

Research on multilingualism has focused on different areas but mainly on third language acquisition (De Angelis, 2007), language awareness (Jessner, 2006), foreign language learning (Ringbom, 2007), multilingual education (Cenoz, 2009), and attitudes towards multiple languages (Lasagabaster & Huguet, 2006). Yet, most of the conducted research has been focused on a European or American context. Even though many countries in Africa have multiple official and indigenous languages, there is still limited research in these contexts (Aronin & Hufeisen, 2009). Other main areas of focus of multilingualism are sociolinguistics, neurolinguistics, applied linguistics and various aspects involved in education (teaching, instructing and learning) (Aronin & Hufeisen, 2009). The latter educational issues are key aspects of this review.

Language acquisition is a cognitive experience that has been thoroughly investigated and theorised. From a cognitive perspective, it has been the central point of understanding and thought (see Skinner, Chomsky, Piaget, and Vygotsky). Most of the literature available on language acquisition and cognitive associations involves the comparison of linguistic groups

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(monolingual versus bilingual versus multilingual). And research conducted from the cognitive perspective centres around cognitive processes involved in language use such as memory (see Bialystok et al., 2012), metacognitive functions (see Bialystok, 2001), and attention (Hernandez, et al., 2000). It is generally agreed that there is a relationship between the number of languages acquired and cognitive processes, yet this relationship may not be entirely beneficial. Previously, it was believed that acquiring more than one language would interfere with learning processes (Otto, 1922 in Carroll, 2008), and for many years it was considered a disadvantage and negative influence on cognitive development. Although more recent studies have demonstrated that bilinguals do have a disadvantage when it comes to verbal ability such as word retrieval (Bialystok, Craik & Luk, 2008), word production (Ivanova & Costa, 2008), language fluency and receptive language (Bialystok & Feng, 2008), the benefits seems to outweigh these.

Studies have agreed that there is an advantage when it comes to cognitive flexibility, cognitive control processes (Bialystok, Martin, & Viswanathan, 2005; Craik & Bialystok, 2005), perception of language (Bialystok, 2001), ability to manipulate language (Cummins, 1984), attention processes (Bialystok, 1992; Zelazo, Muller, Frye, & Marcovitch, 2003), executive functioning (Bialystok & Martin, 2004), problem solving and higher order thinking (Hakuta, 1986). Research has also shown that multilinguals have better verbal development, spatial ability, conceptual ability and creativity (Ratte, 1968) (also refer to Paradowski, 2010).

However, there are also areas, such as working memory where research demonstrates a discrepancy in whether language acquisition is an advantage or not (Bialystok, Craik, Green, & Gollan (2009). According to Vygotsky's (1986) theory of language and thought, these concepts initiate from different processes and develop separately until they ultimately amalgamate, creating a direct link between the two. The majority of research studies investigating these aspects has been conducted with bilinguals or in bilingual environments; however, they are still useful in demonstrating the cognitive implications of learning more than one language and how it is directly linked to academic performance.

Research has demonstrated that there are negative views related to multilingualism, specifically in education. Research has been conducted investigating the correlation between

multilingualism and academic achievement with undergraduate college students. One such study is by Kovalik (2012), whose findings indicated that there was no significant difference between multilingual and monolingual participants when it came to academic achievement. The author did acknowledge that the results were contradictory to the views of how much worth is placed on acquiring multiple languages. Martin (2010) examined the effect of multilingualism on students' identity. The study found that multilingualism has a negative impact on students, indicating that they felt excluded and experienced social discrimination. Some studies have indicated that multilingual education is a barrier to learning, such as Tokuhama-Espinosa (2003) who explains how multilingualism can negatively affect proficiency in the language of communication. Additionally, it was found that acquiring multiple languages can burden cognitive abilities, causing language difficulties. A similar notion was also discussed by Brock-Utne (2000) in his investigation of tertiary students.

However, there is extensive literature that outweighs the notion of multilingual education impeding learning. Komorowska (2011), MacKenzie (2009), and Cummins (2000) view multilingualism as a resource that assists learning and reduces scholastic issues. It also gives students a social advantage by providing various perspectives and a better understanding of other cultural groups on a community and global level.

One of the greatest shifts in language research has been towards investigating the social properties of language. Previously, knowledge in multiple languages was deemed as a social deficiency; yet, through more recent research and an evolving perspective on multilingualism, it is evident that social factors cannot be ignored when it comes to language acquisition and that it plays an integral role in acquiring language and linguistic competence. Therefore, over the years, research in multilingualism has shifted away from viewing society and educational settings as homogeneous. Research has become more conscious of socio-cultural diversity, due to languages being naturally influenced by culture and learning. Multilingualism, from this perspective, is seen as more valuable and an advantage in many areas of society; this has a direct impact on how a linguistic phenomenon, like multilingualism, is studied. There has been newer research in language acquisition that investigates constructs of cognition, structure, form and the individual from a perspective of fluidness that enables social and ecological aspects, and interactions, to be examined. Complexity theory (Larsen-Freeman, 2002) and ecological models (Hornberger, 2003), all

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view competence as a response to one's resources and individuals' (social) context depending on demands (Canagarajah & Wurr, 2011; Norton 2000). Studies have also supported the viewpoint that social and personal areas are benefiting from multilingualism (Thomas & Collier, 1998). Crystal (2000) suggests that diversity is required for development and that most established and solid ecosystems are ones that embrace diversity. Language diversity is important because of a) ecological diversity, b) languages that express identity, c) languages' contribution to knowledge, d) languages are repositories of history and e) languages are interesting. Okal's (2014) research explored various advantages of multilingualism, stating that multilingualism is also beneficial as it opens means of communication and makes communication easier, as well as increasing social adaptability. Okal (2014) also states that being monolingual is a communication barrier. Multilingualism also increases the understanding of different cultural values, attitudes, and beliefs. The phenomenon allows people's own values, attitudes, and beliefs to change and it expands their worldview. These attributes are usually learned in a formal classroom environment as well as in daily communication in other environments. Multilingualism is also beneficial for future career options for children as it provides them with a competitive edge in the global economy. All these advantages have contributed over time to multilingualism being valued and appreciated (Aronin & Hufeisen, 2009). It is worth highlighting that being multilingual does not necessarily mean there will be an advantage. Learners who are proficient in their L1 are not mindful of the benefits associated with acquiring multiple languages or if their educational environment discourages the use of other languages, and so they will not reap the advantages of multilingualism (Moore, 2006).

Another reality is that multilingualism, although beneficial, also provides many challenges, especially in the classroom (Viljoen, 1998). Acquiring more than one language is a form of human capital because of the cost of linguistic resources, as well as the time taken by the individuals, parents, and educators to develop linguistic skills in the various languages (Okal, 2014). Multilingualism is only beneficial when a language is learned and the home language is still developed and maintained. It is essential to grow skills in all languages so as to develop cognitive, linguistic and academic abilities. Those societies that embrace linguistic diversity provide an environment that is accepting of language minorities and immigrants, which encourages a more positive outlook and acceptance of these individuals (Aronin & Hufeisen, 2009). Research by Cook (1997, 2001) demonstrates that multilinguals have

multiple perspectives of the world and are flexible in their thinking and learning. Paradowski (2009) also discusses schema theory, i.e. the assumption that individuals organise everything (people, places, languages, skills) into structures that build on their knowledge. It is assumed then that multilinguals will have larger schemas because they have been exposed to various cultures, people, etc. because of acquiring multiple languages. However, there are still limited studies from a socio-contextual perspective based on L2 acquisition (see Lantolf, 2000; Duff, 2007), and this is an area of multilingualism that has the potential to be explored further.

Franceschini (2009) has also discussed issues that should be explored in future research: the interaction between learning (guided instruction) and acquisition, unintentional acquisition where language is learned through exposure and contact and not focused learning, development of competence in multiple languages after the critical age, specifically in family and educational environments, and the long-term effect of educational programmes of early language acquisition (L2 – Ln). There has been extensive research in early bilingual language acquisition between the ages of 1 and 3; however, beyond this age range, there is limited research not only related to multilingualism, but also to the lack of bilingual research. Many educational institutions have implemented the teaching of multiple languages. Yet, there is little to no research available on the long-term effects of this. Research is also lacking on the direct impact language acquisition has on schooling and various stages of human development.

Minoritised communities are often not valued by society, including their languages; therefore, when multiple languages are in challenging contexts specifically in educational settings, it is necessary to understand their significance on a micro and macro level. Research in multilingualism should support and serve all multilinguals, not just those that society deems worthy. From a qualitative perspective, research needs to be more perceptive of society's role in learning a language as well as the value of multilingualism. So much research and the instruments used are based on traditional, outdated views where monolingual acquisition is the standard of measurement (Ortega, 2019).

Franceschini (2009) suggests that interdisciplinary research would be beneficial in conducting studies related to language in challenging contexts and its effect on social factors. Therefore, collaborating with other fields such as psychology would be instrumental.

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Comanaru & Deweale (2015) further explored the multidisciplinary potential of multilingual research.

2.4 Global Perspectives on Multilingualism

The objective of learning a language differs among multilingual individuals. But a language is often acquired to perform a specific function in various contexts. The purpose of learning a language is not complete competence but to develop a range of communicative skills to meet one's linguistics needs.

Languages interact and influence one another and are not separate entities but are on a continuum. Just as various languages are not separate entities, there is no separate competence for separate languages as viewed from a traditional perspective. Competence is seen as being integrated and not constituting separate monolingual language systems (Cenoz, 2013).

The current global multilingual situation is due to globalisation, easy mobility and the rapid increase in technology, and dominant economic and political powers. In comparison with the past, individuals are currently no longer limited to specific geographical areas and communication is now immediate and multimodal. Multilingualism is also no longer only associated with specific occupations and practices but is a phenomenon that is present across different social classes, occupations, and community practices (Cenoz, 2013).

The spread of languages and the integration and development of multilingual societies have taken place because of economic movements, such as migration, immigration, and refugees. Many countries, such as Germany, the United Kingdom, Lebanon, and Turkey, have taken it upon themselves to protect individuals from challenging contexts such as conflict, persecution, and poverty by allowing them to resettle in their countries. According to the United Nations (n.d.), the displacement levels of people from their own countries is the highest it has ever been. This capacity of people to move more easily has allowed language to cross borders and so create linguistic change and diversity (Martin-Jones & Martin, 2017). Another reason for the spread of languages is technology. Various means of instant communication have also allowed for direct communication between diverse individuals and the wide distribution of languages, as well as social, cultural and educational aspects linked to

language processes. Multilingualism has also increased due to historical, political, and religious movements.

Multilingual practices often develop mixed languages, code switching, and code mixing in verbal communication. This is witnessed in many African countries as well as India. Multilingual individuals also often use languages alternately, as seen in China, Belgium, and Switzerland (Okal, 2014). The value that countries place on languages is also significant. Some countries in Africa view indigenous languages as a rich resource, such as Kenya, Tanzania, Uganda and Ethiopia. Yet this is the exception for most multilingual countries (Kaschula, & Docrat, 2018). The spread of multilingualism is due to changes in social, linguistic, and cultural aspects, and in many societies some languages are deemed of more value. Diglossia is commonly found in multilingualism when one language dominates another. Co-existence of language varieties exists in a community where some are given higher status than others. In Africa, languages like French, Portuguese and English are considered to be desirable languages in spite of their links to colonialism. English continues to be highly regarded in Anglophone countries such as Nigeria, Zimbabwe, Kenya, and Tanzania (Okal, 2014).

Vygotsky's Social Constructivist Theory is based on the notion that language and environment interact and are linked and so develop (Cockcroft, 2009). The learner is not an observer but an active participant in learning; the process is developed through connecting with others and the context. Therefore, much of the literature provided in this Chapter is based on or related to these assumptions (for example Translanguaging). Language practice is a form of connecting with others and acquisition can be achieved through social learning, meaning that interacting in a multilingual environment equates to language development. Therefore, the classroom is important in the interaction between languages and the environment. The value of language as well as the use of language in the educational space all play a role in the development of languages and any positive or negative consequences they may have. Therefore, the classroom is important in the interaction between languages and the environment. The value of language as well as the use of language in the educational space all play a role in the development of languages and any positive or negative consequences they may have.

From a global perspective it is critical for this review to explore multilingual research in challenging contexts. Reviewing the literature of multilingualism, multilingualism and learning, and challenging educational environments will provide a means of focusing research and allowing specific areas to be given the attention that is needed in order to contribute to educational practices and policies.

2.5 Multilingualism in South Africa

South Africa has eleven official languages and is widely known for its multilingual practices. The constitution affirms that all official languages should have equal status in economic, societal, and educational areas. Multilingual education is the use of languages other than the home language or language subjects as the medium of instruction. Its purpose is to develop communicative proficiency (Cenoz & Jessner, 2009). This simply means that all languages in the learners' repertoire should be included in the educational environment. Cenzoz & Gorter (2011), advise that this can be done by taking a holistic approach in terms of multilingual education. South African education, in theory, is committed to multilingual education and claims that it has a holistic approach according to the Education Act 108 of 1996, section 29 (2). The Act speaks to everyone having a choice when it comes to learning in an official language. In order for such policies to be implemented properly, there needs to be constant interaction between researchers, principals, educators, and policy makers (Chisholm, 2011). But it is very rare for multilingualism in any society, not just South Africa, to operate fully (Okal, 2014). It is often the case in South African society, as with many others, that more value is placed on certain languages than others (Calvo, 2017).

To fully comprehend the current education system, it is important to understand the implications of the country's past social and political history. During apartheid, schooling was differentiated according to race, culture, and language; it was aimed at enforcing separateness (Fleisch & Woolman, 2007 2008). The educational system also discriminated racially when it came to quality, resources, and curriculum (Mesthrie, 2002). The laws of Bantu Education, as it was known at the time, required that in the first four years of schooling the medium of instruction was in the learners' home language and thereafter they were taught in either English or Afrikaans (Fleisch & Woolman, 2007). Languages were hierarchical; Afrikaans was the main language utilised in government and civil environments and English was the language of commerce, education, and industry. Many educational institutions to this

day are still based on a monolingual system (Calvo, 2017), and English is often the language of choice given its higher status in these institutions, despite the political changes post-apartheid, and the democratic constitution that recognises all official languages (Heugh, 2002; Mesthrie, 2002). A consequence of hierarchical languages in South African education is that African languages are often acquired without formal education. The importance of any language goes hand in hand with the simple ability to communicate (Hacksley, Jeffery, Reddy & Wildsmith-Cromarty, 2007). This is significant as the majority of the South African population speaks an African language as their first language (Alexander, 2013; StatsSA, 2017), and yet for many students the Language of Learning and Teaching (LoLT) of their school differs from their home language (Hooijer & Fourie, 2009). Therefore, proficiency in home language cannot be gauged according to academic standards.

Current language practices in educational settings arise from inadequate implementation of language policies. Studies have demonstrated that unsuccessful language policies are usually the result of a lack of an implementation plan or an implementation plan that does not meet the intended policy goals (Heugh, 2002). Another linguistic concern is that, according to the curriculum, the LoLT from Grade 1 to 3 is the learners' home language, while from Grade 4 onwards the LoLT changes to English. It is also evident around the world that learning in one's home language is the most appropriate language of learning (see UNECO, 2008a). In South Africa, as in the rest of the world, learning in one's home language would be beneficial (Trudell, Dowd, Piper & Bloch 2012). Three years of home language instruction is not enough according to Bloch (cited in Cook 2013), to facilitate adequate learning foundations. It is instead recommended that learners receive at least six years of formal education in their L1.

Such practices can create learning barriers to language practices, especially if the child is not proficient in the language of instruction. Casale & Posel (2010) demonstrated the link between LoLT and academic performance. They stated that South African learners with high proficiency in English are most likely to succeed scholastically and in the job market. Pinnock and Vijayakumar (2009) back these findings by demonstrating that in challenging contexts where the LoLT is not the L1 compared to when it is, there is a pattern of poor attendance and high dropout rates. Probyn's (2008) research also demonstrated that, where the L1 differs from the LoLT, the situation is not conducive to good education (Probyn, 2008). The Language in Education Policy (LiEP) states that achieving multilingualism

encourages maintaining one's home language while adopting an 'additive approach to bilingualism' (Department of Basic Education, 1997, p.1). These practices also result in the teachers themselves not being competent in the LoLT, further facilitating poor quality teaching and the learners' lack of participation (Brock-Utne, 2007).

However, learning in one's L1 is not a simple practice. A major problem in South Africa is that the written resources in African languages are underdeveloped, limited and outdated when compared to resources in Afrikaans and English and are inadequate in an academic environment. There is insufficient African literature. Thus, African languages cannot formally be facilitated in South African classrooms (Ortega, 2019). A more realistic and beneficial implementation of home language education would occur if the home language and English are taught alongside each other, instead of English being used as a substitute for home language (Chisholm, 2011). It would also improve the acquisition of language if languages were more widely recognised; research has shown that a child is more likely to acquire more than one language when the languages are valued (Calvo, 2017). A noteworthy usage of home language in an educational setting is in the Eastern Cape province. The Cofimvaba district utilises isiXhosa in the instruction of mathematics and science (Kaschula & Docrat, 2018). There is no current investigation of the impact this has on academic results but in accordance with research, this should facilitate learning.

