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Durham University
School of Education

What do polyglots know about learning languages? Assessing the beliefs and perceptions of polyglots vis-à-vis language learning

By

Voke E. Efeotor

A thesis submitted to Durham University in fulfilment of the requirements for the degree of Doctor of Philosophy

School of Education
Durham University
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ABSTRACT

There is an apparent dichotomy between the maligned fortunes of national language programs and the increasing stories of success shared at international polyglot gatherings. As enrolment in foreign language programs in several countries continues to decline and commissioned bodies are tasked with finding ways to improve language learning outcomes, the polyglot community continues to thrive and proclaim to have solutions to the woes voiced by individuals and governments alike. Despite this, there remains a dearth of research on polyglots and their beliefs regarding language acquisition. This research aims to fill this void by investigating the beliefs and perceptions of polyglots vis-à-vis language learning. The study focused on essential characteristics of a successful language learner, important considerations for successful language acquisition, and the benefits of technology for language acquisition.

This study used a mixed methods design to ascertain polyglots' beliefs and perceptions. A questionnaire utilising a five-point Likert scale was administered to 513 polyglots from 71 countries, and a quantitative analysis of their responses was conducted. This was followed by a qualitative document analysis of 13 polyglots' documents in order to elaborate on the initial findings from the questionnaire. Directed content analysis was conducted manually on the polyglots' documents and underlying themes which emerged from the documents were reported.

The results indicated that the polyglots were divided on whether successful language learners are born with an aptitude for language learning. Nevertheless, they held that anyone can learn a second language. Characteristics of passion and effort were deemed pertinent, as well as the motivation of the learner. The findings also highlighted the polyglots' belief that language education in schools is in need of reform. The way languages are taught and the way tests are used were scrutinised. Several benefits of the use of technology for language learning, such as increased resources and enhanced intercultural competence, also emerged from the study. The study concludes with some recommendations for language learners, language instructors, and course administrators, as well as some suggestions for future research.

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ABBREVIATIONS

APPG	All-Party Parliamentary Group on Modern Languages
ANOVA	Analysis of variance
CALL	Computer-assisted language learning
CANAL-F	Cognitive Ability for Novelty in Language
CBI	Content-based instruction
CEFR	Common European Framework
EFL	English as a foreign language
FL	Foreign language
GCSE	General Certificate of Secondary Education
GDP	Gross domestic produce
HG	Heschl's gyrus
Hi-LAB	High-Level Language Aptitude Battery
HSD	Honestly Significant Difference
IFG	Inferior frontal gyrus
IPL	Inferior parietal lobe
KMO	Kaiser-Mayer-Olkin
L1	First language
L2	Second language
LAD	Language Acquisition Device
LCDH	Linguistic Coding Differences Hypothesis
LLS	Language learning strategies
LSTG	Left superior gyrus
MALL	Mobile-assisted language learning
MLAT	Modern language Aptitude Test
PCA	Principal Component Analysis
S.M.A.R.T.	Specific, measurable, attainable, relevant, time-related
SLA	Second Language Acquisition
SMS	Short message service
SPSS	Statistical Package for the Social Sciences
SRS	Spaced repetition system
TL	Target language
TLA	Third language acquisition
TOEFL	Test of English as a Foreign Language
TPACK	Technological Pedagogical Content Knowledge
UG	Universal Grammar

DECLARATION

No part of the material provided has previously been submitted by the author for a higher degree in Durham University or in any other university. All the work presented here is the sole work of the author and no one else.

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CHAPTER 1. INTRODUCTION

There is widespread recognition that language education around the world continues to fail to meet expectations (Griffith & Coussins, 2019; Hamid, 2011; Mostofi, 2018). Enrolment in foreign language programs in secondary and higher education is in decline (Collen, 2020; Looney & Lusin, 2018), and national governments continue to commission bodies to investigate ways to improve outcomes (Griffith & Coussins, 2019; The American Academy of Arts and Sciences, 2017). In the UK it has been concluded that, "We need urgent, concerted and coordinated action to address the critical situation for languages in the UK" (The British Academy et al., 2020, p.6). Despite this bleak outlook, the global polyglot community continues to boast several annual conferences and gatherings where language learners convene and share their stories of success. With the apparent accomplishments of polyglots, it is surprising that "Research on polyglots is still very scarce" (Hyltenstam, 2021, p.57) and that "Research on polyglots is only in its infancy" (Hyltenstam, 2021, p.70). As successful language learners, polyglots' beliefs about language learning and their insight to what facilitates the acquisition process is invaluable. The aim of this study is to further research on polyglots by ascertaining their beliefs and perceptions regarding language learning, thereby contributing to the dialogue on language education policy and how it can be improved.

1.1 Background and rationale

In today's globalised world, there is an increased demand for foreign language skills. In 2019, the case for languages in the United Kingdom was described as "compelling and urgent" by the All-Party Parliamentary Group on Modern Languages (APPG) (Griffith & Coussins, 2019). Despite the perceived importance of language education, the APPG concluded that the UK is in a

language crisis which is holding her back economically, socially and culturally. Moreover, the UK's language deficit costs an estimated 3.5% of GDP and affects the UK's role and influence as a world leader in international relations, security and soft power. The APPG further acknowledged that the languages supply chain through schools is drying up, with GCSE and A-Level figures at a historic low. Research conducted by ICM, the polling company, for the Guardian and British Academy[1] revealed that almost eight out of ten young people who have studied the most popular languages at school, including French and German, say they can do no more than understand basic phrases. According to the survey, more than four in ten students of Italian, Japanese, Russian and Spanish say they would even have difficulty understanding, speaking or writing anything. A 2017 report by New American Economy concluded that employers are increasingly seeking multilingual employees that can help them better compete in the global market. Despite this demand, fewer students in the United States are taking language classes.

In the face of these growing trends, it is clear that the UK is not alone in its need for a change in language policy. The following research is built upon the notion that an important but oft-excluded voice in language education policy is that of polyglots who have successfully learnt several languages. There is a paucity of research on polyglots and their beliefs and perceptions regarding language acquisition and policy. As Alkire (2008, p.vii) eloquently states, "If multilingualism is indeed one of the 'great achievements of the human mind,' as Vildomec (1963, p.240) claims, it is regrettable that few linguists have studied polyglots and what it is they know about language learning". Alkire (2018) believes it is important to ask "why polyglots tend to be ignored in SLA research" (p.10). He questions whether it is because their views in

[1] https://www.theguardian.com/education/2014/nov/07/-sp-young-people-language-learning-a-level

aggregate sometimes challenge second language acquisition (SLA) theories and attitudes. McLaughlin (1987) posits another possible reason for the neglect of polyglots' views. He believes that it is due to the nature of the data that polyglot studies produce. "Recourse to conscious or unconscious experience is notoriously unreliable and hence cannot be a source of testable hypotheses about the learning process" (1987, p. 152). However, other linguists (e.g. Scovel, 2001; Wilton, 2015) have testified to the value of polyglots' experience.