Richard Ruíz (found in Kaschula & Docrat, 2018), spearheaded an initiative called orientations of language planning which aims at restoring the practice of indigenous languages in the formal sectors of South Africa. It comprises three orientations: language as a problem, language as a right, and language as a resource. A challenge that multilingual practice faces in South Africa is that it is not considered a resource but setback. What is needed in a multilingual South African society is more effective policies. The one-size-fits-all language policy is not working. There also needs to be more public multilingual awareness from public language activists, the Pan South African Languages Board, the National Language Service, NGOs, schools, universities, and the media. The perspective that acquiring multiple languages is a liability needs to be shifted to the perception that it is a resource that naturally occurs in communities all over the world (Kaschula & Docrat, 2018).

It is not only the education system that reinforces English as the language of instruction. Many parents support the perception that English is more important by choosing to enrol their

children in English-medium schools and, as a result, multilingualism and multi-cultures can be found in many classrooms. Many African (or non-English L1) parents believe that their children being taught in English will provide a stepping stone for future life and career opportunities (Fleisch & Woolman, 2007). This is evident in other countries as well. Manzo and Zehr's (2006), research has found that many countries in Africa, South America, and the Middle East also prefer an English medium for education because of English being internationally recognised and viewed as a highly valued commodity for career opportunities. Yet there are also parents who prefer their children learning in their home language. Consequently, how does an educational system become inclusive of all official languages? It is unrealistic to expect schools in South Africa to accommodate all official languages (Calvo, 2017).

It is a reality that classrooms in South Africa are multilingual spaces because of the diverse linguistic and cultural backgrounds of learners. Educational facilities have had to adapt to the challenges of having multiple languages and diverse learners while still upholding a particular standard of education.

Teachers can use certain pedagogical approaches to account for the different languages present in the classroom. Approaches include the awakening to languages, (Candelier, 2008) and the education and openness to languages at school (Perregaux, 1998, cited in Calvo, 2017). Languages and culture should be used as pedagogical resources and not as obstructions to learning. It is the teacher's and school's role to create an environment where diversity of language is supported and learners feel comfortable. To understand the learner's identity, it is important to acknowledge his or her linguistic and cultural background (Calvo, 2017).

After the eradication of apartheid access to education become more accessible, thus increasing diversity in educational environments. Yet this change has not shifted the language practices in many educational institutions. Much of the educational materials available are still mostly designed from a monolingual perspective. The system is not accommodating for non-English speakers and this often leads to their exclusion or dropping out. In South Africa, there is mutual intelligibility among many of the African languages, resulting in much of the population having acquired more than two languages. However, the language ability and competence of learners is often determined by comparing it to their English proficiency

(Nomlomo & Katiya, 2018). Individuals who have acquired multiple languages are told by people knowledgeable in the area of language, such as researchers, teachers, society, etc, that their linguistic abilities are inadequate but if they meet a specific level of competence, in English presumably, they will be advantaged and valued. However, for some, no matter how skilled they are in multiple languages, they will still be marginalised due to social inequalities and biases. These issues directly affect the importance placed on multilingualism and the research that is conducted in the field (Ortega, 2019).

2.6 Challenging Contexts in South African Education

As previously mentioned, English is a highly valued language in some parts of the world. English language ability has been investigated in relation to SES, as learners from a low SES often interact with parents and other community members in their home and social environments. These individuals lack high English proficiency (Hoff, 2006). As mentioned previously when reviewing multilingualism in South Africa, the issue is closely linked to the education system. South Africa is an emerging economy in which the education system is fairly new. Education is still plagued with many challenges due to its political and economic history (Legotlo, 2014).

The standard of education in South African schools is questionable; many Grade 1 learners are unlikely to successfully complete high school (Spaull, 2015). Literature suggests that mathematics and reading ability are the basic central skills to be learned in early education (Walter & Dekker, 2011), and this is the area in which learners' mathematical and reading levels are evaluated. The outcome of an inadequate standard of education is evident in the 2015 Organisation for Economic Co-operation and Development (OECD) report. This report is based on students' results in mathematics and science; South Africa was ranked 75 out of 76 countries (Roodt, 2018). The latest Progress in International Reading Literacy Study (PIRLS, 2016), placed South Africa last out of 50 countries. Again, poor outcomes were evident in subjects such as mathematics and literacy. These low scores demonstrate inadequate ability in higher order cognitive skills such as critical thinking and language ability (Shirikhani & Fahim, 2011; Modisaotsile, 2012). The PIRLS (2016) results also coincide with the language issues facing South Africa. Eloff (2017) revealed that learners who performed best in the PIRLS were learners who were being taught in their L1. Many learners come from households, especially in rural areas, where their caregivers have

reasonably poor linguistic skills in English and Afrikaans; this puts learners at a disadvantage in their school environment.

There are various reasons besides the educational curriculum and lack of language policy implementation that may contribute to poor academic outcomes. Many learners live in poverty-stricken environments, which often leads to a lack of motivation, and substance abuse (Legotlo, 2014). There are over 12 million children in South Africa living in poverty, of which about four million are starving (StatsSA, 2017). A high HIV rate also leads to many learners being orphaned and heading households (Mturi, 2017), thus decreasing their school attendance. HIV has also decreased the supply of qualified teachers, as they are often absent, or too ill to provide adequate teaching (Stats SA, 2017).

The school environment itself can also contribute to vitiating education standards. Schools are often in poor condition, with a shortage of resources, facilities and educators, and are often overcrowded (Legotlo, 2014; Modisaotsile, 2012). A further issue is that approximately 24% of learners are in the wrong grade for their age (StatsSA, 2017). There is also a lack of essential resources needed to facilitate information. Over 60% of schools do not have library resources (Roodt, 2018). Learning environments without educational resources like textbooks and other vital material necessary for each subject, can be detrimental to the learning process. The South African government has tried to alleviate the lack of textbooks in rural areas by producing supplementary workbooks. The aim of this is to increase literacy and numerical skills. However, there are issues with the development and distribution of these workbooks (Chisholm, 2011). These challenging environments have an impact on learners' language ability such as their performance in reading (PIRL, 2016). The impact of the lack of resources is evident in the PIRL's findings that learners who attended a preschool scored higher than those who did not. In addition, learners who have essential services and resources and live in healthy environments perform better academically (Roodt, 2018).

The political transformations that have occurred since the onset of South African democracy still need time, as well as more equitable resources needing to be implemented in various sectors, especially the education sector. However, the quality of education cannot be corrected only by resources but the practices within the classroom are also significant and need to be updated (Wilderman, 2010). A study involving the lived experience of six intermediate phase teachers in South African schools concluded that the teachers found it

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difficult and challenging to teach in a multilingual classroom. Clearly, support needs to be provided to teachers in multilingual classrooms (Chisholm, 2011).

Based on the sociocultural theoretical framework that is at the heart of the review, the environment in which learning is conducted is significant. The space in which learners communicate with one another, as well as the space itself, is crucial in the development of language as well as its influence on the environment. Teachers' lack of support and acceptance of diverse languages in the classroom can result in negative experiences. Learners who are not proficient in the dominant language are often undervalued and less skilled (Comber & Kamler, 2004). Learners who are forced to leave their language and culture outside their educational environment can feel excluded and rejected (Salzaar, 2013). When learners experience feelings like these they are less likely to participate and this affects learning (Nambisan, 2014). Many educational institutions have tried to practise acceptance and embrace diversity by implementing pedagogical approaches which are more inclusive of diverse classrooms and a variety of languages. One such approach is translanguaging. Languaging is a term used to describe the use of linguistic features in one's repertoire with the aim of communicating (Jørgensen, 2008). Translanguaging is a social and pedagogical tool that is useful in multilingual classrooms because it helps bridge the gap between content and understanding (Canagarajah, 2011) and has been shown to increase participation (Nambisan, 2014). Research in translanguaging in educational settings has ranged from literacy in reading and writing (Lu, 2009), to interactions (Rampton, 2008), and indigenous literacy (Hornberger, 2003). Although the research in this area is fairly new, there is evidence to suggest that translanguaging is a natural phenomenon and was practised in pre-colonial societies. Many studies present evidence that translanguaging in an educational setting occurs naturally and is not elicited by the teacher. In some cases, it even occurs without the teacher's knowledge. However, there are studies where teachers take a translanguaging pedagogical approach in order to provide a space where learners can use their linguistic repertoire. Research in translanguaging has gained momentum especially in diverse educational contexts. Research has focused on interaction, transferring information, meaning making and cognitive competence (Canagarajah, 2011).

Although this pedagogical approach seems like a promising attempt at increasing learning in challenging educational contexts, it is not without its limitations. It is a more effective approach when there is a common language between the teacher and student; however, what

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happens when there is no mutual language? This approach also requires flexibility, where often lesson plans and resources have to be modified. Translanguaging is also subject to certain classroom environments. In classrooms with many different languages it may not be an effective approach even though education is linked to language (Nel & Müller, 2010). It also requires the establishment of boundaries in order to obtain successful results, as there are usually no systems or curriculum guidelines in place to deal with the use of multiple languages in classrooms (Canagarajah, 2011).

Limitations in research associated with translanguaging have also been identified. Certain questions should be considered when researching translanguaging in order to gain perspective for future use: what translanguaging strategies are used by learners to help make sense of the content?; what choices are made regarding language production?, and what do learners need to consider in order to resolve conflict with their choices? (Canagarajah, 2011).

García and Wei (2018) focused on translanguaging in bilingual educational contexts. Their research provides important perspectives on this approach and its impact on education. They also discuss how it alters the way in which languages (and its associated aspects) are viewed, comprehended, and taught.

Approaches to accommodating languages seem now more than ever to be significant in classrooms, not only in South Africa but all around the globe. Classrooms in Europe and the rest of the world are becoming more and more diverse. Classrooms are linguistically and culturally rich spaces in which many learners are considered to be in minority groups (Krulatz & Abney, 2015).

2.7 Conclusion

Through evaluation of the available literature and the past and current perspectives on multilingualism, both global and local, one can conclude that a systematic review in this area of language is critical. The fluidity of the term multilingualism and the language proficiency debate indicate that there are varying views, misconceptions and lack of research in certain areas. Owing to the current state of the world and available technology, multilingualism is found in the majority of societies around the globe; thus a review on research available in multilingualism in society, specifically in education, is beneficial due to its far reaching impact and influence on individuals, communities, pedagogical and assessment practices, as

well as economics, politics and policies. From an evaluation of the literature, it is evident that there are several aspects of education that multilingualism affects and there has been a wide range of research conducted in this area. This dissertation of limited scope has based its investigation on the notion and socio-cultural theoretical framework that the environment is not a separate entity (Conkbayir & Pascal, 2014), but one that is an influential factor in language practices such as multilingualism and its properties. The review is interested in educational environments in which multiple languages are used; therefore, the compilation and assessment of research is based on how interaction occurs among diverse languages and challenging contexts in educational spaces. Thus, the educational context and whether it is challenging is important as well as the learning practices within this environment. To narrow down the research in order to meet the requirements for a dissertation of limited scope, the following areas were investigated via a systematic review: cognitive development, language proficiency, and looking at how language affects academic achievement as well as reading and mathematics.

CHAPTER 3

METHODS

3.1 Introduction

Multilingual research has been conducted extensively over the last few decades; however, after a wide-ranging search, to the best of the researcher's knowledge, no review has been conducted in multilingualism in challenging contexts. With multilingualism being a global phenomenon and the wide range of areas that multilingualism affects, it is important to evaluate the current state of multilingualism and make recommendations for future research. The most convenient and advantageous method of relaying such information is through a systematic review. This chapter will outline the research methods that were followed in this study. It provides an in-depth description of the research design, procedures followed for identifying, assessing and collecting research, and the method of analysis.

3.2. Research Paradigms

The study is based on reviewing secondary data from empirical studies (Mouton, 2001).

3.2.1 Methodological Approach

3.2.1.1 Approach

The approach of the dissertation of limited scope takes the form of a systematic review. A systematic review is a compilation of empirical evidence that has been selected and evaluated according to explicitly detailed criteria. The evidence that meets the specified criteria is then assessed to answer the particular research question/s (Liberati, Altman, Tetzlaff, Mulrow, Gøtzsche, Ioannnidis, Clarke, Devereaux, Kleijnen & Moher, 2009; Dickson, et al., 2013). A study by Dixon-Woods, Bonas, Booth, Jones, Miller, Sutton, Shaw, Smith, & Young (2006), describes the necessary efforts needed to conduct a well-designed systematic review: a) addressing clear, precise, well-defined research question(s), b) detailing search strategies that acknowledges that selection is based on the inclusion criteria and aim(s) of the systematic review, c) determining the quality and relevance of the studies, d) providing a descriptive summary of the data, and e) extracting data to identify findings.

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The collated information necessitates a critical evaluation of selected research on the topic, and determines trends or specific relationships (Thomas, O'Mara-Eves, Kneale, & Shemilt, 2017). It allows the study to provide an accurate portrayal of the phenomenon, the ability to predetermine future research (Dulock, 1993), and avoid unnecessary research (Dickerson, et al., 2017). Other attributes of a systematic review also include providing a transparent search strategy, specific inclusion and exclusion criteria, systematic coding, and an analysis of included studies and findings (Crocetti, 2015). However, a challenge is posed in having to rely on the quality and quantity of the available research (Dickson, et al, 2013). The systematic review was written and conducted according to the steps outlined by Khan, Kunz, Kleijnen, and Antes (2003).

1) Clearly define the research question and secondary questions. The general aims and research questions for this study have been clearly stated and defined (refer to Chapter 1).

2) Identify suitable studies needed to conduct the review. This involves an extensive search of studies. It also needs to stipulate the inclusion and exclusion criteria. The study identified appropriate research via a comprehensive search. The search was executed using specific keywords that would help narrow down the search for the most fitting studies. The studies were then thoroughly examined using the inclusion and exclusion criteria stipulated below.

3) Assess the quality of the studies. The assessment of quality is critical in every step. The exploration of quality encompasses the purpose of heterogeneity and the suitability of studies which provide accurate findings. Quality-assessed research will complete the literature search. The inclusion criteria involving the use of relevant instruments. Studies that are objective and not self-reported will ensure that high-quality research was assessed. The research was also reviewed to see if ethical procedures were followed. However, information regarding ethical considerations is not always mentioned in studies and needs to be taken into consideration.

4) Summarise the evidence. This involves tabulating the studies according to specific characteristics, quality, methods, and effects by using a Data Extraction Form (DEF). The DEF was designed using Microsoft Excel in order to record the data in a clear and unambiguous manner. The DEF is useful as it is easier to work from than publications, and it ensures quality assurance. The DEF can also be used by future researchers and also amended as more research becomes available (Chen & Peace, 2013). The study tabulated all appropriate research studies meeting the inclusion criteria using specific characteristics in

order to establish similarities and differences. Qualitative and quantitative research was included in the table to contribute to establishing similarities and identifying gaps in research. The tabulated characteristics of the study can be reviewed in Appendix A.

5) Interpret the findings. The four previous steps were met in order to interpret the findings accurately and to reduce any publication bias or negative effects on the conclusion of the review. The risk of publication bias was addressed throughout the process by ensuring the conclusions were made using the high-quality studies. The recommendations were addressed by indicating the strengths and limitations of the inferences. The interpretation of the results can be viewed in Chapter 4.

The review procedures were checked against the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) (Liberati et al., 2009), guidelines. These guidelines direct the reporting of a systematic review and meta-analysis. It is important to monitor the procedures set out by such an association, as they are the gold standard, which informs the process of conducting a systematic review. It is ethical and responsible not only to consult with set-out guidelines due to the amount of literature available but also to provide an accurate and concise summary of research (Dickerson, et al., 2017). Following these processes will allow the dissertation to successfully review the scope of research regarding multilingualism in challenging educational contexts, as well as answer the questions:

- What are the benefits of multiple languages in challenging contexts?
- What are learners' experiences with multiple languages in challenging South African contexts?
- How does the literature in multilingualism contribute to existing and future knowledge?

3.2.1.2 Inclusion Criteria

The inclusion criteria were formulated by the researcher based on the type of studies, the area of investigation and the outcome measurements (Crocetti, 2015). The main rationale behind the inclusion criteria was to sift through studies in order to collect and review research that has already been conducted in order to answer the research questions and achieve the aims of the dissertation. The criteria were adhered to for every study included in the review, ensuring

consistency, and minimising the inclusion of unrelated studies and reducing errors. This review was interested in including studies that met the following criteria:

1. The studies must be original.
2. The design of the study must also be cross-sectional.
3. The research must focus on an aspect of multilingualism with a range of participants.
4. The context of the studies had to be considered challenging as defined previously in Chapter 1.
5. The studies must have used relevant instruments and have accurately carried out the testing of these instruments.
6. The outcomes of the study must be objective and not self-reported.

3.2.2 Systematic Review

This study reviewed both quantitative and qualitative research on multilingualism in challenging educational contexts. Quantitative research used for the systematic review involved the use of numerical information that was analysed to explain specific phenomena (Muijs, 2011). This type of method requires a summary of the findings of the research in order to determine trends in the research, as well as examine the quantitative data to achieve a credible analysis. The combination of results from the various reviewed studies determined an overall understanding of research in multilingualism, as well as checking the validity, reliability, and bias of the studies, and interpreting results in order to explain trends and heterogeneity (Thomas, et al., 2017).

3.2.2.1 Conducting the Systematic Review

The analysis of studies allows for the direct comparison of studies that have used different variables and/or measurements (Field & Gillett, 2010).

Databases, websites and other strategies were used. A range of search platforms was explored in order to yield more accurate and comprehensive search results. They also ensured that all published articles related to multilingual research in education and challenging contexts were covered. The summary tables for each search strategy can be seen below.

Using reference management software, the number of results was reduced by removing any duplicate studies. The resulting studies were then further sifted according to title and abstract

in order to minimise the inclusion of non-relevant studies. Many studies, although using multilingualism as a keyword, placed emphasis on bilingualism or L2 acquisition according to the abstract; these studies were eliminated. Studies that also did not meet the inclusion criteria according to the abstract were also excluded. Although it is suggested that more than one researcher completes this process, this was not possible. The researcher was of the opinion that this approach reduced the chance of errors occurring. Therefore, when there was doubt regarding the inclusion of a study, the study was eliminated if it could not answer the related research question. The studies that did not focus on multilingualism and/or did not meet the inclusion criteria were discarded.

In order to exhaust all possible avenues of obtaining relevant data, a manual search was completed by searching references as well as research obtained in dissertations from previous degrees. These studies were also assessed according to keywords, abstracts and whether they met the inclusion criteria.

The remaining studies were then subjected to non-probability purposive sampling to answer the research questions and the data was imported to an excel spreadsheet (refer to Appendix A). Although filters were put in place to maximise the quality of research retrieved, the selected studies were assessed again according to the involvement of instruments and participants as well as the presentation of results. For a visual image of the conduction process refer to Figure 2.1 (refer to section 3.5).

The excel spreadsheet was then subjected to a step known as the 'cleaning of data', in which the outcomes of each study and the presentation of data were modified in order to administer the qualitative descriptive analysis.

3.2.2.2 Accounting for Limitations

The review took all limitations (Chapter 3) into consideration and processed the inclusion criteria in order to take account of high-quality studies, and studies that contributed to the research question/s. Despite aiming to include only high-quality studies, the study took cognisance of the possibility of unethical studies being included (Dickson, et al., 2017). The study also acknowledges that the included studies were administered and interpreted by

human beings who have their own linguistic skills, culture and values which may have affected the studies.

3.2.2.3 Advantages of Using a Systematic Review

A systematic review has become a significant research strategy because of the benefits it adds to particular fields of study. This approach allows the combination of findings from various studies to provide access to vast amounts of information in a condensed useful manner. The value of repetitive results in multiple studies in the same category is a more reliable form of evidence than basing conclusions on singular significant findings. It also takes into account studies where results were not significant, or sample sizes (n) were small. The precision used to summarise the vast amount of studies allows for the most relevant and necessary data to be extracted for the review. Moreover, there is also a built-in quality control as bias and error are monitored throughout the process. The inclusion criteria allows for variability in research methods, sampling, methods of measurement, variables, and findings. This increases the generalisability of the review (Rosenthal & Dimatteo, 2001). It also has the ability to identify shortcomings in existing research and recognise points of interest for future research (DeMaria, 2008; Walker, Hernandez & Kattan, 2008).

3.2.2.4 Disadvantages of Using a Systematic Review

Although a systematic review is the most appropriate method, and there are substantial advantages to using a systematic approach, it has also been criticised. Limitations are present as the quality or reporting of the reviewed studies cannot be amended. It can be controversial if the conditions are not all met. Overall, results can be erroneous, leading to false conclusions (Walker, et al., 2008). Limitations are also linked with flaws in the actual review, such as not taking into account the quality of the data, and the heterogeneity of studies (DeMaria, 2008; Ioannidis & Lau, 1999). A systematic review using inclusion criteria and particular methods of choosing literature and research can result in inherent bias. It also has the potential for publication bias and skewed data, as well as the possibility of overall results being affected due to lack of information in respect of secondary data. It has also been critiqued for summarising several studies which are not identical in their operationalisation, its measurement of variables, and varied research questions which are often argued as comparing different types of fruit (Rosenthal & Dimatteo, 2001). This suggests that the results may not be accurate. Validity may also be compromised if studies with only positive

results are included and if research that does not reject the null hypothesis is excluded (Rosenthal & Dimatteo, 2001). The study also had to acknowledge that the included studies were administered and interpreted by researchers who have their own linguistic skills, culture, and values.

This study is mindful of the limitations associated with using a systematic review and thus it adhered to rigorous criteria for the inclusion and exclusion of studies in order to provide a review that has a high-quality standard of data. It also addresses and recognises limitations.

3.2.1.3 Qualitative Research

Qualitative data was used in the description of multilingualism and language acquisition. The data also contributed locally and globally to the literature in Chapter 2 in understanding the role of multilingualism in societies. Vast amounts of qualitative research involving multilingualism are available; therefore, during the literature search, any relevant qualitative studies that emerged were selected on the basis that they contributed to the quantitative results and aided in explaining these results. However, although qualitative methods were used, descriptive statistics was utilised to enhance the representation of the reviewed studies to clarify points where necessary and help determine trends.

3.3. Research Design

This dissertation of limited scope is a systematic review of existing research into the extent of research already taken in the field of multilingualism. The study examines completed works to understand and describe trends and will rely on a descriptive research review design. Descriptive research attempts to describe the present position of a particular variable (Dulock, 1993) by searching, documenting, examining and interpreting information (Dickson, Cherry & Boland, 2013).

3.3.1 Sampling

The dissertation of limited scope used the information gathered from the search strategies to obtain a sample of research in three areas: cognitive, educational and social. Non-probability purposive sampling was used to select research that met the included criteria and answered the research question and secondary questions. This was conducted by selecting studies that

were found during the various search strategies. This type of sampling was convenient in terms of the limited scope of the dissertation as well as the limited number of studies available thrown up by some of the search strategies. The dissertation of limited scope took account of the fact that obtaining studies in this manner would result in further research. However, procedural steps were taken to minimise bias by using specific research strategies and selective criteria for the included studies.

3.4. Search Criteria and Strategies

The collection of data was done according to specific search strategies listed below. Once a study was identified using one of these search methods, the initial data analysis was conducted by screening the study through a reading of the abstract of all the articles to establish if the article would meet the inclusion criteria and the required quality. The search was filtered by using specific keywords (Crocetti, 2015) related to the research question. The search and selection of the literature then followed steps three and four of conducting a systematic review (Khan, et al., 2003).

3.4.1. Search Limits

In order to control the quality of studies as well as meet the inclusion criteria, the following search limits were applied to each search strategy.

The searches were limited to peer reviewed journals. Studies in peer reviewed journals are a good standard by which to assess the quality of research. They also validate the knowledge provided by the research.

The searches were limited to research conducted over the last ten years. The specific time frame of 01 January 2010 to 31 January 2020 was used as a filter in the search strategy. Although multilingual research has been present for decades, the search results would be far reaching for the scope of this dissertation. Besides reducing the number of search results, the last ten years were chosen in order to assess the most current research and developments in the area of multilingual research in challenging educational contexts. A grasp of the current situation also allowed for the identification of gaps in the research which would inform future research in the area.

Specific filters were set for each search. The restrictions were limited to the terms appearing in the title, abstract and keywords. The research also had to be peer reviewed, as the use of only peer reviewed articles eliminates the need to further assessment of quality.

There were no limitations based on the subject area. Although the dissertation of limited scope only aimed at including studies on the topic of multilingualism in challenging contexts, the subject field was not set as a filter. Multilingualism and education are transdisciplinary, and the diffraction of limited scope did not exclude studies of relevance that were explored in other subject fields, apart from Educational Psychology, Education, Social Sciences and Humanities.

3.4.2 Search Strategies

It is critical in carrying out a systematic review that the literature search is conducted methodically. In the reviewing process, the research question and secondary questions were linked to the keywords, as well as based on the researcher being familiar with the field of multilingualism. The following keywords were used: 'multilingualism, multilingualism and cognition, multilingualism and education, multilingualism and literacy, multilingualism and mathematics, multilingualism and educationally disadvantaged environment (challenging contexts), multilingualism and low SES, multilingualism benefits, and multilingualism and South Africa'. The various combinations of the concepts included literacy and mathematics because literature suggests that these are the foundations of learning in the classroom. The study also focused on looking at the research conducted in a South African context.

The search is based on guidelines indicated by PRISMA on how to conduct a successful systematic review. The search for literature was done according to the different exploration types below.

3.4.2.1 Electronic Databases

A search for electronic databases was conducted by doing an Internet search for databases involving language acquisition, multilingualism, research in multilingualism, research in multilingualism, and multilingualism and education. The electronic databases were comprised of psychological and linguistic databases, namely Academic Search Ultimate, EBSCO host: Eric, JSTOR, Linguistics Collection, MLA International Bibliography,

PsycARTICLES, APA PsychINFO, and PubMed. To locate unpublished research the electronic database Proquest was used. Although the methods indicate that the search used peer reviewed studies in order to identify and control ethical issues, the study was interested in the amount of unpublished research available in this area. These databases were all used because they archive research related to linguistic acquisition and the corresponding research.

Table 3. 1 Electronic Database Summary Table

Source	Area of Research according to keywords	Number of studies (2020 – 2015)	Number of studies (2014 – 2010)
Academic Search Complete	Multilingualism	2166	1298
	Multilingualism + Cognition	2	1
	Multilingualism + Education	47	36
	Multilingualism + Literacy	7	204
	Multilingualism + Mathematics	1	2
	Multilingualism + disadvantaged environment	940	556
	Multilingualism + Social	28	14
	Multilingualism + Low SES	364	1040
	Multilingualism + Benefits	9	2
	Multilingualism + South Africa	2	2
APA PsychInfo	Multilingualism	982	2975
	Multilingualism + Cognition	1	3
	Multilingualism + Education	19	34
	Multilingualism + Literacy	5	1
	Multilingualism + Mathematics	12	1
	Multilingualism + Social	9	25
	Multilingualism + Low SES	190	601
	Multilingualism + Education disadvantaged environment	437	1270
	Multilingualism + Benefits	4	7
	Multilingualism + South Africa	3	78
EBSCO host: Eric	Multilingualism	1289	
	Multilingualism + Cognition	6	12
	Multilingualism + Education	26	30
	Multilingualism + Literacy	8	7
	Multilingualism + Mathematics	2	2
	Multilingualism + Education disadvantaged environment	983	171
	Multilingualism + Social	8	5
	Multilingualism + Low SES	212	169
	Multilingualism + Benefits	7	3
	Multilingualism + South Africa	2	2

Table 3. 1 (continued).

Linguistic Collection	Multilingualism	2780	2821
	Multilingualism + Cognition	478	402
	Multilingualism + Education	1908	2101
	Multilingualism + Literacy	755	563
	Multilingualism + Mathematics	156	117
	Multilingualism + Education disadvantaged environment	54	39
	Multilingualism + Social Aspects	839	572
	Multilingualism + Low SES	157	114
	Multilingualism + Benefits	709	398
	Multilingualism + South Africa	20	20
JSTOR	Multilingualism	529	942
	Multilingualism + Cognition	86	217
	Multilingualism + Education	327	957
	Multilingualism + Literacy	121	371
	Multilingualism + Mathematics	34	136
	Multilingualism + Education disadvantaged environment	8	50
	Multilingualism + Social	234	665
	Multilingualism + Low SES	70	129
	Multilingualism + Benefits	108	231
	Multilingualism + South Africa	68	207
MLA	Multilingualism	566	623
	Multilingualism + Cognition	9	1
	Multilingualism + Education	6	7
	Multilingualism + Literacy	13	6
	Multilingualism + Mathematics	1	0
	Multilingualism + Education disadvantaged environment)	3	7
	Multilingualism + Social Aspects	3	11
	Multilingualism + Low SES	97	1
	Multilingualism + Benefits	2	1
	Multilingualism + South Africa	1	35
PsycARTICLES	Multilingualism	22	58
	Multilingualism + Cognition	11	24
	Multilingualism + Education	0	14
	Multilingualism + Literacy	2	1
	Multilingualism + Mathematics	0	1
	Multilingualism + Education disadvantaged environment	0	14
	Multilingualism + Social	0	11
	Multilingualism + Low SES	5	11
	Multilingualism + Benefits	2	3
	Multilingualism + South Africa	1	0
Pubmed	Multilingualism	1597	1552
	Multilingualism + Cognition	443	505
	Multilingualism + Education	408	573
	Multilingualism + Literacy	90	71
	Multilingualism + Mathematics	44	36
	Multilingualism + education disadvantaged environment	3	3
	Multilingualism + Social Aspects	11	197
	Multilingualism + Low SES	5	4
	Multilingualism + Benefits	55	31
	Multilingualism + South Africa	50	21

Table 3. 2 Dissertation Summary Table

Source	Area of Research according to keywords	Number of studies (2020 – 2015)	Number of studies (2014 – 2010)
Proquest	Multilingualism	2612	2077
	Multilingualism + Cognition	1230	858
	Multilingualism + Education	2506	1999
	Multilingualism + Literacy	1890	1470
	Multilingualism + Mathematics	970	739
	Multilingualism + Education disadvantaged environment	703	593
	Multilingualism + Social aspects	2569	2044
	Multilingualism + Low SES	1290	907
	Multilingualism + Benefits	2352	1843
	Multilingualism + South Africa	1102	955

3.4.2.2 Internet Search

The keywords mentioned above were used in the search engines google.co.za, google.com, googlescholar.com, and yahoo.com. Online academic journals were also searched that were likely to contain relevant information, namely the International Multilingual Research Journal, and the International Journal of Applied Linguistics. There were no restrictions placed on location and date, although a direct search for studies based in South Africa took place. An Internet search was also conducted in known research related to multilingualism such as multilingualism and language attitudes, multilingualism and immigration, multilingualism and cognition, multilingualism in education, multilingualism and academic achievement, and multilingual classrooms. The website www.academia.eu was also searched.

Table 3. 3 Internet Summary Table

Source	Area of Research according to keywords	Amount of studies (2020 – 2015)	Amount of studies (2014 – 2010)
Goolgle.co.za	Multilingualism	28900	30900
	Multilingualism + Cognition	30700	32500
	Multilingualism + Education	33100	36700
	Multilingualism + Literacy	31800	245000
	Multilingualism + Mathematics	31700	252000
	Multilingualism + Education disadvantaged environment	40500	73300
	Multilingualism + Social aspects	33400	256000
	Multilingualism + Low SES	15700	10
	Multilingualism + Benefits	33700	37400
	Multilingualism + South Africa	31600	34500

Table 3.3 (continued).

Goolgle.com	Multilingualism	27600	34600
	Multilingualism + Cognition	31000	242000
	Multilingualism + Education	89100	255000
	Multilingualism + Literacy	32300	243000
	Multilingualism + Mathematics	31400	34300
	Multilingualism + Education disadvantaged environment	38000	70200
	Multilingualism + Social aspects	88300	38100
	Multilingualism + Low SES	10	15700
	Multilingualism + Benefits	33700	37400
	Multilingualism + South Africa	31600	43500
Google Scholar	Multilingualism	243	967
	Multilingualism + Cognition	122	562
	Multilingualism + Education	240	958
	Multilingualism + Literacy	136	553
	Multilingualism + Mathematics	110	410
	Multilingualism + Education disadvantaged environment	128	488
	Multilingualism + Social aspects	237	944
	Multilingualism + Low SES	185	663
	Multilingualism + Benefits	230	787
	Multilingualism + South Africa	118	471

A search strategy issue that is evident from the size discrepancy in research available from simply searching 'multilingualism' and the combination of 'multilingualism' with the other keywords indicates that the search engines include all studies with all the keywords as well as studies related to each individual keyword. There is also no advanced search option that allows one to filter the search options.

Table 3. 4 Internet Academic Journal Summary Table

Source	Area of Research according to keywords	Number of studies (2020 – 2015)	Number of studies (2014 – 2010)
International Journal of Applied Linguistics	Multilingualism	75	88
	Multilingualism +Cognition	17	9
	Multilingualism +Education	75	88
	Multilingualism +Literacy	25	20
	Multilingualism +Mathematics	3	8
	Multilingualism +Education disadvantaged environment	10	5
	Multilingualism +Social aspects	55	55
	Multilingualism +Low SES	15	3
	Multilingualism +Benefits	40	41
	Multilingualism +South Africa	18	7

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Table 3.4 (continued).

International Multilingual Research Journal	Multilingualism	97	51
	Multilingualism + Cognition	8	7
	Multilingualism + Education	97	51
	Multilingualism + Literacy	97	51
	Multilingualism + Mathematics	11	4
	Multilingualism + Education disadvantaged environment	17	9
	Multilingualism + Social aspects	86	47
	Multilingualism + Low SES	17	10
	Multilingualism + Benefits	53	29
	Multilingualism + South Africa	12	15
www.academia.eue	Multilingualism	2692	14341
	Multilingualism + Cognition	1157	4490
	Multilingualism + Education	2556	12210
	Multilingualism + Literacy	1797	7033
	Multilingualism + Mathematics	1300	952
	Multilingualism + Education disadvantaged environment	988	2015
	Multilingualism + Social aspects	2578	13241
	Multilingualism + Low SES	1015	2299

3.4.2.3 Reference List

The reference lists of the studies were also examined to find other relevant studies. There was no record of where each study was located but all searches for the previous research were done with the research questions, and the inclusion and exclusion criteria. Reliability and validity were also taken into consideration. This ensured that the research obtained complied with particular quality standards.

3.4.2.4 Hand Search

A hand search was conducted through the University of Pretoria Library services. The search included published work on research in multilingualism, multilingualism, multilingualism in challenging contexts and educational settings. However, it was also used to find useful information regarding methodologies and procedures in conducting a systematic review.