اسأل مجرب ولا تسأل طبيب

Arabic proverb: Ask an experimenter instead of a doctor

The Arabic proverb stated above highlights the potential benefit of referring to an experienced person who has tested and experimented with many remedies, as they may have discovered a potential cure. It is noted that the mere fact that one swears by a particular remedy does not necessarily render that remedy effective. Likewise, a polyglot's adherence to a particular method does not, ipso facto, establish its veracity. The research proceeds with this caveat. However, noticeable trends amongst the community are certainly of value. Scovel (2001) notes the value of both experimental and experiential data regarding language learning. "The evidence [of successful language learning] can be either experimental or experiential. Given the complexity of SLA, I think we need a lot of both" (p. 10). Moreover, Wilton (2015, p.70) opines, "Applied Linguistics should...continue and enforce the investigation of multilingual biographies and multilingualism" (p. 70). It is hoped that this research will contribute to this insufficiently researched, yet important area. The research aims to examine polyglots' beliefs and perceptions about language learning. It also hopes to highlight important considerations for successful language acquisition and determine whether there are common reoccurring themes that could be deemed best practice. This chapter continues by defining a polyglot. It then provides an overview

of the background of the study. The purpose and potential impact of the study are then outlined, detailing the research aim and objectives. The research questions are then stated. Finally, the structure of the thesis is outlined.

1.2 Defining a Polyglot

The term polyglot is derived from the Greek poly (πολύς), meaning "many" and glot (γλώττα) meaning "tongues". It refers to one's ability to communicate in multiple languages. A person with such an ability is also often referred to as multilingual, thus the terms polyglot and multilingual are regularly used interchangeably in the literature. While it is known that a monolingual, bilingual, trilingual, quadrilingual, and quintilingual person is someone who has a command of one, two, three, four or five languages respectively, there is no precise number of languages that must be known to render a person a polyglot (although it is agreed to be at least three). Another variable in the discussion of multilingualism is the proficiency that one must attain to be considered to have a command of a language. Traditionally, researchers have viewed each language known by a polyglot as a separate entity with its own competences equivalent to that of a monolingual native speaker (Cenoz & Gorter, 2011). Thus, a multilingual is a person who has achieved native-like proficiency in several languages (Bloomfield, 1935). One of the first educators to write on the topic of multilingualism was Maximilian Braun who defined it as active balanced perfect proficiency in two or more languages (Braun, 1937). Linguistic competency is integral to generativism as propounded by Chomsky (1957). In Chomskian terms, competence is also concerned with the formal system of an *ideal* speaker (Franceschini, 2011). Selinker (1972) and Ho (1987) are also linguists who posited that the proficiency of a bilingual or multilingual person should be identical to that of a native speaker.

The traditional view of multilingual competence developed following years of research on linguistic phenomena such as code switching and code mixing (Myers Scotton, 1993; Auer, 1999; Muyaken, 2000). This research made it increasingly apparent that multilingual people have certain characteristics which differentiate them from monolingual speakers. It is on this basis that the notion of multi-competence developed. Although the concept of interlanguage had been present in linguistic discourse since the 1970s (Selinker, 1972), there was no term which encapsulated the relationship between first (L1) and second language (L2) competencies. Multi-competence challenges the belief that the learner of the L2 is inevitably inadequate in attaining native-like proficiency. Cook thus states (Cook & Bassetti, 2010) that most multilingual speakers fall between the minimal (e.g. McNamara, 1967; Grosjean, 2010) and maximal definitions posited. Researchers now largely hold that multilingual speakers are not comparable to monolingual speakers and thus should be judged as their own subset (Cenoz & Gorter, 2011). As Kemp opines, multilingual speakers use their different languages for different contexts and purposes and so it is highly unlikely that they will possess equal, native-like, proficiency in all the languages in their repertoire (Kemp, 2009). Defining multilingual competence is an arduous and complex task, and one which is unlikely to produce unanimity amongst linguists across the different research paradigms. Polyglots are defined in studies across the spectrum in regards to the number of languages spoken and the competency of their languages. For the purpose of this study, a polyglot has been defined as someone who speaks four or more languages to at least an intermediate level (B1 on the Common European Framework (CEFR)).

1.3 Research Background

Although there is a dearth of research on polyglots, the literature on this category of people continues to grow. This research includes biographical accounts describing their language

learning abilities (Deneke, 1965; Lomb, 1978; Schwartz, 2003). The development of research on polyglots and multilingualism is not limited to one educational field. Rather the advancement in research on multilingualism is observable in the fields of linguistics, psychology, sociology and neuroscience. This is due to the multifaceted nature of the phenomenon. The developmental history of this research is outlined in chapter 2 in the literature review. Current research on multilingualism continues to examine its varying aspects. Erard's research (2012) focused on hyperpolyglots, those which he defined as having a command of at least eleven languages, to determine how they achieve great levels of proficiency in several languages.

Hyltenstam (2016a, 2016b) investigated polyglots with the goal of determining common characteristics which they possess. He concluded that the polyglots he investigated shared certain traits such as a preference for explicit learning, high general cognitive ability and strong choice and executive motivation. Hyltenstam noted the need for further research on polyglots including neurological research to ascertain whether polyglots share any cerebral patterns. As he states, "The main issue is still to what extent polyglot brains are different because the language learning experience has changed them and to what extent they are differently predisposed for handling linguistic material from the start, i.e. how does the nurture-nature entanglement or complex interact to create cerebral differences?" (2016a, p.268). Olessia Jouravlev, a cognitive psychologist and linguist, with fellow cognitive psychologists (Jouravlev et al., 2019), used functional MRI to examine the brains of 17 polyglots. They concluded that polyglots "have smaller language regions that respond less strongly during native language processing. This difference is restricted to the left–hemisphere language network and may reflect more efficient processing in polyglots" (2019, p.30). However, like Hyltenstam, they concede that further

investigation is needed in order to determine whether these differences are innate/early emerging, or driven by the experience of acquiring many languages.

Biedron and Pawlak (2016) highlight the benefit of understanding polyglots' language learning strategies. They also raise a subtle point to consider when evaluating polyglots' learning strategies. This is the belief that such is their talent, they succeed regardless of the methods they deploy. When noting what can be learnt from Erard (2012) and Hyltenstam's (2014) work on polyglots, Biedron and Pawlak (2016) note that:

> ...teaching methods do not seem to be of great significance to them as very talented individuals seem to succeed no matter what instructional options are employed. Moreover, some learners have negative experiences with formal instruction and their diverse learning activities are undertaken outside institutional education as this gives them the freedom to experiment. On the whole, hyperpolyglots seem to be masters of learning strategies. (p.175)

Despite the recent work of Erard (2012) and Hyltenstam (2014), there is a need for more in-depth research on polyglots' language learning strategies. This is especially the case in today's world where new technology is being developed to aid the language learning process. A lot has changed since Kató Lomb (1978), a Hungarian polyglot, penned her language learning strategies. The development of the Internet, online dictionaries, mobile phones and language learning applications has given numerous possibilities to the enthusiastic language learner. Scant information has been gathered on how polyglots incorporate these new technologies into their language learning strategies.

1.4 Purpose of the Study

As has been previously mentioned, polyglots' beliefs and perceptions about language learning, including characteristics which they feel are essential for a successful language learner, important considerations for successful language acquisition, and the benefits of technology for language acquisition are all in need of more in-depth research. "Despite their extraordinary success in language learning, polyglots have received very little attention from researchers in the field of language acquisition" (Rodda, 2011, p.69). Rodda opines that "it is somewhat odd that the topic has not been investigated in more depth" (p.70) considering it is common practice in other fields for the most successful practitioners to be observed, analysed, discussed and imitated. The overall aim of this research is to address the lack of critical investigation into polyglots' beliefs and perceptions with regards to language acquisition. In order to realise these research aims, the researcher will examine polyglots to:

- Identify essential characteristics of a successful language learner
- Determine important considerations for successful language acquisition
- Ascertain the benefits of technology for language acquisition

While there is a paucity of studies which have been conducted investigating polyglots, they also tend to be small scale studies due to the nature of the research population. This study aims to gather information from polyglots on a larger scale. Moreover, it aims to fill some of the gaps which lack critical investigation.

1.5 Research Questions

The aforementioned objectives of this study can be restated as the following broad research question allied to three subsidiary questions which help guide the study:

1. What are the beliefs and perceptions of polyglots with regards to language learning/acquisition?

- What are essential characteristics of a successful language learner?
- What are important considerations for successful language acquisition?
- What are the benefits of technology for language acquisition?

1.6 Potential impact of the study

The significance of language learning in the modern world cannot be understated. This importance has been attested to by several governing bodies (Griffith & Coussins, 2019). Any research which therefore aids the language learning process can potentially impact a number of stakeholders in the language learning domain.

i) Policy-Making Bodies

Governments periodically task committees and groups with assessing the state of language learning in their jurisdiction and producing recommendations on how to advance the state of play. An example of this in the United Kingdom is the Nuffield Inquiry of 2000. The inquiry's final report lamented the government's approach to language learning and concluded that "by any reliable measure, we are doing badly" (Anon, 2002, p.5). The inquiry's members included prominent figures from the world of education, business and diplomacy including Sir John Boyd[2], Professor Michael Kelly[3] and Hugh Morgan Williams[4]. There was, however, no leading role on the inquiry for an accomplished polyglot. I believe that the data collected in this study

[2] Sir John Boyd studied languages at Cambridge and Yale before joining the British Diplomatic Service.
[3] Professor Kelly is a professor of French at Southampton University and first Director of the Subject Centre for Languages, Linguistics and Area Studies.
[4] Hugh Morgan Williams is a leading businessman who chairs the Languages National Training Organisation.

can be of use to such inquiries and committees when formulating recommendations for language policy by outlining polyglots thoughts on such considerations as how to improve language education in schools, how languages should be assessed and what realistic language goals can be set for students.

ii) Educators

The study can also be used to inform educators on best pedagogical practices in the classroom. Polyglots are well placed to comment on methods which they find effective in the classroom. Currently, the voice of polyglots is not heard when pedagogical practices are reviewed. Furthermore, the advent of new technologies in the classroom gives rise to many exciting possibilities. However, one of the dangers when incorporating new technologies is that there is no real rationale for their inclusion. As Bax (2000) states, "technology should not merely replace current practice for the sake of novelty, but must contribute to it and improve it" (p.209). Mishra and Koehler's TPACK framework (Figure 1.1) emphasises the need for educators to understand how content, pedagogy and technology supplement one another in order to enhance education.

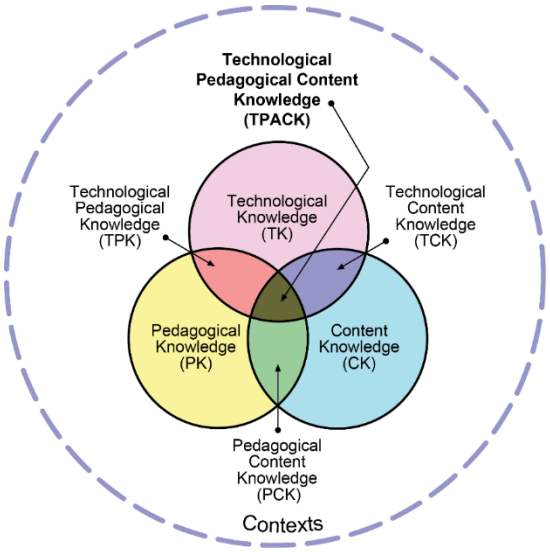


Figure 1.1: The TPACK Framework reproduced by permission of publisher © 2012 by tpack.org

Teachers may possess content knowledge, technological knowledge and pedagogical knowledge as separate entities. However, knowing how to bring together different aspects of the TPACK framework is a challenge facing educators. This study investigates the ways polyglots utilise technology in their language learning. Their recommendations can help inform educators' technological pedagogical content knowledge by providing insight to technologies which aid the language learning process.

iii) Individual Language Learners

A lot of research has been done analysing different language learning strategies (Gardner & Lambert, 1972; O'Malley et al., 1985; Oxford et al., 1983; Platsidou & Kantaridou, 2014; Prokop, 1989). A detailed account of this research is outlined in chapter 2.4. The majority of this research assesses the strategies of the second language (L2) learner. There is a lack of research which focuses on the strategies of polyglots. These strategies are not merely theoretical, but have been used, adapted and fine-tuned to help the polyglots efficiently learn several languages. The data collected for this study can be of use to individual language learners who wish to benefit from the wealth of experience and knowledge that polyglots possess.

1.7 Structure of the Thesis

Following the Introduction Chapter, the Literature Review outlines theoretical frameworks and empirical research which underpin the research topic. Key aspects of multilingualism are detailed, including the historical development of multilingual research, types of multilingual individuals, multilingual competence and multilingual education. The chapter also gives an overview of language acquisition and the models which have developed in relation to it.