Table 3. 5 Hand Search Summary Table

Source	Area of Research according to keywords	Number of studies (2020 – 2015)	Number of studies (2014 – 2010)
University of Pretoria	Multilingualism	4014	3341
	Multilingualism + Cognition	427	
	Multilingualism + Education	1653	1486
	Multilingualism + Literacy	530	473
	Multilingualism + Mathematics	135	95
	Multilingualism + Education disadvantaged environment	13	7
	Multilingualism + Social aspects	1001	927
	Multilingualism + Low SES	17	
	Multilingualism + Benefits	213	115
	Multilingualism + South Africa	220	208

3.4.2.5 Previous Research

The author has completed research for previous degrees in the field of multilingualism. The research obtained for these studies was also explored.

3.5 Documenting

3.5.1. The Primary Outcome Measures

The primary outcome of the review was to evaluate the range of research regarding multilingualism in challenging educational contexts. Secondary outcomes were also investigated such as the benefits of multiple languages in challenging contexts, the experience of learners with multiple languages in challenging South African contexts, and the contribution of literature in multilingualism to existing and future knowledge.

Although a wide range of research keywords was used (refer to summary tables), the studies obtained were then reduced to whether they could answer the research questions. The research was divided into two categories: multilingualism in educationally challenging contexts, and multilingual benefits which further explored the research questions. The figure below is a visual representation of the search and elimination process of finding, reviewing and capturing information of studies.

1. After using specific keywords and filters for each search strategy the number of articles that came up were recorded in Tables 1.1 – 1.6.
2. Each study from each search strategy was then exported to the referencing management programme, Endnote X8.

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3. The studies were then checked for any duplications that may have been exported. Duplications were removed to ensure proficiency and save time when reviewing the studies.

4. The articles were then assessed according to three steps based on Bettany-Saltikov (2010), whereby the articles were evaluated according to titles and the abstracts of each study were reviewed to ensure that they met the inclusion criteria. In this screening process the articles were reduced from 230218 to 34 (educationally challenging contexts). Relevant studies from the manuel search that came up in other search platforms such as the hand search, reference lists or previous research were included .

   The remaining studies were scrutinised more deeply, and those studies not meeting the inclusion criteria were subsequently removed. Many studies that were collected were removed due to the age of participants being incompatible. Those found to be actually investigating bilingualism and not multilingualism or focusing on language from a political context and not an educational perspective, were excluded. There were also other reasons for exclusion such as the quality of the study, or if the researcher could tell through the results that the methodology and procedure did not correlate with the aims of the research. The congruency of the study was noted according to the aim/focus of the studies which were identified by the terms, 'explore,' 'describe', 'investigate', and 'understand'.

5. Once it was established that studies had met the inclusion criteria and were of a high quality, a working table was constructed in order to capture the data of each relevant study. The process of data capturing also constituted a screening process, as the full articles were assessed. The dissertation of limited scope ensured that the large amount of data obtained was presented accurately and effectively (Wong, 2007) as the summaries were tabulated in the DEF (Appendix A).

6. The information was used to complete a descriptive analysis to determine trends.

```
┌─────────────────────┐
│   Total articles    │
│                     │
│  (n = 230218)       │
└─────────────────────┘
           │                    ┌─────────────────────┐
           ├───────────────────▶│ Duplicates excluded │
           │                    │                     │
           │                    │  (n = 107 435 )     │
           │                    └─────────────────────┘
           ▼
┌─────────────────────────┐    ┌─────────────────────┐
│ Title and abstract      │    │  Articles excluded  │
│ screening               │───▶│                     │
│ (n = 2013 )             │    │   (n = 1863)        │
└─────────────────────────┘    └─────────────────────┘


┌─────────────────────────┐    ┌─────────────────────┐
│ Full text articles      │    │  Articles excluded  │
│ assessed                │───▶│                     │
│ (n = 150 )              │    │   (n = 40 )         │
└─────────────────────────┘    └─────────────────────┘
           │
┌──────────────────┐        │
│  Manual search   │        │
│                  │────────▶│
│  (n = 110 )      │        │
└──────────────────┘        ▼
                   ┌─────────────────────┐
                   │ Studies synthesised │
                   │                     │
                   │   (n = 34 )         │
                   └─────────────────────┘
```
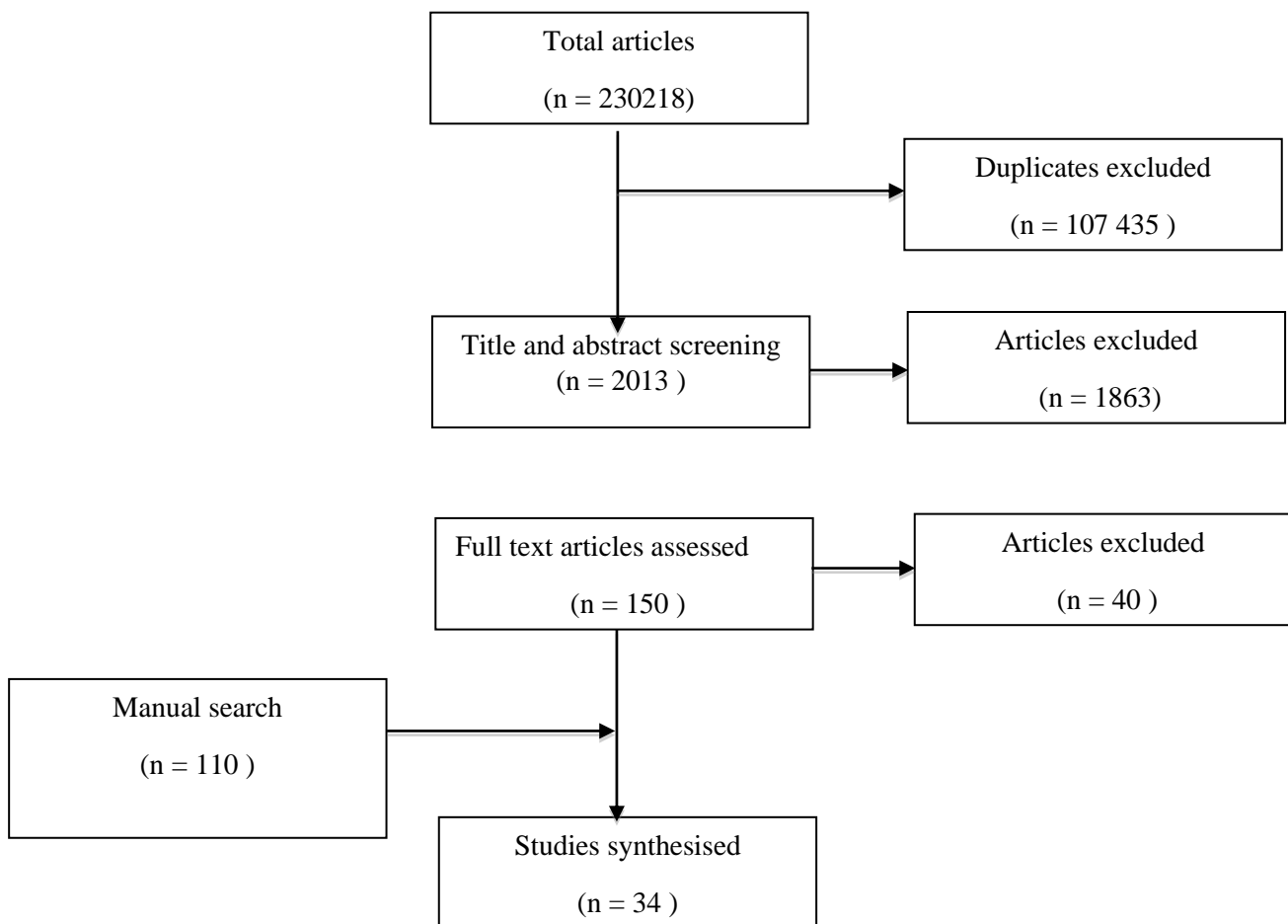
Figure 2.1 The process of obtaining relevant studies related to multilingualism in educationally challenging contexts

The initial retrieved articles for multilingual education in challenging contexts was 230218. At the end of the entire search process there were 34 studies that met the inclusion criteria. The high number of duplications was due to the several databases as well as choosing databases that are known for archiving multilingual research.

3.5.2 Data Extraction

The relevant data from the included research was extracted according to specific categories. The studies were categorised and organised according to 1) title of the study 2) author/s 3) source 4) date of publication 5) location of study (if available) 6) aim of the study 7) methods 8) the results of the study, and 9) trends. Extracting the information from the studies

constituted another screening which made sure the inclusion requirements were met, as well as the studies related to the aim of the dissertation of limited scope. The table also provided a method of keeping track of the information obtained. This information was categorised so as to accomplish the purpose of a systematic review as well as exploit the advantageous nature of a review. The results of the studies were categorised in order to establish trends and similar outcomes as well as studies that were divergent and indicated gaps in research. The categorising of the data also confirmed the validity of the studies.

3.6. Quality Appraisal Process

A combination of 43 studies was included. The number was identified by the author only. This is not ideal in terms of the limitation of the dissertation of limited scope; however, measures were taken to minimise errors such as diligently following the set-out procedures and using the stipulated inclusion criteria (refer to Search Criteria and Strategies (3.4). The search limit of only including peer reviewed research also provided a screening for quality. The quality of the included studies was kept in mind throughout the entire process of searching, identifying, documenting and analysing the available research.

3.7. Methods

The findings from the categorisation of results was summarised in a narrative synthesis. This was then grouped in order to conduct a descriptive analysis to determine trends. A descriptive analysis describes the features of the study in order to determine what research is available and the focus areas of research over the last ten years (2010 - 2020). It also demonstrates where the gaps in research are and where future studies should concentrate their efforts.

CHAPTER 4

PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the findings of all examined studies meeting the inclusion criteria and the quality of assessment requirement for the review. Descriptive analysis was utilised in order to relay the studies conducted and the information obtained over the last 10 years in multi-lingualism in challenging educational contexts. The benefits of multilingualism were also outlined. The chapter concludes with a reflection on any bias errors related to this review.

4.2 Analysis of included Studies

The characteristics of the studies were analysed as a means of identifying the type of research that was conducted as well as where the research was carried out (location). Although the dissertation of limited scope only sought to group the included studies into qualitative and quantitative methods, there were studies that employed a mixed method approach. The majority of the studies applied qualitative methods used throughout the last ten years. This may be due to the complexity of assessing language and contexts that are challenging. It may also be due to the studies focusing on school-going children. Qualitative research is a useful approach when the aim is understanding experiences and specific phenomena (Howitt, 2016). It was not feasible for the dissertation of limited scope to identify on which search platform the studies were found due to the duplication of studies across search platforms. In addition, the tool Endnote X8 was used to remove all duplicated studies.

4.3 The percentage of studies available according to each search strategy

Using specific keywords from certain search platforms a descriptive analysis was conducted in order to determine the amount of available research. The tables below provide the number of articles found for all the keywords. Some of the included articles were found under keywords not specifying benefits or a challenging context. This analysis indicates the wide range of the search that needed to be undertaken, as it is not as simple as using the variables

of the study. The analysis also demonstrates the vast amount of research available in the area of multilingualism. The tables below are divided into research available from databases, libraries, the Internet, and academic journals.

Table 4. 1 Percentage of Research Available on the Database Search Platforms

	Databases															
	Academic Search Complete		APA PsychInfo		EBSCO host: Eric		Linguistic Collection		JSTOR		MLA		PsycARTICLES		Pubmed	
	%		%		%		%		%		%		%		%	
	2015-2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014	2015 - 2020	2010-2014
Multilingualism	60,74	41,14	59,09	44.73	50,69	76.59	35,39	39,47	33,38	24,12	80,74	90,03	51,16	42,34	59,02	51,85
Multilingualism + Cognition	0,06	0,03	0,06	0.08	0,24	0.7	6,08	5,62	5,43	5,56	1,28	0,14	25,58	17,52	16,37	16,87
Multilingualism + Education	1,32	1,14	1,14	0.93	1,02	1.75	24,29	29,40	20,63	24,51	0,86	1,01	0,00	10,22	15,08	19,14
Multilingualism + Literacy	0,20	6,47	0,30	0.03	0,31	0.41	9,61	7,88	7,63	9,50	1,85	0,87	4,65	0,73	3,33	2,37
Multilingualism + Mathematics	0,03	0,06	0,72	0.03	0,08	0.12	1,99	1,64	2,15	3,48	0,14	0,00	0,00	0,73	1,63	1,20
Multilingualism + Education disadvantaged environment	26,36	17,62	26.29	34.75	38,66	9.98	0,69	0,55	0,50	1,28	0,43	1,01	0,00	10,22	0,11	0,10
Multilingualism + Social	0,79	0,44	0.54	0.68	0,31	0.29	10,68	8,00	14,76	17,03	0,43	1,59	0,00	8,03	0,41	6,58
Multilingualism + Low SES	10,21	32,96	11.43	16.44	8,34	9.87	2,00	1,60	4,42	3,30	13,84	0,14	11,63	8,03	0,18	0,13
Multilingualism + Benefits	0,25	0,06	0.24	0.19	0,28	0.18	9,02	5,57	6,81	5,92	0,29	0,14	4,65	2,19	2,03	1,04
Multilingualism + South Africa	0,06	0,06	0.18	2.13	0,08	0.12	0,25	0,28	4,29	5,30	0,14	5,06	2,33	0,00	1,85	0,70

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Table 4.1 provides a breakdown of the percentage of research available from the databases Academic Search Complete, APA PsychINFO, EBSCO host: Eric, Linguistic Collection, JSTOR, MLA, PsychARTICLES, and Pubmed. The table indicates that when using the keywords 'Multilingualism' and 'Education disadvantaged environment', the database EBSCO host: Eric has the most hits for 2015 - 2020 (38.66%), yet in the five years before this it had a significant smaller percentage (9.98%) of available research. EBSCO host: Eric is a database that archives literature and resources related to education. Therefore, this high percentage is not surprising. The table demonstrates the lack of general multilingual research in South Africa. JSTOR has the highest percentage of available research in South Africa at 5.30% (between 2010 and 2014), and 4.29% (between 2015 and 2020). JSTOR is a digital library that houses a vast amount of research and so one would expect it to have more available literature than other databases. Five of the eight databases had a higher percentage of research related to multilingualism in South Africa between 2010 and 2014, which may indicate a decline in focus on this area of multilingualism over the last five years. According to the keywords 'Multilingualism and Education' and 'Multilingualism and Education disadvantaged environment', a discrepancy was observed regarding available research. Three of the databases, Academic Search Complete, APA PsychINFO, and EBSCO host: Eric all have a higher percentage of research related to 'Multilingualism and Education disadvantaged environment' (ranges from 17.62% to 38,66%) while 'Multilingualism and Education' (ranges from 0.93% to 1.32%) was much less. This indicates that a much greater amount of research should be available in challenging educational contexts practising multilingualism. On the other hand, the databases Linguistic Collection, JSTOR, MLA, and Pubmed have a very limited amount of research in 'Multilingualism and Education disadvantaged environment' (ranges from 0.10% to 01.28%) when compared to the amount of multilingual and education research (ranges from 15,08% to 29.40%). However, the databases MLA and PsycARTICLES had a low percentage on both the 'Multilingualism and Education' (ranges from 0.00% to 10,22) and 'Multilingualism and Education disadvantaged environment' (ranges from 0.00% to 10.22).

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Table 4. 2 Percentage of Research Available on the Library and Internet Search Platforms

	Library		Internet					
	University of Pretoria		Google.co.za		Google.com		Google Scholar	
	%		%		%		%	
	2015 - 2020	2010 -2014	2015 - 2020	2010 - 2014	2015 - 2020	2010 -2014	2015 - 2020	2010 - 2014
Multilingualism	48,81	47,91	9,29	3,10	6,85	3,41	13,89	14,21
Multilingualism + Cognition	5,19	4,52	9,87	3,26	7,69	23,87	6,98	8,26
Multilingualism + Education	20,10	21.31	10,64	3,68	22,11	25,15	13,72	14,08
Multilingualism + Literacy	6,45	6,78	10,22	24,54	8,01	23,97	7,78	8,13
Multilingualism + Mathematics	1,64	1,6	10,19	25,24	7,79	3,38	6,29	6,03
Multilingualism + Education disadvantaged environment	0,16	0,10	13,02	7,34	9,43	6,92	7,32	7,17
Multilingualism + Social	12,17	13,29	10,74	25,64	21,91	3,76	13,55	13,88
Multilingualism + Low SES	0,21	0,10	5,05	0,00	0,00	1,55	10,58	9,75
Multilingualism + Benefits	2,59	1,65	10,83	3,75	8,36	3,69	13,15	11,57
Multilingualism + South Africa	2,68	2,98	10,16	3,46	7,84	4,29	6,75	6,92

One would expect there to be a high percentage of hits on these search platforms as university libraries house vast amounts of research and have access to numerous databases, and the Internet is an enormous network that provides access to a variety of information. The research available in the library search for 'Multilingualism and Education' ranges from 21.31% (2010 - 2014) to 20,10% (2015 - 2020), while there is a slight decrease in the research of 1.21% in the last five years. The Internet research for 2010 - 2014 ranged from 3.68% to 25.15%. Google Scholar presented 14.08%. The mean range is 14.42%; therefore, the percentage demonstrated by Google Scholar is likely to be an accurate depiction of the amount of research available. The Internet research results for 2015 - 2020 range from 10.64% to 22.11%. However, a mean of 16.38%, against the Google Scholar result of 13.72 is probably a more credible representation. The keyword library search 'Multilingualism and education disadvantaged environment' for the last ten years was 0.10% (2015 - 2020) and 0.16% (2010 - 2015). The Internet search indicates that search results for 2015 - 2020 ranged

from 7.32% to 13.02% with a mean of 10.74%. The results from 2010 - 2014 were slightly less, ranging from 6.92% to 7.34% with a mean of 7.13%.