Research on language learning strategies and their taxonomies are detailed, and the chapter concludes with an overview of computer assisted language learning and other technologies.

The third chapter of the thesis is the Methodology Chapter. This chapter details the research design for this study. In addition, the data collection instruments are described and the ethical considerations that were given while undergoing the research are outlined. The chapter also elaborates on the population and sample of the participants in the study, as well as giving an overview of the data analysis process that was followed. Finally, the chapter details how the reliability and validity of the research was ensured.

The fourth chapter of the thesis details the questionnaire data analysis and results. The demographics of the participants are detailed as well as the level of their languages according to the CEFR. The reliability and the validity of the questionnaire is established, before descriptive statistics are given for the questionnaire items. A brief summary of the correlation of variables is also stated.

The subsequent three chapters of the thesis detail the results of the document analysis. Chapter five details the document analysis related to the first subsidiary research question. It outlines the polyglots' beliefs and perceptions regarding language learning as a unique talent. The chapter discusses the polyglots' thoughts on there being language genes, the relevance of talent to language learning, and the importance of exerting effort and having passion. Chapter six details the document analysis related to the second subsidiary research question. The polyglots' beliefs regarding important considerations for successful language acquisition are outlined, including their thoughts on language learning in schools, the importance of language learning goals and a language learning strategy. Chapter seven focuses on the third subsidiary research question

regarding the benefits of technology for language acquisition. The polyglots' thoughts on how technology aids language acquisition, as well as the benefits of having online peers are detailed.

The Discussion Chapter then critically examines the findings of both the quantitative and qualitative data gathered for this research. All of the findings related to essential characteristics of a successful language learner, important considerations for successful language acquisition, and the benefits of technology for language learning are discussed and critically examined in light of existing research literature.

The final chapter of the thesis, the Conclusion Chapter, contains a summary of the research findings, as well as recommendations based on the findings of the research. The limitations of the study are highlighted, and finally suggestions for further research are proposed.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the research on multilingualism, language acquisition and computer assisted language learning. First, the history of bilingualism research and the historical development of multilingual research is outlined. This is followed by a description of the different types of multilinguals. Then multilingual competence and multilingual education are reviewed.

The focus of the literature review then moves on to language acquisition. First, theories of second language acquisition are examined. This is followed by a review of the research on language learning strategies. Then several taxonomies of language learning strategies are outlined. There is then a specific look at the development of third language acquisition research. The chapter concludes with a review of the literature on computer assisted language learning.

2.2 Multilingualism

Multilingualism is a social and individual phenomenon. The European Commission (2007, p.6) defines multilingualism as "the ability of societies, institutions, groups and individuals to engage, on a regular basis, with more than one language in their day-to-day lives." Thus it can refer to the use of languages within a society or the ability of an individual. It is often the case that multilingual individuals hail from multilingual societies where they are exposed to more than one language from an early age. However, this is not always the case. There are, for example, polyglots in the monolingual society of Japan. The present research is concerned with the polyglot as an individual, and so this shall be the focus.

Individual multilingualism is a reality of the modern world. It is born out of the necessity for communication across speech communities. The fact that there are over 6000 spoken languages in the world in under 200 countries highlights the inevitability of multilingualism. Historically, there have been periods of time where linguae francae have facilitated cross-community communication. These linguae francae originate from countries which are dominant in one way or another (i.e. socially, culturally, politically or economically). It is from such nations that a linguistic myopia of viewing the world through monolingual lenses, where bilingualism and multilingualism are an aberration rather than a norm, originates (Edward, 1994). However, in educational discourse, multilingualism has witnessed a multidisciplinary growth in research. Its increasing importance in linguistics, sociology, psychology, neuroscience and other disciplines is observable in the literature. The growth in research into multilingualism stemmed from studies on bilingualism and so a brief overview of bilingualism is an apt place to begin the discussion.

2.2.1 Bilingualism

Research on bilingualism developed across multi disciplines in the late 20th century. However, initially there was little collaboration between the different fields. One area in which psychologists initially explored bilingualism was memory organisation. Ervin and Osgood (1954) posited a psychological model of bilingual memory which highlighted mechanisms of memory. In their model, they differentiated between compound and coordinate memory systems, while recognizing that the two models may coexist in the same individual. The coordinate model pertained to individuals who learnt their languages in different environments and thus representations of words in their two languages are separate. However, bilinguals who learnt their two languages while using them interchangeably, develop a memory system where the representations are compounded (Keatley, 1992). Over the next few decades there was a host of

research on the compound-coordinate model using bilingual stimuli on bilinguals. Some of the research supported the model (Lambert, Havelka & Crosby 1958; Jacobovits & Lambert 1961), citing differences between individuals with compound and coordinate language backgrounds. Other research, however, vehemently criticised the model (Kolers, 1963; Diller, 1974). By the end of the 1960s, psychological research on memory systems had largely moved away from the compound-coordinate model (Keatley, 1992). This was because the model, due to its routes in behaviourism, failed to link findings about memory organization to questions about the nature of representations.

This feat was, however, achieved by psychologists who sought to link memory organization to the nature of representations. Kolers (1963) found that experiences and memories are stored separately according to representations of the original language. Macnamara (1967) and Taylor (1971) also opined that representations of words expressed in different languages are stored separately. The aforementioned studies prompted research into whether a bilingual's two language systems were wholly detached in the memory. It is at this juncture that psychologists' research on memory and cognition overlapped with linguists' research on language functioning. Linguists were interested in deciphering the rules that governed code switching amongst bilinguals and understanding whether bilinguals do actually keep their languages apart. Initial research (Kolers, 1966; Dalrymple-Alford & Aamiry, 1967; Macnamara, Krauthammer & Bolgar, 1968; Macnamara & Kushnir, 1971; Albert & Obler, 1978; Chan, Chau & Hoosain, 1983; Dalrymple-Alford, 1985) focused on the idea of a language switch which mediates when encoding stimuli from two different languages. However, it was later generally accepted that any evidence for a switch was due to the unnatural experimental stimuli rather than the act of changing languages (Keatley, 1992). This was because it was observed that bilinguals code

switch in natural discourse, ostensibly without any delay in their code switching. The focus of research on bilingualism in linguistics then switched to whether there were any rules which governed code switching.

Poplack (1980) was one of the pioneers of the notion of grammatical constraints on code switching. Her analysis of a New York Puerto-Rican community led her to conclude that there were two constraints evident amongst the bilinguals' code switching. The first she termed the free morpheme constraint, and the second the equivalence constraint. Furthermore, Pfaff (1979) stressed that code switching was governed by structural and semantic restraints which were the inevitable result of the two grammars mixing. Several other linguists subsequently proposed rules that govern code switching (Belazi et al, 1994; Klavans 1985; Joshi, 1985; Myers-Scotton, 1993, MacSwan, 2000). MacSwan's Minimalist approach to code switching holds that nothing constrains code switching apart for the requirements of the mixed grammars. The question of whether code-switching is constrained still continues to be debated in the literature (Talang-Rao, 2014; MacSwan, 2017; Lopez, 2017; Peters, 2017). Code switching amongst bilinguals has also been researched by sociolinguists. Their primary concern was how language behaviour and usage reflects speakers' social identity and characteristics. For Gardener-Chloros (2009), there are three factors which are necessary to understand why particular code switching patterns arise; firstly, factors independent of particular speakers and particular circumstances, secondly, factors directly related to the speakers, and finally, factors within the conversations where code switching takes place. For Gumperz (1982) there are six major functions for conversational code switching: quotation, addressee specification, interjection, reiteration, message qualification and personification vs. objectification. Building upon this work Valdes (1981) added mitigating as well as aggravating the illocutionary effect of speech acts. Myers-Scotton (1993) later developed her

Markedness Model which appears to be influenced by the writings of Gumperz. Myers-Scotton posits that in a multilingual community, each language is linked to certain social roles, which she labelled rights and obligations. Thus, by speaking a particular language, a participant is indicating their understanding of the situation, and their appropriate role within it. However, for Chomsky (1959) and Lipski (1978) it is futile to develop a set of principles that will predict when people will code switch, and effectively what people will say. For Lipski, since individual idiosyncratic factors play a role in code switching, determining exact utterances of code switching is a feat beyond the behavioural sciences.

Another major area which research on bilingualism has focused on is interference. Language transfer, also referred to as linguistic interference, refers to occurrences where one's understanding of one language impacts upon his or her understanding of their second language. This impact may produce negative transfers, known as interference. This is where the understanding of one language inhibits the understanding of the second language. Conversely, there are positive transfers, where one language can assist the development of the second language. Lott (1983, p.256) defines interference as 'errors in the learner's use of the foreign language that can be traced back to the mother tongue'. For Ellis (1997, p.51), interference is 'the influence that the learner's L1 exerts over the acquisition of an L2′. Many studies have purported to show that bilinguals have linguistic processing disadvantages compared to monolinguals. Some of these disadvantages include; smaller vocabulary size (Oller & Eilers, 2002), reduced verbal fluency (Gollan, Montoya, & Werner, 2002), slower response times in picture naming (Gollan, Montoya, Cera, & Sandoval, 2008), and also nonword repetition (Gibson et al., 2015; Summers, Bohman, Gillam, Peña, & Bedore, 2010). It has been posited (Li, Goldrick, & Gollan, 2017) that these disadvantages are caused because the non-target language

is activated automatically, even when a bilingual intends to speak one language, and this creates competition between the languages. Moreover, some studies claimed that bilinguals sometimes produce utterances in the non-target language unintentionally (Gollan, Sandoval, & Salmon, 2011; Poulisse, 1999). Further research suggested that this competition between the two languages of a bilingual also occurs at a phonetic level (Amengual, 2012; Goldrick, Runnqvist, & Costa, 2014, Flege, 2002; MacKay, Flege, Piske, & Schirru, 2001). Hatzidaki, Branigan and Pickering (2011) demonstrated that bilinguals are prone to interference in subject-verb and pronoun antecedent agreement computation (Hatzidaki et al., 2011). Lemhöfer, Schriefers and Hanique (2010) showed that issues may arise with gender agreement in determiner-noun phrases. The research on interference has given credence to the notion that bilinguals do not possess two independently functioning systems. If this were the case, it has been postulated (Levelt, 1989; Levelt, Roelofs & Meyer, 1999) that they would construct the intended structure and proceed unhindered to articulation as monolingual speakers do.

The debate on whether bilingualism is advantageous or not rages on to the present day. Research continues to be published which challenges the aforementioned disadvantages of bilingualism and, on the contrary, claims that bilingualism confers an advantage. These advantages have been reported for executive function (Bialystok et al., 2004) where cognitive processes control behaviour when trying to achieve a goal. An advantage in executive function has also been reported in children (Barac et al., 2014). Research has also been conducted which purports to show a bilingual advantage in cognitive ageing (Kavé et. al, 2008; Bak et. al, 2014; Perquin et. al, 2013). In addition, Bialystok et al. (2007) reported that bilinguals tended to be diagnosed with dementia four years later than monolinguals. It was concluded that bilingualism delays the onset of Alzheimer's disease. Due to the gravity of such assertions, subsequent research replicated the

study in different populations (Chertkow et al., 2010; Craik et al., 2010; Freedman et al., 2014; Woumans et al., 2015). Each study demonstrated that bilinguals and multilinguals were diagnosed with dementia on average four to five years later than monolinguals. According to one study (Alladi et. al, 2017), bilingualism led to a delay in behavioural variants of frontotemporal dementia. Furthermore, foreign language instruction in childhood and adolescence was linked to a reduction in the chance of developing mild cognitive impairment in old age (Wilson et. al., 2015).

The effect of bilingualism on the individual is an unresolved area in the literature. There are advocates on both sides of the debate, and discrepancies in research findings have led to a theoretical stalemate (Antoniou, 2019). This summary of the state of play in bilingualism research highlights that it is an area that is still vigorously investigated. However, multilingualism research, although obviously closely related, has increasingly become an independent field of research in its own right, and this is where our focus now switches.

2.2.2 Historical Development of Multilingualism Research

Traditionally, research in linguistics, sociology, neuroscience, and psychology on the phenomena of a speaker of more than one language focused on bilingualism. Up until the 1980s there was a real paucity of research on multilingualism. This led Singh and Carroll (1979) to refer to research of multilingualism as the step-child of language learning. However, over the last few decades research into multilingualism and third language acquisition has stepped out of this shadow and become increasingly conspicuous. This is because, as De Angelis states (2007, p.2), "L2 learner behaviour cannot adequately inform us about phenomena related to multilingualism." Thus, a considerable number of books have been published which deal with the multifaceted nature of multilingualism. Some of the prominent works include De Angelis's (2007) book on third or

additional language acquisition, Ringbom (2007) on cross-linguistic similarity in foreign language learning, Cenoz (2009) on multilingual education, as well as Horner and Weber's (2017) writings on the social aspects of multilingualism. Furthermore, the International Journal of Multilingualism was established in 2004. The foundations for modern day writings were laid by some seminal early works on multilingualism, an outline of the most prominent of these follows.