Table 4.2 demonstrates how limited research occurs in the above areas of multilingualism. Because of these search platforms encompassing so many resources (including databases and journal articles) and a large variety of information in general, it is a reasonable assumption that Table 4.2 is a more accurate representation of what research is available. When compared to the other search platforms the smaller variability of data demonstrates that consistency is present in the search results.

Table 4. 3 Percentage of Research Available on Academic Journal Search Platforms

	Journals					
	International Journal of Applied Linguistics		International Multilingual Research Journal		www.academia.eue	
	%		%		%	
	2015 - 2020	2010 - 2014	2015 - 2020	2010 - 2014	2015 - 2020	2010 - 2014
Multilingualism	22,52	27,16	19,60	18,61	16,82	22,90
Multilingualism + Cognition	5,11	2,78	1,62	2,55	7,23	7,17
Multilingualism + Education	22,52	27,16	19,60	18,61	15,97	19,50
Multilingualism + Literacy	7,51	6,17	19,60	18,61	11,22	11,23
Multilingualism + Mathematics	0,90	2,47	2,22	1,46	8,12	1,52
Multilingualism + Education disadvantaged environment	3,00	1.54%	3,43	3,28	6,17	3,22
Multilingualism + Social	16,52	16,98	17,37	17,15	16,10	21,14
Multilingualism + Low SES	4,50	0,93	3,43	3,65	6,34	3,67
Multilingualism + Benefits	12,01	12,65	10,71	10,58	11,91	9,62
Multilingualism + South Africa	5,41	2,16	2,42	5,47	0,12	0,04

Table 4.3 represents the available research from specific journals dedicated to multilingual research: namely, the International Journal of Applied Linguistics and the International Multilingual Research Journal as well as a site that houses journal articles across multiple fields, academia.com. The percentages represented here were also low for both keyword searches, 'Multilingualism and Education' and 'Multilingualism and Education disadvantaged environment'. Table 4.3 indicates that searches for 'Multilingualism and Education' between 2015 - 2020 ranged from 15.97% to 22.52%, with less variability than the search results for 2010 - 2014 (18.61% to 27.16%). In contrast, the search for 'Multilingualism and Education disadvantaged environment' ranged from 3.00% to 6.17% for 2015 - 2020 and 1.43% to 3.28% for 2010 - 2014.

The 'multilingualism benefits' research for 2015 - 2020 ranges from 10.58% to 12.01%, and 2010 - 2014 ranges from 9.62% to 12.65%. Very little variability within each time frame and across the ten years is demonstrated. This indicates that the amount of data available is similar across these sources.

Overall, Tables 4.1 - 4.3 demonstrate how limited the research is within multilingualism. These percentages indicate what is available in the area of multilingualism before inclusion criteria requirements have been applied. Platforms that are specific to multilingualism do not have a large amount of related research in 'Multilingualism and Education disadvantaged environment' (1.54% - 6.17%) and 'Multilingualism and Benefits' (9.62% - 12.65%), further demonstrating the lack of available research. Some platforms provide more information than others while some focus more on an area of multilingualism. The consensus on the databases is that there is relevant research available and there is some focus in this area, even if it is limited. Thus, although these databases were assessed beforehand to ensure they archived research relevant to the aims of the dissertation of limited scope, the results presented also emphasise the importance of searching within suitable resources.

Although this table summarises a vast range of multilingual aspects, the two main areas of focus of research that the dissertation of limited scope is interested in are multilingualism in challenging educational contexts and the benefits of multilingualism. These two areas will also aid in answering future research needs. Because of the limited information, the

dissertation of limited scope initially took a broad approach to searching for relevant research by including all the other searched keywords listed in the tables. It was also used for screening information because it is essential to make sure that no relevant information was excluded unnecessarily or was omitted due to narrow explanatory/exploratory procedures. It also provided a foundation for future research and gave a general overview of what research is available in the area of multilingualism. The summarised information shows across all search platforms that there is a lack of research in the last ten years in both multilingualism in challenging educational contexts (ranging from 0 - 26,36%) and the benefits of multilingualism (ranging from 0,06 - 13,15%).

4.4 Authorship of Included Studies

Table 4. 4 Authorship of Included Studies

	Number of authors	Percentage
Authors with one included study	61	98
Authors with more than one included study	1	2

Table 4.4 lists the authorship of the included studies. All authors were taken into account; even those with shared authorship in a study were individually counted. Authorship was analysed in order to identify false duplicates that may have occurred in the studies. Table 4.4 indicates that the authors whose research is included in the review have not conducted more than one study in these areas of multilingual research, except for one author. Although the included studies are limited, this table reveals the lack of specialisation in the field.

4.5 The Location of Studies

Table 4. 5 The Location of the Included Studies

Location	Frequency	Percentage
Belgium	2	4,76
Canada	2	4,76
China	1	2.38
Finland	2	4,76
France	1	2.38
Germany	1	2.38
India	1	2.38

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Table 4.5 (continued).

Indonesia	2	4,76
Iran	1	2.38
Italy	1	2.38
Kenya	3	7,14
Lebanon	1	2.38
Luxembourg	2	4,76
Netherlands	2	4,76
Nigeria	1	2.38
Norway	2	4,76
Philippines	1	2.38
Singapore	1	2,38
South Africa	4	9,52
Spain	1	2,38
Sweden	4	9,52
Switzerland	1	2,38
Turkey	1	2,38
Vienna	1	2,38
United States of America	3	7,14
Total	42	100

Table 4. 6 The Region of the Included Studies

Region	Frequency	Percentage
Africa	8	19,05
Asia	9	21,43
Europe	20	47,62
North America	5	11,90

The information displayed in Table 4.5 shows the locations of the included studies. The location of studies varied as some studies were conducted in more than one area or country. The setting of the studies was not an inclusion criterion; however, studies were specifically searched for in South Africa.

Where location could not be identified from the setting of the study, the location of the author or in cases of multiple authors, the location of the first author was taken into account. It is assumed that authors conduct research within their country of work. The locations were also analysed according to regions in Table 4.6. In the last 10 years the majority of the studies in this area has been conducted in Europe (47,62%). Africa and Asia have a similar amount of studies in each region with 19,05% and 21,43% respectively. North America presented the smallest amount of studies conducted (11,90%).

Table 4. 7 Descriptive Analysis of the Total Number of Studies and the Total Number of Relevant Studies

	Total number of studies		Total number of relevant studies		Percent change in total relevant studies from 2010 - 2020
	2015 -2020	2010 -2014	2015 -2020	2010 –2014	%
Multilingualism in challenging educational contexts	82084	148134	24	10	58,33

Table 4.7 summarises the number of included studies obtained from the initial search. The initial number of studies for multilingualism in challenging educational contexts and multilingual benefits was established. Then the total number of studies was determined. The totals of the number of studies and relevant studies were divided into two groups, namely, 2015 - 2020 and 2010 - 2014. The table also shows the percentage change between 2010 and 2020 for the total relevant studies. This descriptive analysis demonstrates the variation between initial studies and studies that were deemed relevant according to the inclusion criteria.

The total number of 230,218 initial studies was obtained via the specific search procedures which utilised particular keywords and search limits. The total of included studies was determined by a rigorous process of using a referencing programme and analysing studies using title, abstract and keywords and then a full analysis of the studies; however, after removing any duplicated studies and other unrelated studied, there was only a number of 3012 studies available. Of these studies only 2013 met the inclusion criteria, i.e. reviewing the titles and abstracts of each study. 150 studies were then reviewed and analysed more in depth to assess whether they met the inclusion criteria. Of these studies 128 did not meet the inclusion requirements (refer to Figure 2.1). All the included studies for 'Multilingualism in challenging contexts' can be viewed in 'Appendix B: Information obtained from included studies'. In a comparison of the number of included studies with the vast amount of research investigating multilingualism in these areas, the number is considerably smaller. This may be due to the specific inclusion criteria, looking at challenging contexts, the participants being of school-going age or learners working in a school environment. The search process and inclusion criteria also excluded many studies based on whether the participants/environment were multilingual; many studies that were included in the initial search and in the title and

abstract stage of the process actually investigated bilingualism. The percentage change between the two groups was also established by comparing the amount of studies in each group, 2015 - 2020 and 2010 - 2014.

4.6 Multilingualism in Challenging Contexts

The following section is comprised of three parts. Part 1 is an exploration of the qualitative descriptive analysis of the included studies according to multilingualism in challenging educational contexts. Part 2 involves an exploration of the qualitative descriptive analysis of the included studies related to multilingual benefits. Part 3 discusses an errors analysis and the dissertation's means of minimising errors. In order to determine the available research literature concerning a descriptive analysis involving frequencies of themes in the research was explored**.**

Table 4. 8 Descriptive Analysis of the Research available for Multilingualism in Challenging Educational Contexts

Focus of study	2015 - 2020		2010 - 2014		Total	Percentage of total studies
	Freq	%	Freq	%	Freq	%
Pedagogical Practice	16	47,05	3	8,82	19	55,88
L1 Instruction	2	5,88	2	5,88	4	11,76
Benefits	5	14,71	4	11,76	9	26,47
Academic Achievement	2	5,88	0	0	2	5,88
Total	24	70,59	10	29,41	34	100

The descriptive analysis provided in Table 4.8 determines the trends in multilingual challenging educational contexts. Overall, there were only 34 studies over the last 10 years that met the inclusion criteria. The most commonly studied area was pedagogical practices (55,88%) in multilingual classrooms. Other areas that were researched and met the inclusion criteria were L1 as the language of instruction for learning purposes (11,76%), multilingual benefits (26,47%), and academic achievement (5.88%).

Research investigating the utilisation of a first language in a challenging educational environment presents itself as a trend in the review. 8,82% of the studies in the last ten years that meet the inclusion criteria explored the use of L1. The investigation of such an area is essential as language is a key element in obtaining knowledge and understanding. Research conducted by Hungi, Njagi, Wekulo, & Ngare, 2018 indicates that learning in one's home language has a positive correlation with literacy skills. Yet, Walter, & Dekker (2011) found that the advantage of learning in one's L1 varied according to the grade and subject. Tupas (2014) found that L1 in education can be vulnerable even if formal discourse and policy are implemented. But Illman, & Pietilä (2018) demonstrated that learning while using L1 simultaneously is a resource in a foreign language classroom. The results indicate that learners' use of their L1 is a resource when they learn an additional language. They also concluded that teachers found multilingualism to be a resource.

5,88% of the included studies focused on academic achievement in challenging educational contexts. Kiramba (2017) examined the practices of multilingualism and literacy in a rural environment; his findings were that a monolingual approach to literacy in foreign language rural classrooms resulted in a decrease in the development of literacy. Agirdag & Vanlaar (2018) found that language proficiency may not be the cause of achievement but may be a result of the use of language in the home environment as well as learners' proficiency in the LoLT.

Some of these trends were explored and allocated further into specific subcategories, as described below. Pedagogical practices are a major trend in multilingualism in academic challenging contexts research (55,88%), especially during the last five years. The included studies in the trend of the pedagogical practices are described in Table 4.9 below.

Table 4. 9 Descriptive Analysis of Trends in Pedagogical Practices

Focus of study	2015-2020		2010-2014		Total	Percentage of total included studies
	Freq	%	Freq	%	Freq	%
Translanguaging	12	35,29	1	2,94	13	38,23
Interactive	1	2,94	0	0	1	2,94
Inclusivity	1	2,94	0	0	1	2.94
Teacher's Attitude	2	5,88	2	5,88	4	11,76
Total Pedagogical Practices	16	47,05	3	11,43	19	55,88

Pedagogical practice is an area of research that has been the most investigated over the last ten years, especially over the last five years. There was an 81,25% increase in research focused on pedagogical practices from 2010 - 2014 to 2015 - 2020. Pedagogical practice is the accepted approach to learning in the classroom. More than half the studies included were aimed at exploring pedagogical approaches in multilingualism in challenging educational contexts.

Research has focused on pedagogical approaches in multilingual environments. The subcategories that were identified within this focus of multilingualism are translanguaging, interactive approach, inclusivity approach and the teachers' attitude. Ljunggren (2016) demonstrated that interactive pedagogy (2,94%) involving various languages produces a sense of togetherness in a multilingual classroom. Furthermore, an inclusive approach provides an inclusive environment for all learners and their identities (Krulatz, & Iversen, 2018).

However, the pedagogical approach that has mainly been focused on over the last ten years is translanguaging. 38,23% of studies demonstrate that multilingual practices in classrooms are possible in spite of diversity (Bonacina-Pugh, 2013). Translanguaging aids in developing language competence (Rasman, 2018), even in a minority language (Leonet, Cenoz, & Gorter, 2017. It also assists in transforming, establishing and/or sustaining relationships between the teacher and the students and among the students (Anwaruddin, 2018). Iversen (2019) demonstrated that translanguaging is useful in learning a foreign language.

The age at which the approach is practised is not influenced by age. The study by Kirsch (2018) demonstrated that nursery school and primary school learners were influenced by their multilingual learning environment, and that translanguaging frequently occurred. It also stated that curriculum and learning tasks are significant with regard to translanguaging. De Sousa (2017) also showed the use of translanguaging with preschool children. Although the study's main aim was not translanguaging, it focused on instructional conversations in multilingual educational contexts.

The study found that translanguaging promotes participation in instructional conversation. Karlsson, Larsson, & Jakobsson (2019) found that even in a specific subject, such as science, translanguaging is an educational resource. Translanguaging also involves cultural and social aspects in the process of making meaning in learning. This is evident in reading certain texts. Maseko, & Mkhize (2019), dealt with a general comprehension of content. Makalela (2015), Duarte (2018), and Ticheloven, Blom, Leseman, & McMonagle, (2018), conveyed similar findings where translanguaging aided in bridging the gap between understanding and learning. Torpsten (2018) found that language potential is evident, but language perception varies. High self-rated language is more receptive to teachers' approaches to developing learning.

Therefore, a positive approach implemented by teachers and the attitude towards incorporating multilingualism in the classroom (11,76%) is also significant. If a teacher's attitude is supportive, it bridges the gap formed by linguistic diversity and increases school belonging. Van Der Wildt, Van Avermaet, & Van Houtte (2015) demonstrated that a teacher's tolerant attitude towards multiple languages in the classroom compensates for the negative effects of linguistically diverse schools on school belonging. Similarly, Panagiotopoulou & Rosen (2018) provide evidence for the role teachers play in shaping language practices in a multilingual classroom. In previous research Creese & Martin (2010) came to the same conclusion that teachers shape classroom ecologies by their support and challenging of language and culture in their classrooms. Bahous, Bacha, & Nabhani (2011) focused on the reinforcement of a foreign language in the home environment of low SES learners; moreover, they did find that teachers believe that the acquisition of foreign languages is valuable in many discourse communities.

Another area of focus that can be further analysed into subcategories is the benefits of multilingualism in challenging educational contexts. Varied research across different aspects found that multilingualism may have a positive effect. The descriptive analysis provided in Table 4.9 demonstrates the research available in the last ten years that is related to multilingual benefits. The dissertation of limited scope also aimed to explore the benefits of multilingualism. While screening for studies related to the primary aim, studies that were relevant to the benefits of multilingualism were also included.

Table 4. 10 Descriptive Analysis of the Trends of Multilingual Benefits

Focus of study	2015-2020		2010-2014		Percentage of total studies	
	Freq	%	Freq	%	Freq	%
General Resource	1	2,94	1	2,94	2	5,88
Cognitive	2	5,88	1	2,94	3	8,82
Social	0	0	1	2,94	1	2,94
Emotional	1	2,94	0	0	1	2,94
Language	1	2,94	1	2,94	2	5,88
Total Benefits	5	14,70	4	11,76	9	26,47

26,47% of the included studies investigated multilingualism as a resource. The main areas that benefit from multilingualism's presence present in challenging contexts are cognition, emotion, language, and social advantage. Multilingualism is also a general resource in these spaces. There is also evidence that there may not be beneficial properties associated with multiple languages in challenging educational spaces. Soleimani & Rahmanian (2018) explored the cognitive function of metacognitive abilities with multilingual learners. The study states that there was no positive correlation, but monolingual learners performed the task in a longer period of time and with less accuracy. Yet Kulkarni (2013) demonstrated that multilingualism has a role in cognitive development. Hofer & Jessner (2016) demonstrated such a cognitive benefit through findings that there is a positive correlation between multilingual educational programmes and metalinguistic awareness.

Babson (2014) discussed the social issues of South Africa and explored multilingual education as a resource. The study found that multilingual education can improve learning and learners' engagement in the classroom. Wang and Kirkpatrick (2015) also discuss the positive implications of three languages being present in the classroom.

Language ability benefits from a diverse language repertoire. Dolgunsöz (2013) found that there is a positive correlation between the number of languages and proficiency in grammar learning strategies. Yet Hörder (2018) found there to be no benefit for multilingualism and language aptitude. The study also found that multilinguals have a disadvantage when it comes to grammatical sensitivity.