2.2.2.1 Braun, M. (1937)

One of the early writers on multilingualism was the German linguist Maximilian Braun (1937). As previously mentioned, he attempted to define multilingualism and identified it as a field of study in its own right. Braun wrote at a time when the prevailing discourse was on the negative impact of bilingualism on cognition (Saer, 1923; Weisgerber, 1929). However, he sought to highlight the positive aspects of multilingualism. He also distinguished between natural and learned multilingualism. For Braun, natural multilingualism, in contrast to learned multilingualism, is where the languages are acquired from birth. These notions that Braun discussed have greatly been developed further. There is now a plethora of research on what has subsequently been named simultaneous and sequential bilingualism.

2.2.2.2 Vildomec, V. (1963)

Vildomec's investigations of multilingualism were seminal to the field. He conducted extensive psycholinguistic analysis of multilingual individuals to ascertain the effect of multilingualism on the psychology of the self. He posited several observations which became the foundations of subsequent research in the field. From these observations is the suggestion that multilingualism affects the individual's linguistic performance in all of their languages, including their mother tongue. Moreover, Vildomec held that multilingual speakers have an accent in all of their

languages, including their mother tongue. He also opined that multilingual individuals rarely speak their languages at an equal level of proficiency. Rather, certain languages become associated with certain domains and milieu. For Vildomec, a multilingual individual's mother tongue largely influences the syntax and phonology of the other languages in his or her repertoire. He also introduced the idea of linguistic interference, which he believed would be more prevalent if two languages were phonetically similar. In addition, Vildomec discussed the concept of age being a huge factor in language learning. He stated that an individual who learnt a language after the age of twenty-five was far more likely to suffer from interference from previously acquired languages. Another important topic that Vildomec mentioned was the linguistic system of the multilingual. For Vildomec a multilingual has more than one linguistic system and this causes slips of the tongue and hesitation. Despite these multiple linguistic systems that he believed mulitlinguals possess, he nevertheless held that there may be central storage in the brain which multilinguals use as a switchboard for their various languages. Vildomec posited many phenomena related to multilingualim, however, he was not able at this stage to explain them. Future researchers, such as Kovác, undertook this task.

2.2.2.3 Kovác, D. (1965)

Kovác believed that multilingualism may have a negative effect where prompt responses are required to verbal stimuli. For Kovác, this was due to the fact that verbal responses are delayed for multilingual speakers and both simple and complex motor responses to verbal commands are prolonged. Kovác endeavoured to explain the cause of this delay by attributing it to the multilingual individual's large linguistic repertoire. He held that multilingual individuals' languages were not independent systems in the brain. Rather, they are interdependent systems, and accessing one of the systems inevitably leads to interference from another. Perecman (1984)

supported this view following her research on an elderly man who suffered extensive bilateral temporal hematomas after a motoring accident. She concluded that language boundaries are not well delineated in aphasic polyglot's mental grammar. For Perecman, multilingual individuals' systems clearly overlapped and this made them predisposed to mixed language errors.

2.2.3.4 Ramsay, R.M.G. (1978, 1989)

Ramsay conducted one of the first major studies which sought to understand how multilingual people successfully learn multiple languages. Following her research, she posited several variables which influence the success of language learning. These variables include the methods of instruction, motivation and attitude of the learner, aptitude, personality, communicative or sociolinguistic factors, development of maturation, and cognition. In her later work she suggests two additional variables of cognitive style and approach style. In her comparison between monolinguals and mutlilinguals she did not report any significance difference in cognitive style. However, her data regarding approach style did reach statistical significance and suggested that the right attitude was more of a determining factor than cognitive abilities vis-à-vis language acquisition. Similar to the work of Vildomec, Ramsay's research laid the foundations for future academics to explore these variables and determine the factors which lead to successful language acquisition.

2.2.2.5 Magïste, E. (1979, 1984, 1985)

Magïste's research was one of the early works concerning multilingualism and interference. She demonstrated in her initial (1979) and subsequent study (1985) that multilingual participants were slower than monolingual and bilingual participants to respond to stimuli. While she is open to the idea that age (13 to 18) may have contributed to this delay in response, she also suggests that interference among the competing language systems may be the actual cause of protracted

responses. As Magïste states, "the multilingual has a central semantic system, to which words in [different] languages are linked by language tags. Accessing this central code makes available more perceptual codes than are available to monolingual" (1985, p. 154). She thereby endorsed the idea of central storage in the brain propounded by Vildomec and supported by Kovác.

Another significant outcome of Magïste's research was her belief that acquisition of an additional language which is related to another already known language is easier than learning an unrelated one. Thus, it easier for a Dutch speaker to learn English than Chinese. This belief was supported by Azevedo (1978) who noted that learners of Portuguese who are proficient in Spanish will be aided by the structural similarities between the two languages. Azevedo also explained that this could also cause issues where phonological, morphological, syntactic and lexical features of Spanish are incorrectly applied to Portuguese.

2.2.2.6 Ringbom, H. (1987)

Ringbom was one of the first linguists to distinguish between second language acquisition and third language acquisition. Up until this time, multilingualism and the acquisition of multiple languages was seen as a sub-form of second language acquisition which involved exactly the same processes. However, linguists like Ringbom began to argue that multilingualism differs from bilingualism and deserves to be investigated as an independent field. In his research, he compared monolingual and bilingual learners of English as a third language. He discovered that the bilinguals outperformed the monolinguals. Building upon the research of Ringbom, Thomas (1998) also discovered that bilingual individuals outperformed monolinguals when learning a third language. Her research showed that English-Spanish bilinguals did significantly better than their monolingual peers when studying French. The aforementioned research was important in

the development of third language acquisition as an independent field, although one closely related to second language acquisition.

2.2.2.7 Shanon, B. (1991)

In Shanon's seminal work he describes what he calls faulty language selection in polyglots. This describes their tendency to unintentionally utter expressions in a language other than the one they intended. When this kind of negative interference occurs the polyglot has momentarily lost control of their linguistic apparatus. For Shanon, faulty language selection is not due to the speaker's inadequate language skills or a gap in their lexicon, but rather it is caused by their linguistic history. Each language in a polyglot's repertoire has a different standing and status depending on when and how they were acquired. Their languages can be placed into three groups; the dominant language(s), the subordinate language(s), and the weakest language(s). Shanon posits that it is not the mastery of each language which determines whether faulty language selection will arise but rather the linguistic history of each language. This suggests that "even when it reaches maturity, the cognitive system bears a record of its history" (p. 348). Shanon's assertions led to further research into multilinguals' learning styles and the effect on cognition (Avinor, 1994).

2.2.2.8 Edwards, J. R. (1994)

Edwards's book is a comprehensive work which examines multilingualism from the perspective of sociolinguistics. His stated aim was to trace the course of multilingualism through individuals and societies, with the hope of understanding it and realising its effect upon human life. The focus of his book is not on linguistic theories but rather the social aspect of language and how it interacts with nationalism, identity, history, politics and education. Edwards highlights what he considers to be ignorance of the scope of multilingualism and the powerful relationship there is

between languages and all aspects of social and psychological life. This book is mentioned here as seminal work in multilingualism research as it highlights the expansion of this research into several areas of educational discourse and the multidisciplinary nature of multilingualism.

2.2.3.9 Grosjean, F. (2001)

Building on his earlier works (1994, 1997) Grosjean developed a language mode hypothesis. This refers to the state of activation of multilinguals' languages and language processing mechanisms at a given point of time. For Grosjean, based on numerous psychosocial and linguistic factors, a bilingual has to decide which language to use and how much of any other of their languages is needed. This decision is usually made unconsciously. If another language is needed, then it becomes activated in the multilingual speaker's brain. Grosjean stated that this language mode is utilised for spoken language, as well as written language and sign language. Grosjean presents previously carried out research which he feels supports his language mode hypothesis (Poplack, 1981; Treffers-Daller, 1998; Caramazza et al., 1973; Grainger & Beauvillain, 1987; Dijkstra, Van Jaarsveld & Ten Brinke, 1998). Grosjean's assertions sparked a heated debate in the field about the merit of his comments (Dewaele and Edwards, 2001; Dijkstra and Van Hell, 2003). The discussion centred on whether selection and de-selection of languages in the multilingual individual's repertoire amounted to proactive activation and deactivation in their mind. This issue remains unresolved in the literature and an area for further research.

2.2.2.10 Cummins, J. (2008)

Cummins has written several important pieces in the area of bilingual education (1979, 2001a, 2005, 2007). In this influential piece, Cummins challenges what he refers to as the monolingual principle. For him it is axiomatic that in bilingual and second language immersion programs it is believed that the two languages should be kept rigidly separate. Cummins advocates moving away from exclusive reliance on monolingual instructional methods and instead utilising bilingual instructional strategies that are tailored towards and conducive to multilingual learners. Cummins suggests that teachers should teach for transfer, and that their teaching strategies should draw on two or more languages. He believes that language policy within and beyond schools should foster transfer-friendly learning environments. The most suitable way to educate bilinguals and multilinguals is an area of multilingualism that has garnered a lot of attention in recent times. Cummins remains one of the prominent voices in this field.

2.2.2.11 Klein, R.M., Christie, J., Parkvall, M. (2016)

Klein et al. furthered the research of Bialystok et al. (2007) to examine the effect of multilingualism on the onset of Alzheimer's disease and other forms of dementia. Bialystok et al.'s research was supported by other studies (Craik, Bialystok, and Freedman, 2010; Alladi et al., 2013; Chertkow et al., 2010), however other large scale studies reported null results (Crane et al., 2009; Crane et al., 2010; Sanders, Hall, Katz, and Lipton, 2012; Yeung, St. John, Menec and Tyas, 2014; and Zahodne, Schofield, Farrell, Stern, and Manly, 2013). An explanation for this was offered by Valian (2015) where he points out that all of the studies that found positive evidence were retrospective while those that reported null results were prospective. He believed this was because the participants that visited the memory clinic in the retrospective methodology may not be representative of the general population, whereas using the prospective methodology,

the sample is relatively unselected and random and thus more credible. In an attempt to overcome this problem, Klein et al. used a population based study which was about the correlation of incidence rates. While they accepted that their research was not prospective, they held that despite data on two key variables being retrospective it did not fall subject to the criticisms outlined by Valian. They tentatively reported considerable evidence for lower rates of senile dementia as the mean number of languages increases. However, they suggest that further research be carried out in order to improve the research methods.

2.2.3 Types of Multilingual Individuals

Multilinguals are not a homogenous group, but rather a group of people containing many variables. One of these variables is the way that they acquired their languages, and also the sociolinguistic context in which their languages are spoken (Genesee, Paradis, and Crago, 2004; Goldstein, 2004). This has implications that are of interest to the linguist, sociolinguist, neuroscientist, and psychologist. Researchers have a made a clear distinction concerning the way the multilingual individual acquired his or her languages. They have differentiated between what they call a simultaneous bilingual and a sequential bilingual. As Paradis (2007) highlights, the distinction made between a simultaneous and a sequential bilingual would also apply to mulitlinguals. Simultaneous bilinguals are those that begin to acquire both languages at the same time from birth, or at least before the age of three (De Houwer, 1995; McLaughlin, 1978a). This is usually achieved where a child has mixed heritage parents. Subsequently, each parent speaks to the child in their language, allowing the child to be exposed to two languages from the outset. The input of the two languages can also originate from one parent, or as is often the case in immigrant families, the child acquires one language at home and the societal language in pre-school. Sequential bilinguals or multilinguals are those who acquire their second language after

the first one is well established. Simultaneous and sequential multilinguals may have what has been called a minority language, which is rarely spoken outside the home and has little or no cultural, educational or political status in the society (Paradis, 2007). On the contrary, they may be considered majority language bilinguals, when both of their languages are widely spoken in the community and have similar status in the society. For example, in parts of Belgium, Dutch and French speaking bilinguals can be considered to be majority language bilinguals.

2.2.3.1 Simultaneous Bilingual/Multilingual Children

Simultaneous bilinguals or multilinguals are exposed to their languages from very early on. In fact, they are most likely unaware that they are being spoken too in more than one language. This has caused intrigue amongst researchers as they ponder whether these infants have one linguistic system which they later separate, or whether somehow their linguistic systems always run parallel to each other (Genesee, 1989; Leopold, 1949; Volterra & Taeschner, 1978). Another issue which has interested researchers is whether simultaneous bilingual or multilingual children are affected by their multilingualism, especially in comparison to their monolingual peers. After all, they are likely to receive less input than a monolingual as their input is shared between different languages. Hoffman (1985) and Maneva (2004) conducted case studies of early trilingualism and reported that the least dominant language may have deficiencies in some grammatical aspects. Moreover, researchers found that speech perception abilities in simultaneous bilingual infants is delayed. Their ability to develop from discriminating between basic phonetic contrasts to possessing language specific abilities takes a few months longer (Bosch & Sebastián-Gallés, 2003; Burns, Werker & McVie, 2003).