Okal (2014) indicated that multilingual classroom practices are linked to cultural awareness and creativity, better adjustment to society and an increased educational value. This finding demonstrates how language as a resource transcends the classroom and develops aspects that contribute to society.

Anxiety is an emotion that Bin-Tahir, Atmowardoyo, Dollah, Rinantanti, & Suriaman (2018) explored with regard to multilingualism. They found that multilinguals were more extroverted in their verbal behaviour when compared to monolingual peers. Multilingual learners also demonstrated more independent thinking.

4.7 Discussion

The aim of this study was to explore research related to multilingualism and challenging educational contexts. Additionally, it also sought to examine the benefits of multilingualism and the current gaps in research, and correspondingly guide future research in these areas. The literature reviewed in Chapter 2 was used to conduct literature control and explore the results presented in Chapter 4. The main focus was to establish the current state of research over the last ten years (2010 - 2020) in multilingualism and challenging educational contexts. The studies that were evidenced in the specific search strategies and search limits, and that also met the inclusion requirements, were evaluated through descriptive analyses in order to identify trends and gaps in this area. They also provided insight into the characteristics of these studies, such as authorship and location.

The dissertation of limited scope only included studies conducted in an educational environment. This excluded multilingual research that has been conducted in challenging contexts outside the classroom space. This type of context is relevant for reviewing multilingualism as education is linked to language, and language is a facilitator for learning (Nel & Müller, 2010).

The educational environment had to meet specific criteria and the context had to be considered challenging. This strategy was based on the definition provided in Chapter 1; therefore, the definition was the benchmark for evaluating whether the study was conducted within such a context. This included whether the region of the study was considered rural or occupied by a low socioeconomic status community. Other factors were learners who are immigrants and do not have the LoLT as their L1, and/or any other physical/societal difficulties that infringe on human rights or restrict achievement (Ungar, 2010).

Another inclusion criterion was that the participants or the environment of the studies had to be multilingual. Language is essential for the transference of knowledge, but it is also significant in understanding and making sense of knowledge. However, multilingualism is a common phenomenon that is often found in classrooms around the world. But for many learners the language of instruction is not their L1. Unvalued language or language barriers in the classroom can jeopardise the learning process. Learning in one's L1 is linked to greater acquisition of knowledge and academic achievement. In contrast, there are parents that prefer their children to learn in a language that is not their L1, such as English, as they see it providing an advantage for future employment and success (Fleisch & Woolman, 2007). Another study suggests that learning in L1 is not an advantage for academic achievement and learning (Pinnock & Vijayakumar 2009; Trudell, Dowd, Piper & Bloch, 2012; UNECO, 2008a). The descriptive analysis indicates that 8,82% of the current studies in challenging educational contexts focused on L1 advantages in the classroom.

This percentage is likely to be a more accurate representation of L1 practices, as many people from challenging contexts often do not learn in their L1 nor are they competent in the LoLT, and similarly, many teachers are not competent in the language in which they teach (Brock-Utne, 2006). According to 2007 statistics, 65.3% of South African learners had English as

their LoLT even though only 7% of the school-going population have English as their L1 (Department of Basic Education, 2010). This seems to point to serious consequences regarding access to knowledge and poor academic results (Probyn, 2008). The literature also suggests that in some educational contexts learning in one's L1 is also not feasible (Ortega, 2019).

LoLT is often perceived to offer value in society and is linked to economic status as well. There are social influences that determine the use of languages in the classroom. Often political powers and societal views regulate language polices in education (Aronin, 2019). Finding multilingual classrooms in challenging contexts where the learners' L1 is the LoLT is uncommon. Also, many of the included studies involved immigrant participants.

Multilingualism as a resource was another factor that was present in the current research. Literature over the years has been conflicted as to whether multilingualism can be considered a resource. The general consensus of recent literature is that acquiring multiple languages results in cognitive advantages, disproving previous notions of multilingualism (Otto, 1922 in Carroll, 2008). An included study which focused on cognitive and metacognitive functioning associated with higher order thinking, found that there is a positive correlation between this cognitive ability and multilingualism usage in challenging educational contexts (Sol & Rah, 2018).

However, the literature indicates that there is a multilingual disadvantage when it comes to verbal ability (Bialystok, Craik & Luk, 2008; Bialystok & Feng, 2008; Ivanova & Costa, 2008), and yet the included study by Dolgunsoz (2013) suggests that the use of grammar strategies facilitates learning language in the multilingual classroom. Furthermore, the social benefits of multilingualism in challenging educational contexts are linked to cultural awareness and appreciation as well as the value that is placed on education (Okal, 2014). Yet, the literature presents varied views on whether there is an advantage (Cummins, 2000; Komorowska, 2011; MacKenzie, 2009; Thomas & Collier, 1998; Okal, 2014), or disadvantage (Martin (2010).

The dissertation of limited scope also concluded that one way of demonstrating acceptance is through a pedagogical approach. The approach the teacher has towards the use of additional

languages in the classroom is significant in guiding the language practices linked to learning, academic achievement, and participation. If learners feel that their languages are considered important and as equal as other languages, especially the LoLT, there is greater participation (Chisholm, 2011).

Fourteen included studies focused on the pedagogical approach, translanguaging and its ability to facilitate learning for multilingual learners who are not proficient in the LoLT. Literature suggests that translanguaging is a natural phenomenon; therefore, the amount of studies available in the last ten years seems to be an under-representation of the realities of multilingual classrooms. Through translanguaging teachers and learners were able to utilise a range of linguistic skills and repertoire. They also used cultural and social aspects to make meaning of the texts. Translanguaging as a pedagogical practice results in transforming teacher-student/student-student relationships. There may be a possibility of it contributing to intellectual emancipation. These studies demonstrate that educational institutes are interested in directing education towards pedagogical practices that centre around the learners' contribution to learning and not the traditional teacher directed practices that are commonly used.

The location of studies was not specified, although South Africa as an area of research was specifically searched for. Analysing where the included studies had taken place listed the societies that focused on conducting multilingual research related to challenging educational contexts. Of pertinence, too, is that, although there are limited included studies, there is global interest. The fact that studies occur in some locations more than once demonstrates that there may not be the lack of the research that the small number of included studies suggest. However, a gap that is presented in Table 4.5 is that the majority of the studies were conducted in Europe. This is not surprising as the literature suggests that, when it comes to multilingualism, the majority of research has been conducted in Europe (Aronin & Hufeisen, 2009). Yet, the number of studies conducted in Africa and Asia indicates an upward trend with an increase of multilingual research in these locations.

The literature posed the benefits of translanguaging in classrooms, as well as the effectiveness it has in challenging educational contexts, especially with respect to immigrant or minority learners. It suggests that translanguaging is useful in increasing participation

(Nambisan, 2014), and this factor is especially significant in challenging educational contexts. The use of translanguaging demonstrates that research in challenging contexts and educational environments acknowledges that languages do not exist separately from each other but are an integrated system that can be used to make meaning in the classroom and assist learning.

The focus on pedagogical practices in current research is significant as it demonstrates a profound link between the theoretical framework guiding this dissertation and the outcomes obtained. Vygotsky's socio-constructivist theory is founded on the notion that social learning precedes development, and language plays an integral role in shaping thought (Kozulin, 2003; Vygotsky, 1978). The studies included clearly demonstrate that interacting in an environment that supports interaction and incorporates social learning results in development. Therefore, the context in which language is utilsed and developed is highly influential and a key aspect in investigating language and multilingualism. The establishment of this link between the theoretical framework and the outcomes further solidifies the importance of such a review on multilingualism and challenging contexts.

4.8. Error Analysis

The studies included were based on accessible search strategies. This dissertation of limited scope is aware that there are many other research resources that could be used, but due to certain restrictions as well as those imposed by a mini-dissertation, searching every possible research resource was impractical and unrealistic. Knowledge of research processes and an investigation of the best possible resources for multilingualism were the bases of using the databases and Internet searches involved in the search strategies.

An extensive number of studies required sifting and the author was the only person who determined which studies met the requirements of the inclusion criterion. The dissertation of limited scope tried to reduce any errors by using the same specific keywords across all search strategies. The inclusion criteria were strictly adhered to, as well as using the reference management programme, Endnote X8, and a DEF, to ensure the search process was organised. However, errors related to bias may still have occurred.

4.9 Conclusion

Specific data in the studies and articles was used to determine the scope of research regarding multilingualism in challenging educational contexts and benefits in multilingualism. In order to be globally relevant, the studies were not limited to gender, languages, or origin of study. Tables 4.5, 4.6 and 4.7 indicate the demographics of the studies included in the review. The setting of the study was not a criterion; therefore, studies from various settings around the world were included. However, the study being performed in or related to challenging contexts in education was a requirement.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Owing to the significant role language plays across various levels of society (individual and community), current studies over the last ten years attempted to determine the state of research in multilingual education in challenging contexts. This dissertation of limited scope identified the importance of such a review, as a search in this specific area of multilingualism has not been undertaken before. It also sought to examine the benefits of multilingualism and how the current state of research influences future studies. The review was grounded on the theoretical framework of the socio-constructivist theory proposed by Vygotsky. This theory is based on the interaction of language and thought. The notion is that children participate in their own learning through using language to interact with their environment. Language is a key aspect in helping them make sense of the world around them (Conkbayir & Pascal, 2014). Children reach their mental potential and develop their knowledge through resources in their environment and others who have greater knowledge (Vygotsky, 1962).

Chapter 1 provided information highlighting the past and current situations in multilingual education and multilingual research, as well as multilingualism in South Africa and in educational contexts that are considered challenging. The literature in Chapter 2 was then used in relation to the results in Chapter 4 as well as the discussion in Chapter 5. Global and local perspectives helped to compare whether the trends that were identified through the search process are similar to the current literature focus.

The breakdown of procedure used to organise the extensive search, collection of relevant findings, reviewing and analysing is provided in Chapter 3. The chapter also describes the search strategies which provide valuable insight into the available research. Transparency is essential in such an approach to conducting research; therefore, the in-depth description of the protocol that was followed is important for the minimisation of errors and it also provides an accurate representation of the studies. It may also guide other interested parties to understand how the results and research questions were determined. Such detail also guides researchers who may want to replicate or continue the review in the future. In the filtering of

all the initial studies it was evident that many of the search resources used include the same studies. This is apparent from the number of duplicated studies. The majority of studies also involves adult participants and/or bilingual outcomes. Therefore, searching via keywords may not always generate relevant studies even when using search filters and specific strategies. The narrowing down of studies was manually assessed by the criteria that needed to be met in order for the studies to be selected.

Chapter 4 is a representation of the results through a descriptive analysis that discusses the trends and patterns that emerged. This entailed qualitative analysis of all 34 included studies. The information from the included studies in DEF (Appendix A) was analysed according to location, authorship and trends (patterns) in research topics. The findings of each study were qualitatively assessed and discussed. The results found were used to answer the secondary questions and the main questions. The succeeding sections answer the secondary questions: 'What are the benefits of multiple languages in challenging contexts?'; 'How does the literature in multilingualism contribute to existing and future knowledge on learning?'; and 'What is the nature of future research required in multilingual contexts?', as well as the main question, 'What is the current state of knowledge of multilingualism in challenging education contexts?'

5.2. The benefits of multiple languages in challenging contexts

The review of studies using specific criteria indicates that multilingualism benefits individual and social aspects. These benefits are present in educational spaces, even those that are considered challenging. The data obtained from the review can be divided into two sets that can be used to report the benefits of multilingualism; firstly, the studies that investigated specific benefits and, secondly, the cognisance of other studies that indirectly demonstrated in their investigation the benefits multilingualism has in challenging educational contexts.

The direct exploration of areas that benefit from multilingualism demonstrates the following: cognitive development is positively influenced by multilingualism, cognitive benefits will influence learning and thinking ability, and social skills will allow for understanding and acceptance of diversity. The included research illustrates that specific areas benefit from multilingualism and educational context even when challenging, and multilingualism can be used as a learning tool.

The studies that indirectly present benefits show that multilingualism can be present in educational contexts as well as transcend other contexts. Pedagogical practices that include and utilise multilingualism in challenging educational contexts have shown to aid the learning process. These practices, such as interactive and inclusive pedagogical approaches as well as translanguaging, allow learners to use their full repertoire to engage and interact in order to make sense of knowledge. The conclusion to be drawn is that multilingualism is beneficial in gaining knowledge using various linguistic skills. The same is demonstrated if the attitude of teachers towards multilingualism is included in a particular space conducive to learning. If a teacher's attitude is positive and encouraging of multilingualism, then it has advantages in the classroom. These beneficial consequences related to learning are also present when the L1 is also the LoLT. When learners feel that their acquired languages have worth and value in their daily educational environments, such a feeling converts to a higher usage of linguistic repertoires, more exposure to linguistic skills as well as greater proficiency and competence. Therefore, through the use of multilingual linguistic skills, positive results occur in different aspects of learning and education.

These conclusions in respect of multilingual benefits are in line with literature indicating that multilinguals display an advantage in many social (Cook, 1997, 2001), and cognitive situations (Bialystok, 1992, 2001; Bialystok, Martin, & Viswanathan, 2005; Craik & Bialystok, 2005; Cummins, 1984; Hakuta, 1986; Ratte, 1968; Paradowski, 2010; Zelazo, Muller, Frye, & Marcovitch, 2003; Bialystok & Martin, 2004). Similarly, the results indicated that current research focuses on social and cognitive benefits, and flexibility in learning and thinking. However, it is important to note that there is a small number of studies on which this conclusion is based. It would be negligent not to take into account the fact that the literature exhibits controversy in terms of whether learning multiple languages is an advantage or not, especially where cognitive skills and learning are concerned. Research has proven that both may be possible; multilingual individuals may be superior in some tasks and inferior in others when compared to individuals who have acquired fewer languages.

The studies indicate (directly and indirectly) that, within challenging contexts involving learning, multilingualism is used as a tool to facilitate and make the classroom environment a less challenging space. Although there are limited studies (as indicated by the small number

included), they still cover a wide range of aspects which may be positive. However, looking at the research into these aspects over the last ten years, it is noticeable that research focusing on benefits over the last five years has decreased.

The studies that focused on other areas such as pedagogical practices, L1 instruction, and academic achievement, also demonstrate indirectly how multilingualism is a resource within the educational environment.

5.3 Multilingual literatures' contribution to existing and future knowledge on learning

Owing to the inclusion criteria requiring that the context be educational, all results from the 34 included studies are relevant in identifying how trends and gaps in educational multilingualism can be used to evaluate the current state of the knowledge of learning as well as contributing to its future.

The included studies focused on pedagogical practices involving the use of methods that allow the interaction of various languages in the learning process. The studies found that pedagogical practices that move away from the traditional pedagogical approaches, and incorporate inclusive practices instead, allow for linguistic variation and for learners to utilise their full language repertoire in their learning processes. This allows learners to make sense of knowledge using language that they are competent and proficient in. The research shows that inclusive practices assist learners in the acquisition of knowledge. They also help accommodate linguistic differences and permit interaction and participation in the learning processes taking place. The acceptance of language acquisition by teachers is also a fundamental finding that is present in the research.

The limited studies analysed provide far-reaching information about the trends and gaps in research into this specific area of multilingualism. The analyses of the numerous studies resulting in the final 34 included studies indicate the state of current research. Learning can occur in challenging contexts when language is used as a device to support the learners. The conclusion is that pedagogical practices work to enhance the educational space. They also point to their future use. However, as indicated by the extensive research and the number of studies from the initial search, when it comes to education and even more specifically education and challenging contexts, the results are minimal. In itself, this both indicates a

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gap and also that more research is needed in order to build solid evidence to support the use of multilingualism.

However, although limited the analysis of the studies indicate that there is a distinct link between the theoretical framework and the results of the included studies as well as the trends that have been identified. The research included in this study specifically related to pedagogical practices, and learning environments (even when challenging) are influential on learning and development. Language learning in an interactive collaborative manner positively influences language and cognitive development, as well as encourages interaction with others, broadening and constructing knowledge beyond one culture or language, and the ability to share. Social constructivist theory speaks to all of this and therefore whether stated or not it is the foundation for many of the included studies as well as how language contributes to research related to learning

5.4 The nature of future research required in multilingual contexts

The future avenues of research are based on the answers provided by the other secondary questions as well as the primary question below. It is noted above that the lack of research is the key determinant of what the future of 'multilingualism in challenging educational contexts,' and "benefits of multilingualism in challenging educational contexts.' should look like. Owing to the limited amount of research focusing on these areas, these included studies could be seen as the benchmark by which researchers and other interested parties might guide their investigations one day. Not only did the available research clearly expose the great gap in this area of multilingualism but it also highlighted the trends which are the stepping stones to performing further research.

Although it is noticeable that the focus has mainly been on pedagogical practices. It is critical that this trend in research continues and is built on in the future. The research indicates positive correlations between pedagogical practices and the acquisition of knowledge. It also shows that it increases participation and interaction within the educational space, especially for learners who do not have the LoLT as their L1. It provides a sense of belonging and an appreciation of diversity. The attitude of teachers also constituted the focus of a subcategory of pedagogical practices. This element shows how perceptions towards language and diversity can affect contexts. Literature has demonstrated this aspect already in

multilingual education contexts but to have it reiterated by the review, and that it is an influential factor in challenging educational contexts, is significant. Although there is a fair amount of research dedicated to this outside the challenging context domain, it still requires further research within the field of challenging educational contexts.

The benefits of multilingualism in challenging educational contexts signalled another trend in the review. The benefits were linked to cognition, language skills, social aspects, and general advantages related to classroom engagement and learning. However, some of these benefits were only demonstrated by one study. More research is necessary to determine the reliability of the information provided by these studies. In reviewing the last ten years it became noticeable that research focusing on benefits over the last five years has decreased. This should be reconsidered for future prospects of investigating multilingualism in challenging educational contexts.

A descriptive analysis was also conducted to establish authorship and location. This analysis also helped in the identification of gaps and patterns. The majority of the included studies were conducted in Europe. Although this was to be expected, it still demonstrates the need for more research in other regions. In addition, more research is generally needed. The authorship of the studies is also an indication that there is an inadequate amount of research focused on multilingualism in challenging contexts. None of the authors were invested in more than one study, except for one author. This signifies that there is a lack of research as well as a lack of specialisation in this area of multilingualism.

Future multilingual research in challenging contexts (and in general) should be distinguished from bilingualism. Many studies, although titled 'multilingualism', investigated bilingualism. Bilingualism is still viewed as the language area of interest, and this is indicated by how many studies were eliminated because of this bilingual focus.

More research is required in all areas of multilingualism, especially in education and learning environments that are challenging. The ability to communicate and travel/relocate is becoming easier and easier and the number of multilinguals around the world is going to increase; classrooms will be occupied by children who speak several languages and who identify with various cultures. This steady increase in cultural and linguistic diversity

provides an opportunity for these aspects to be explored and investigated, especially with reference to its correlation with educational aspects.

Therefore, the gaps demonstrated by the lack of research, and the listed trends and issues found during the reviewing process, point to a further need for investigation. Furthermore, more research in the area of multilingualism is needed and a move away from bilingual research is required.

5.5 The current state of knowledge on multilingualism in challenging education contexts

The main aim of this dissertation of limited scope was to explore the state of research undertaken over the last ten years. It was discovered through a lengthy and extensive search that very little research has been conducted in the area of multilingualism in challenging educational contexts. Even less has been conducted in a South African context. However, many of the included studies did involve immigrant learners. This is a reflection of current global trends in the spread of multilingualism and the increase of multilingual societies (Cenoz, 2013; Coulmas, 2018).

Multilingual classrooms are often reflections of society and its diversity, but it is unlikely that drastic changes will occur in school language practices and policies to reflect the world outside the classroom. In an idyllic world everyone should be able to learn in their L1; however, as the literature suggests, due to economic and political status as well as language policies, this is not always the case (Aronin, 2019; Edwards, 1994).

The descriptive analysis indicated that a major focus of multilingualism in challenging educational contexts and the pedagogical approaches of the teacher is occurring. A multilingual approach to learning is significant as it indicates that research is being conducted to justify the need for classrooms and learning to go beyond a monolingual mindset. This links to the literature suggesting that using L1, alongside the LoLT, should result in positive learning outcomes (Chisholm, 2011). Most of the pedagogical practice studies involved translanguaging. Translanguaging is the use of all one's language repertoire in order to make sense and meaning of context (Canagarajah, 2011; Jørgensen, 2008). Translanguaging is beneficial in educational contexts because it encourages participation and aids in making

sense of knowledge through the use of language/s.

L1 as the language of instruction in the learning environment was also an area of focus in the included studies. Many studies have advocated that an individual's L1 should be the language of instruction in order to provide an advantage when it comes to learning (Chisholm, 2011). It can also lead to academic/educational rewards (Casale & Posel, 2010). The use of one's full language repertoire also links to the literature suggesting that using L1 alongside the LoLT should result in positive learning outcomes (Chisholm, 2011). Therefore, the use of L1, whether the language of instruction or regardless of the LoLT, is a step to a more realistic representation of diversity in the world. Learning in one's L1 is significant in learning, aligns with the literature and can lead to a beneficial learning space and academic/educational rewards (Casale & Posel, 2010).

The focus of research over the last ten years has been directed towards the areas which are relevant and make a positive contribution to the understanding of multilingualism as a whole. The areas pertain to the literature and involve relevant aspects of educational contexts. The use of multiple languages, the encouragement of multiple languages and using multiple languages as a tool for learning speaks to Moore's (2006) notions on multilingualism - it is a resource in an educational environment that encourages the use of other languages. However, very little research has been conducted in the area of multilingualism in challenging educational contexts. In sifting through all the studies it became evident that the majority of studies appear in the same search resources, many involve adult participants and/or are bilingual outcomes, and even with advanced search filters, studies that simply included one (or more) of the keywords were displayed in the search results. This finding is significant as it indicates that research is being conducted to justify the need for classrooms and learning to go beyond a monolingual mindset.

5.6 Limitations

The general aim of the dissertation of limited scope was to investigate the available research on multilingualism in challenging educational contexts. However, the methods used to explore the aims have several limitations.

Firstly, if data is extracted incorrectly, the validity of the study can be questioned. It can also inaccurately represent the study in the field. However, due to the author and supervisor having knowledge of these specific limitations from the beginning, this dissertation of limited scope aimed to be as transparent as possible to enable other interested parties to test the findings. However, the author is aware that even with the implementation of strategies to ensure organisation and adherence to the inclusion criteria, there is still margin for error. Errors may have occurred due to a) the large number of research studies in the initial search, b) studies may have been overlooked, and c) decisions made in terms of whether a study meets the inclusion criteria. There is also the possibility of selection bias as the dissertation utilised purposive sampling. The relevance of studies, although linked to a list of inclusion criteria, still had to be determined by qualitative methods.

Secondly, there is some concern about the studies with regard to the quality of the included studies. The environments of the included studies were not identical, and many studies did not include ethical considerations and procedures. This made it difficult to establish the reliability and validity of a study. The dissertation has attempted to achieve internal validity by being clear and transparent throughout the entire process. It has clearly defined the goals of the research and the research questions it aimed to answer, which did not change during the process. The research tried to control quality as much as possible through the use of filters in the search process, e.g. peer reviewed research.

Thirdly, a further limitation is the number of included studies, as the final included studies are considerably fewer than the ones that came up in the initial searches. In part, this was due to the quality control and inclusion criteria, but it was also due to limited access to research sources. The inclusion criteria limited the number of studies that could be included, resulting in the analysis of a very small sample of studies. The exclusion of studies that were not in English may have also affected the findings of this dissertation, as there is the possibility of much more relevant studies being available. The use of specific databases, limited access to search resources, and the limited scope of the dissertation both restricted the studies that met the inclusion criteria and also those that related to the aim of the study. The researcher also relied on university facilities (library, e-journals, databases, etc.).

5.7 Recommendations

The recommendations that follow accord with the limitations of the dissertation and the implications for similar future studies. The researcher recommends that other relevant parties be used in future studies to control for errors. It would be ideal to have more than one researcher involved in the procedures and the location of more studies. This will allow for a wider search to be undertaken, as well as allowing less room for errors. Other researchers can review relevant studies and sift through numerous search hits, as well as assessing which studies are relevant and meet the inclusion criteria. It is also suggested that more search sources should also be included in the initial search process to provide a less restricted search.

5.8 Conclusion

The dissertation of limited scope reviewed research over the last ten years related to multilingualism and challenging educational contexts. The review of relevant studies indicated that research has focused on the areas of pedagogical practices, L1 instruction and its resourcefulness in educational contexts that are challenging. The identification of these trends is useful in guiding future research. However, the small number of included studies demonstrates the gaps in the current exploration of multilingual spaces in challenging educational contexts. These gaps provide opportunities for further investigation and should also be considered when investigating multilingual implications in future educational scenarios. The dissertation of limited scope also discusses the limitations it is aware of and how they can be improved in prospective research. Despite the limitations mentioned above, this dissertation still contributes to the current literature and understanding of multilingualism in educationally challenging contexts and the benefits of multiple languages in educational spaces. It also makes an important contribution to future research.

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Appendix A: Data Extract Information Table

Code associated with study	Inclusion Criteria Requirements							Meets Search Filters		
	Orginal Study	Cross sectional	Focus on Multilingualism in education	Partcipants in education environment	Challenging Context	Quality	Objective/ self reported	Peer reviewed	2010 -2014	2015 -2020
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	✓	✓	✓	✓	✓	✓	✓	✓		✓
4	✓	✓	✓	✓	✓	✓	✓	✓		✓
5	✓	✓	✓	✓	✓	✓	✓	✓		✓
6	✓	✓	✓	✓	✓	✓	✓	✓	✓	
7	✓	✓	✓	✓	✓	✓	✓	✓		✓
8	✓	✓	✓	✓	✓	✓	✓	✓	✓	
9	✓	✓	✓	✓	✓	✓	✓	✓		✓
10	✓	✓	✓	✓	✓	✓	✓	✓		✓
11	✓	✓	✓	✓	✓	✓	✓	✓		✓
12	✓	✓	✓	✓	✓	✓	✓	✓	✓	
13	✓	✓	✓	✓	✓	✓	✓	✓		✓
14	✓	✓	✓	✓	✓	✓	✓	✓		✓
15	✓	✓	✓	✓	✓	✓	✓	✓	✓	
16	✓	✓	✓	✓	✓	✓	✓	✓		✓
17	✓	✓	✓	✓	✓	✓	✓	✓		✓
18	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19	✓	✓	✓	✓	✓	✓	✓	✓		✓
20	✓	✓	✓	✓	✓	✓	✓	✓		✓
21	✓	✓	✓	✓	✓	✓	✓	✓		✓
22	✓	✓	✓	✓	✓	✓	✓	✓		✓
23	✓	✓	✓	✓	✓	✓	✓	✓		✓
24	✓	✓	✓	✓	✓	✓	✓	✓		✓
25	✓	✓	✓	✓	✓	✓	✓	✓		✓
26	✓	✓	✓	✓	✓	✓	✓	✓		✓
27	✓	✓	✓	✓	✓	✓	✓	✓		✓
28	✓	✓	✓	✓	✓	✓	✓	✓		✓
29	✓	✓	✓	✓	✓	✓	✓	✓	✓	
30	✓	✓	✓	✓	✓	✓	✓	✓	✓	
31	✓	✓	✓	✓	✓	✓	✓	✓		✓
32	✓	✓	✓	✓	✓	✓	✓	✓		✓
33	✓	✓	✓	✓	✓	✓	✓	✓		✓

	Title of Study	Authorship	Date of publication	Location	Aim of Study	Sample Characteristics	Method	Conclusion	Trends
1	Mother tongue instruction in Lubuagan: A case study from the Philippines	Walter, S.L., & Dekker, D.E.	2011	Philippines	Explore usuage of L1 as language of instruction affect development of L2 proficiency (Multilingual Education setting). Usage of L1 affect mastery of English and Maths	2 groups control and experimental Grade 1 -3 learners L2 but meets multilingual definition	Quantitative	L1 as language of instruction advantage but various acorrding to grade and subject.	L1 Instruction
2	Role of Multilingualusm in Cognitive Development	Kulkarni, P.	2013	India	Determine the role of multilingualism in cognitive development	Oher research in multilingual education environment	Qualitative	Muliltingualism significant role in cognitive development.	Multilingual benefit Cognition
3	Does more exposure to the language of instruction lead to higher academic achievement? A cross-national examination	Agirdag, O., & Vanlaar, G.	2018	Belgum & Netherlands	Explore if learners language background and practices are linked to academic achievement.	n = 120000 from 5000 schools and 18 countries	Quantitative	Language may not be the cause of achievement but the use of language in the home environment as well as their proficiency in the LoLT is useful	Academic achievement
4	Multilingual and Mono-multilingual students' performancein English Speaking	Bin-Tahir, S.Z., Atmowardoyo, H., Dollah, S., Rinantanti, Y., & Suriaman, A. (2018).	2018	Indoneisa	Investigate the performances of multilingual and mono-multilingual learners in boarding school.	n= 30 Junior High School 2 groups	Mixed Methods	Multilingual learners exhibit extrovert and ambivert speaking behavior when compared to introvert mono-multilingual learners	Multilingual benefit Emotion
5	Translanguaging as Transformative Pedagogy:Towards a Vision of Democratic Education	Anwaruddin, S.M.	2018	Canada	The use of Translanguaging as a pedagogical in multilingual educational contexts.	Other research in multilingual education environment	Qualitative	Translanguaging results in transforming teacher-student/student-student relationships . May influence intellectual emancipation.	Pedagogical Practice Translanguaging
6	Multilingual label quests: A practice for the 'asymmetrical' multilingual classroom	Bonacina -Pugh, F.	2013	France	Explore use of learners multilingual resources in class where the teacher does not have the same same language repertoire.	Immigrant learners	Qualitative	Teaching practices are possible in the asymmetrical multilingual classroom	Pedagogical Practice Translanguaging
7	To Translanguage or not to Translanguage? The Multilingual Practice in an Indonesian EFL Classroom.	Rasman, R.	2018	Indoneisa	Examine the effcts of Translanguaging in an EFL classroom where students use the full multilingual language while interacting with one	high school students (14-15 years old)	Qualitative	Translanguaging could help learners develop their multilingual competencies (including the English language)	Pedagogical Practice Translanguaging

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					another.			
8	Multilingual educational trends and practices in Lebanon: A Case Study	Bahous. R., Bacha N.N., & Nabhani, M.	2011	Lebanon	Multilingual education policies and practices in Lebanon.	30 private school principals, middle managers and teachers	Qualitative	Low SES students lack foreign language practice outside if class. Teachers believe acquisition of foreign languages is valuable.	Pedagogical Practice Teachers Attitude
9	Challenging Minority Language Isolation: Translanguaging in a Trilingual School in the Basque Country	Leonet, O., Cenoz, J., & Gorter, D.	2017	Basque, Spain	Examine translanguaging as a pedagogical tool. Where the language of instruction is a minority language in society.	Multilingual school	Qualitative	Pedagogical translanguaging is corresponds with the maintenance and development of a minority language	Pedagogical Practice Translanguaging
10	Effects of Language of Instruction on Learning of Literacy Skills Among Pre-primary School Children from Low-income Urban Communities in Kenya.	Hungi, N., Njagi, J., Wekulo, P., & Ngare, M	2018	Nairobi, Kenya	Explore the relationship between the language of instruction and learning of literacy skills a multilingual environment.	1867 learners from low-income urban households	Qualitative	Evidence that pre-schoolers display benefits of learning literacy skills when using a known language of instruction.	L1 Instruction
11	Multilingual Affordances in a Swedish Preschool: An Action Research Project.	Ljunggren, A.	2016	Sweden	Develop a multilingual environment in a preschool setting	1 to 3 years (all different first languages)	Qualitative	Use of other methods of interaction beneficial and move away from a question–answer pedagogy. Children aware of the lingustic diversity in their environment.	Pedagogical Practice Interactive pedagogy
12	Inequalities of multilingualism: challenges to mother tongue-based multilingual education	Tupas, R.	2014	Asian multilingual countires	Examined mother tongue-basedmultilingual education	Other research related to multilingual education environments	Qualitative	Mother tongues in education is weak even ifofficial discourse and policy are implemented.	L1 Instruction
13	Young children capitalising on their entire language repertoire for language learning at school	Kirsch, C.	2018	Luxembourg, a small country bordering France, Belgium and Germany.	The findings show that translanguaging was effective, common (occurs frequently) and appropriate in the class.	Multilingual learners	Qualitative	Translanguaging was valid, frequent and legitimate. ability to translanguage and opportunities influenced by the multilingual learning environment, the curriculum and the language learning tasks.	Pedagogical Practice Translanguaging
14	Promoting the Contributions of Multilingual Preschoolers	De Sousa, E.B.C.	2017	United States of America	Explore use of instructional Conversation (IC) in multilingual educational context .	7 multilingual classrooms	Qualitative	Translanguaging is a significant in students participation in instructional conversation.	Pedagogical Practice Translanguaging
15	Multilingual Classroom Ecologies: Inter-	Creese, A., & Martin, P.	2010	United States of	Explore in multilingual classrooms according to	Other research related to multilingual	Qualitative	Attitudes towards foreign	Pedagogical Practice

				America	relationships, interactions, and ideologies.	education environments		langauge significant	Teachers Attitude
16	Multilingual school population: ensuring school belonging by tolerating multilingualism	Van Der Wildt, A., Van Avermaet, P., & Van Houtte, M.	2015	Finland	How the linguistic structure in the school impacts sense of belonging.	67 primary schools (n = 1761 fourth-graders and 1255 teachers.)	Quantitative	Teachers' attitude (tolerating multilingualism) compensates for negative feelings towards school belonging due to lingustic diversity. .	Pedagogical Practice Teachers Attitude
17	Trilingual education in Hong Kong primary schools: an overview	Wang, L. & Kirkpatrick, A.	2015	Hong Kong, China	Discover how the language policy is currently applied in Hong Kong primary schools.	155 schools	Quantitative Frequency Tables	Trilingual education is supported in primary schools and is percieved as a positive resource in the classoom.	Multilingual benefit
18	Developing Possibilities for South African Youth: Beyond Limited Educational Choices?	Babson, A.	2014	South Africa	Discuss the social issues of South Africa and multilinguall education as a resource.	Other research related to multilingual education environments	Qualitative	Multilingual education to improve learning and engagement	Multilingual benefit
19	Multilingualism as a resource in the foreign language classroom	Illman, V. & Pietilä, P.	2018	Finland	Explored the multingualism advantage when learning English by immigrant, teaching processes involved and the teachers perceptions	55 students (aged 11-16)	Quantitiave	L1 can be used as a resource for learning English. Teachers recognice multingualism as beneficial in learning English. Using language repitiore for learning is significant (indirect translangaging practices)	Pedagogical Practice Translanguaging
20	Multilingual students' use of translanguaging in science classrooms	Karlsson, A., Larsson, P.N., & Jakobsson, A.	2019	Sweden	Examine the use of translanguaging, in learning in science.	20 students (Grade 4 - 6)	Qualitative	Translanguaging is s a resource when learning scientific content.	Pedagogical Practice Translanguaging
21	Multilingualism at the primary level in South Tyrol: how does multilingual education affect young learners' metalinguistic awareness and proficiency in L1, L2 and L3?	Hofer, B., & Jessner, U.	2016	South Tyrol, Italy	Determine if multilingual education programmes produce better performance with metalinguistic awareness and if effected by L1 L2 and L3 than children who receive traditional L2 and foreign language instruction	2 elementary schools involving multilingual learners	Quantitative	Early multilingual learning is signifcant, and higher performance	Multilingual benefits Cognitive
22	Denied Inclusion of Migration-Related Multilingualism: An Ethnographic Approach to a Preparatory Class for Newly Arrived Children in Germany	Panagiotopoulou, J. A., & Rosen, L.	2018	Germany	Examine pedagogical practices in class of refugee learners.	Multilingual education classroom	Qualitative	Pre-training and teacher training programs are needed to transform pedagogical practices from monolingual practices to those that are inclusive of immigrant/refugee children.	Teacher significant in language shaping in the classroom

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23	Translanguaging mediating reading in a multilingual South African township primary classroom	Maseko, K. & Mkhize, D.N.	2019	South Africa	Determine reading practices of Grade 3 multilingual learners in a township primary school	Determine reading practices of Grade 3 multilingual learners in a township primary school through pedagogical practices	Qualitative	Through translanguaging the teacher and learners were able to utilise a range of linguistic skills and repitoire. They also used cultural and social aspects to make meaning of the texts	Translanguaging Positive Outcome
24	Moving out of linguistic boxes: the effects of translanguaging strategies for multilingual classrooms	Makalela, L.	2015	South Africa	Investigates efficateveness of teacher preparation to introduce teacher languages.	n = 60 (30 experimental, 30 control group).	Mixed Methods	Significant difference between experiemnetal and control group Experimental group education involving translanguaging resulted in positive outcomes where particiapants demonstrated affective and social advantages and displayed understanding of the content.	Pedagogical Practice Translanguaging
25	Translanguaging challenges in multilingual classrooms: scholar, teacher and student perspective	Ticheloven, A., Blom, E., leseman, P., & McMonagle, S.	2018	United States of America	Discusses practical and pedagogical issues of translanguaging.	4 high schools. 3 groups - language education researchers, teachers and multilingual learners.	Qualitative	Translanguaging positive attriibutes but must keep in mind challenges. Bridges gap between theory and practice.	Pedagogical Practice Translanguaging
26	Translanguaging in the context of mainstream multilingual education	Duarte, J.	2018	Luxembourg and Netherlands	Investigate the operationalisation of translanguaging via inclusion of miority immigrant learners.	Teachers in multilingual education environment	Qualitative	Translanguaging including minority/immigrant learners decrease langauge seperation, increase content comprehension and acknowledging monority langauge	Pedagogical Practice Translanguaging
27	Translanguaging in a Swedish Multilingual Classroom	Torpsten, A.	2018	Sweden	Explore translanguaging strategies in relation to linguistic potential and competence. .	11 pupils and teacher in multilingual classroom.	Qualitative	There is lingutsic potential. Learner's high langauge rating positively correlates to initiatives by the teacher. It also establishes new relationships and develop knowledge learners with rating discrepancies.	Pedagogical Practice Translanguaging
28	The Effect of Bilingualism and Trilingualism on Metacognitive Processing: Detrimental or Beneficial?	Soleimani, H. & Rahmanian, M.	2018	Iran	To explore learning more than one languages in relation to metacognitive abilities.	3 Groups (n=75)	Quantitative	No positive correlation with cognition and metacognitive abilities. But did suggest that multilingualism might have different effects on executive functioning (higher order decision making).	Multilingual benefit Cognitive

29	Benefits of Multilingualism in Education	Okal, B.O.	2014	Belgium; Canada; Kenya; Nigeria; South Africa; Switzerland	Description of multilingual practices - benefits in education	Other research related to multilingual education environments	Qualitative	Multilingual benefits - creativity and appreciation of cultural awareness, academic/educational value, adjustment in society and approval of local languages.	Multilingual benefit Social
30	Benefits of multilingualism in foreign language learning: a comparative study of bilingual and multilingual grammar strategies.	Dolgunsöz, E.	2013	Turkey	Investigate variance between multilingual and bilingual learners in constructing grammar strategies while learning English (either as an L2 for bilinguals or L3 for multilinguals).	3 groups (n=99) 3 groups: bilinguals (2 coordinate-additive bilingual groups and 1 balanced bilingual group) and a group of multilinguals.	Quantitative	Strong correlation between the number of languages known and the frequency of grammar learning strategy usage. Multil and bi use grammar learning strategies at different rates. Proficiency is also a strong cause of grammar strategy usage	Multilingual benefit Language
31	The Correlation of Early Multilingualism and Language Aptitude	Hörder, S.	2018	Vienna	Investigate the boundary between early bi/multilingualism and language aptitude.	Monolinguals (n = 11) Bilinguals (n = 17) Multilinguals (n =28)	Quantitative	Early bi/multilinguals did not have a higher score at language aptitude tests than monolinguals. monolinguals performed better on on grammatical sensitivity	Multilingual benefit No benefit
32	Multilingual Literacies: Invisible Representation of Literacy in a Rural Classroom	Kiramba, L.K.	2017	Kenya	Examined the practices of multilingualism and literacy in a rural environment	12 year old rural Kenyan boy	Qualitative (Case Study)	Monolingual approach to literacy in foreign language rural classrooms decreases development of literacy.	Academic achievement
33	Building Inclusive Language Classroom Spaces through Multilingual Writing Practices for Newly-Arrived Students in Norway	Krulatz, A., & Iversen, J.	2018	Norway	Assessed the effectiveness of pedagogical practices and literacy	14 immigrant learners	Qualitative	Inclusivity of languages provides an inclusive environment and learners identitites.	Pedagogical Practice Inclusive Pedagogy
34	Translanguaging and the implications for the future teaching of English in Norway.	Iversen, J.Y.	2019.	Norway	Investigated translanguaging and its pedagogical implications.	Teachers in multilingual education environment	Qualitative	Advocates for the translanguaging to be implemented in the instruction of English in order to meet curriculum expectations and to aid multilingaul learners in acquiring English.	Pedagogical Practice Translanguaging

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Appendix B: Information obtained from included studies

Focus: L1 Instruction

Hungi, N., Njagi, J., Wekulo, P., & Ngare, M. – Effects of the Language of Instruction on Learning of Literacy Skills Among Pre-primary School Children from Low-income Urban Communities in Kenya.

Aim: Explore the relationship between the language of instruction and learning of literacy skills in a multilingual environment.

Conclusion: Evidence is present that pre-schoolers display benefits of learning literacy skills when using a known language of instruction.

Illman, V. & Pietilä, P – Multilingualism as a resource in the foreign language classroom

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Aim: Explore the multilingualism advantage when English is learnt by immigrants, the teaching processes involved and the teachers' perceptions.

Conclusion: L1 can be used as a resource for learning English. Teachers recognise multilingualism as beneficial in learning English.

Tupas, R. – Inequalities of multilingualism: challenges to mother tongue-based multilingual education

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Aim: Examine mother tongue based multilingual education.

Conclusion: Mother tongue education is weak even if official discourse and policy are implemented.

Walter, S.L., & Dekker, D.E. – Mother tongue instruction in Lubuagan: A case study from the Philippines

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Aim: Explore the usage of L1 as language of instruction affecting development of L2 proficiency (multilingual education setting). The usage of L1 affects mastery of English and Mathematics.

Conclusion: L1 as language of instruction is advantageous but varies according to grade and subject.

Focus: Pedagogical Practices

Anwaruddin, S.M. – Investigate translanguaging as Transformative Pedagogy: Towards a Vision of Democratic Education.

Aim: Investigate the use of translanguaging as a pedagogical tool in multilingual educational contexts.

Conclusion: Translanguaging results in transforming teacher-student/student-student relationships . It may influence intellectual emancipation.

Bahous. R, Bacha N.N. & Nabhani M. – Multilingual educational trends and practices in Lebanon: A Case Study.

Aim: Examine multilingual education policies and practices in Lebanon.

Conclusion: Low SES students lack foreign language practice outside the class. Teachers believe acquisition of foreign languages is valuable.

Bonacina-Pugh, F. – Multilingual label quests: A practice for the 'asymmetrical' multilingual classroom.

Aim: Explore the use of learners' multilingual resources in class where the teacher does not have the same language repertoire.

Conclusion: Teaching practices are possible in the asymmetrical multilingual classroom.

Creese, A., & Martin, P. – Multilingual Classroom Ecologies: Inter-relationships, Interactions and Ideologies.

Aim: Explore factors in multilingual classrooms of relationships, interactions, and ideologies.

Conclusion: Attitudes towards foreign language are significant

De Sousa, E.B.C. – Promoting the Contributions of Multilingual Preschoolers

Aim: Explore the use of instructional Conversation (IC) in a multilingual educational context.

Conclusion: Translanguaging is a significant factor in students' participation in instructional conversation.

Duarte, J. - Translanguaging in the context of mainstream multilingual education

Aim: Investigate the operationalisation of translanguaging via inclusion of miority immigrant learners.

Conclusion: Translanguaging including minority/immigrant learners decrease langauge seperation, increase content comprehension and acknowledges minority langauge

Iversen, J.Y. - Translanguaging and the implications for the future teaching of English in Norway.

Aim: Investigated translanguaging and its pedagogical implications.

Conclusion: Supports the implementation of translanguaging in the instruction of English in order to meet curriculum expectations and to aid multilingual learners in acquiring English.

Karlsson, A., Larsson, P.N., & Jakobsson, A. – Multilingual students' use of translanguaging in science classrooms.

Aim: Examine the use of translanguaging in learning in science.

Conclusion: Translanguaging is a resource when learning scientific content.

Kirsch, C. – Young children capitalising on their entire language repertoire for language learning at school

Aim: Investigate the use of classroom language practices on translanguaging. Explore practices and purposes of translanguaging.

Conclusion: The findings show that translanguaging was effective, common (occurs frequently) and is appropriate in class.

Krulatz, A., & Iversen, J. - Building Inclusive Language Classroom Spaces through Multilingual Writing Practices for Newly-Arrived Students in Norway

Aim: Assessed the effectiveness of pedagogical practices and literacy

Conclusion: Inclusivity of languages provides an inclusive environment and learners identities.

Leonet, O., Cenoz, J., & Gorter, D. – Challenging Minority Language Isolation: Translanguaging in a Trilingual School in the Basque Country.

Aim: Examine translanguaging as a pedagogical tool where the language of instruction is a minority language in society.

Conclusion: Pedagogical translanguaging corresponds with the maintenance and development of a minority language

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Ljunggren, A. – Multilingual Affordances in a Swedish Preschool: An Action Research Project.

Aim: Develop a multilingual environment in a preschool setting.

Conclusion: Use of other methods of interaction are beneficial and a move away from a question–answer pedagogy. Children are aware of the linguistic diversity in their environment.

Makalela, L. - Moving out of linguistic boxes: the effects of translanguaging strategies for multilingual classrooms

Aim:. Investigates effectiveness of teacher preparation to introduce teacher languages.

Conclusion: Significant difference between experiemnetal and control group Experimental group education involving translanguaging resulted in positive outcomes where particiapants demonstrated affective and social advantages and displayed understanding of the content.

Maseko, K. & Mkhize, D.N. - Translanguaging mediating reading in a multilingual South African township primary classroom

Aim:. Investigate reading practices of Grade 3 multilingual learners in a township primary school through the use of pedagogical practices

Conclusion: Through translanguaging the teacher and learners were able to utilise a range of linguistic skills and repitoire. The use of cultural and social aspects important for making meaning of the texts.

Panagiotopoulou, J. A., & Rosen, L - Denied Inclusion of Migration-Related Multilingualism: An Ethnographic Approach to a Preparatory Class for Newly Arrived Children in Germany.

Aim: Examine pedagogical practices in a class of refugees.

Conclusion: Teacher training necessary is necessary to transform pedagogical practices from monolingual to practices that include immigrant/refugee children

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Rasman, R. - To Translanguage or not to Translanguage? The Multilingual Practice in an Indonesian EFL Classroom

Aim:. Examine the effects of Translanguaging in an EFL classroom where students use all multilingual languages while interacting with one another.

Conclusion: Translanguaging could help learners develop their multilingual competencies (including the English language)

Ticheloven, A., Blom, E., leseman, P., & McMonagle, S. - Translanguaging challenges in multilingual classrooms: scholar, teacher and student perspective

Aim: Discusses practical and pedagogical issues of translanguaging.

Conclusion: Has positive attriibutes but must keep in mind challenges. Bridges gap between theory and practice.

Torpsten, A. - Translanguaging in a Swedish Multilingual Classroom.

Aim: Explore translanguaging strategies in relation to linguistic potential and competence.

Conclusion: Demonstrated that there is lingutsic potential. Learner's high langauge rating positively correlates to initiatives by the teacher. It also establishes new relationships and develop knowledge learners with rating discrepancies.

Van Der Wildt, A., Van Avermaet, P., & Van Houtte, M. – Multilingual school population: ensuring school belonging by tolerating multilingualism

Aim: How the linguistic structure in the school impacts the sense of belonging.

Conclusion: Teachers' attitude (tolerating multilingualism) compensates for negative feelings towards school belonging due to linguistic diversity.

Focus: Benefits of Multilingualism

Babson, A. – Developing Possibilities for South African Youth: Beyond Limited Educational Choices

Aim: Discuss the social issues of South Africa and multilingual education as a resource.

Conclusion: Multilingual education improves learning and engagement.

Bin-Tahir, S.Z., Atmowardoyo, H., Dollah, S., Rinantanti, Y., & Suriaman, A. (2018). - Multilingual and Mono-multilingual students' performance in English Speaking

Aim: Investigate the performances of multilingual and mono- multilingual learners in boarding school.

Conclusion: Multilingual learners exhibit extrovert and ambivert speaking behaviour when compared to introvert mono-multilingual learners.

Dolgunsoz, E. – Benefits of multilingualism in foreign language learning: a comparative study of bilingual and multilingual grammar strategies

Aim: Investigate the variance between multilingual and bilingual learners in constructing grammar strategies while learning English (either as an L2 for bilinguals or L3 for multilinguals).

Conclusion: Strong correlation between the number of languages known and the frequency of grammar learning strategy usage. Multilingual and bilingual learners use grammar learning strategies at different rates. Proficiency is also a strong cause of grammar strategy usage.

Kulkarni, P. - Role of Multilingualism in Cognitive Development

Aim: Investigate the role of multilingualism in cognitive development.

Conclusion: Multilingualism plays a significant role in cognitive development.

Hofer, B., & Jessner, U. – Multilingualism at the primary level in South Tyrol: how does multilingual education affect young learners' metalinguistic awareness and proficiency in L1, L2 and L3?

Aim: Determine if multilingual education programmes produce better performance with metalinguistic awareness and if affected by L1, L2 and L3 than children who receive traditional L2 and foreign language instruction.

Conclusion: Early multilingual learning is significant, and higher performance is achieved.

Hörder, S. – The Correlation of Early Multilingualism and Language Aptitude

Aim: Investigate the boundary between early bi/multilingualism and language aptitude.

Conclusion: Early bi/multilinguals did not have a higher score in language aptitude tests than monolinguals. Monolinguals performed better in terms of grammatical sensitivity.

Okal, B.O. – Benefits of Multilingualism in Education

Aim: Describe multilingual practices and its benefits in education.

Conclusion: Multilingual benefits bring about creativity and appreciation of cultural awareness, academic/educational value, adjustment in society and approval of local languages.

Soleimani, H. & Rahmanian, M. – The Effects of Bilingualism and Trilingualism on Metacognitive Processing: Detrimental or Beneficial?

Aim: To explore learning more than one language in relation to metacognitive abilities.

Conclusion: No positive correlation with cognition and metacognitive abilities demonstrated. Suggests that multilingualism might have different effects on executive functioning (higher order decision making).

Wang, L & Kirkpatrick, A - Trilingual education in Hong Kong primary schools: an overview

Aim: Discover how the language policy is currently applied in Hong Kong primary schools.

Conclusion: Trilingual education is supported in primary schools and is perceived as a positive resource in the classroom.

Focus: Academic Achievement

Kiramba, L.K. - Multilingual Literacies: Invisible Representation of Literacy in a Rural Classroom

Aim: Examined the practices of multilingualism and literacy in a rural environment

Conclusion: Monolingual appraoch to literacy in foreign language rural classrooms decreases development of literacy.

Agirdag, O., & Vanlaar, G. – Does more exposure to the language of instruction lead to higher academic achievement? A cross-national examination.

Aim: Explore if learners' language background and practices are linked to academic achievement.

Conclusion: Language may not be the cause of achievement but the use of language in the home environment as well as learners' proficiency in the LoLT is useful.