Some studies have been done which focused on the development of monolingual and simultaneous bilingual or multilingual children's language. It was found that some bilingual

children lag behind their monolingual peers in their linguistic acquisition when examining acoustic cues and the prosodic structure of words (Kehoe, 2002; Lleó, 2002; Kehoe, Lleó & Rakow, 2004). Furthermore, the simultaneous bilinguals displayed some crossover effects from one of their phonological systems to the other (Ball, Müller & Munro, 2001; Kehoe et al., 2004; Keshavarz & Ingram, 2002; Paradis, 2001). Fennell, Polka and Werker (2002) examined simultaneous bilinguals' lexicon building abilities. They found that bilinguals' ability to learn minimal pairs emerged around three months later than monolinguals. Hoff and Mackay's study (2005) of English-Spanish bilinguals in the South of Florida reached the same conclusion. They stated that children who live in environments where they are exposed to two languages build their vocabulary at a slower rate initially. Nicoladis's (2002, 2003) research focused on French-English bilinguals. She noted that in French, compound nouns are always left-headed, such as *homme-orchestre* 'man orchestra'. In contrast, in English compound nouns are always right-headed, such as *straw hat* or *traffic light.* Nicoladis compared 25 French-English bilinguals with 25 English monolingual children. She found that the bilingual children showed signs of crosslinguistic transfer in the production of compound nouns. The bilingual children reversed nearly twice as many of their English compounds compared to the English monolinguals. Nicoladis concluded that the bilingual children showed evidence of crosslinguistic interference. As previously mentioned, Paradis (2007, p.16) states that "the issues raised and findings reported for bilingual children would also apply to multilingual children." Nevertheless, there is an opportunity for further research here to see whether trilingual children have even more crosslinguistic interference than bilinguals. Is it the case that the more languages a simultaneous multilingual child has, the more he or she will suffer from crosslinguistic interference?

A considerable amount of research has been done on standardized measures of expressive and receptive vocabulary development in simultaneous bilingual toddlers, pre-school and school age children. This research shows that simultaneous bilinguals score lower than monolingual peers in each of their languages (Cobo-Lewis, Pearson, Eilers, & Umbel, 2002; Marchman et al., 2004; Nicoladis & Genesee, 1996; Pearson et al., 1993). Vocabulary size reflects quantity of input, and since this input is shared for bilinguals between two languages, they tend to have less input than their monolingual age mates. While it is logical that simultaneous multilingual pre-school children would be even more susceptible to this issue than bilinguals, once again there is a lack of empirical research data that supports such a claim.

2.2.3.2 Sequential Bilingual/Multilingual Children

Sequential bilinguals and multilinguals differ from simultaneous bilinguals and multilinguals as they already have an established language or languages before they proceed to learn their second or third language. This means that they are older when they learn their second or third language and subsequently more cognitively developed. Researchers are interested in sequential bilinguals and multilinguals as they provide an opportunity to investigate whether their first language influences the development of their second or third languages. Cenoz (2001) investigated sequential bilinguals who were learning their third language, English. She was interested in discovering what the source of language interference would be. Would it be the child's L1, or the child's more proficient language, or the language which is typologically closer to the target language? Cenoz's research was undertaken on Basque-Spanish bilingual school-age children who were learning English as a third language (L3). She discovered that lexical interference predominantly emanated from Spanish rather than Basque, regardless of which of the two languages was the child's L1. Spanish is typologically closer to English than Basque is. This led

him to believe that the source of a sequential multilingual's lexical interference will be their language which is typologically close to their target language.

Another source of interest for researchers is understanding the rate at which sequential bilinguals catch up with their monolingual peers, and whether this processes is aided by the fact that they are more cognitively mature and have an existing lexicon as a resource for insight into conceptual-lexical mappings (Paradis, 2007). Winitz et al. (1995) posited that sequential bilinguals are able to acquire vocabulary at a faster rate than usual. Using the Peabody Picture Vocabulary Test (PPVT), they found that a Polish L1 child was able to develop his vocabulary knowledge by four years in just 12 months. Other research has shown that there is a need for sequential bilinguals to close a lexical gap with their monolingual peers. The paper of Umbel et al. (1992) showed that receptive vocabulary knowledge of English was lower for Spanish L1 children in America than their monolingual peers. This study also utilized the PPVT. A similar study (Cobo-Lewis et al., 2002) conducted in Miami with Spanish L1 English L2 sequential bilinguals also showed that they fared worse off on standardized tests for productive and receptive vocabulary. This gap remained until 5th grade and then started to narrow. Further evidence of sequential bilinguals trailing their monolingual peers was provided by Windsor and Kohnert (2004). Their research was conducted with Spanish L1 and English L2 bilinguals along with monolingual native English speaking participants. Their research focused on word recognition and picture naming. The results were similar for word recognition, however, for picture naming the monolinguals fared better for both accuracy and response time.

Researchers have also investigated morphosyntax development in the L2. Many have reported that the L1 of sequential bilinguals affects the morphosyntax development in their L2. Paradis (2004) reported that children whose L1 was English encountered error patterns in their L2

French object pronouns which indicated transfer from English. Similarly, Harley (1989) found that error patterns in the L2 French reflected transfer from English. However, Dulay and Burt (1973) studied Spanish L1-English L2 sequential bilingual children and reported adverse results. They found that 85% of the errors made by the children were developmental in nature and not originating from transfer from Spanish.

Researchers have also been keen to study whether sequential bilingual children are able to bridge the gap with their monolingual peers with regards to morphosyntactic knowledge and become native like. Bialystok and Miller (1999) conducted a study consisting of three groups; 33 L1 Chinese bilinguals whose L2 is English, 28 L1 Spanish bilinguals whose L2 is English, and 38 native speakers of English. They reported that there is "no doubt that learners who arrived in Canada at a younger age and began learning English earlier had a better chance of doing well than learners who arrived later" (p.143). Moreover, "individuals who begin learning a second language at an older age are always handicapped with respect to younger learners even for relatively advanced starting ages" (p. 143). It appears that age appears to have an effect on morphosyntactic knowledge for sequential bilinguals if their initial exposure to the L2 doesn't begin in early childhood. Other studies have reported similar findings (Jia, 2003; McDonald, 2000; Weber-Fox & Neville, 2001).

2.4.3.3 Comparing Simultaneous and Sequential Bilingual/Multilingual Children

What is evident from the research that has been conducted on the two groups of bilinguals is that although both sets of bilinguals have differential proficiency levels between their languages, the proficiency gap between sequential bilinguals' two languages is greater. Moreover, sequential bilinguals may not attain native-like proficiency if their exposure to the L2 does not begin in early childhood. On the other hand, although simultaneous bilinguals tend to have a dominant

and non-dominant language, they are more likely to achieve native-like proficiency in both languages. It must be noted that these proficiency differences between simultaneous and sequential bilinguals may diminish by the end of primary school depending on whether the L2 is supported in the community and educational system (Oller & Eilers, 2002; Gathercole & Thomas, 2005). It will be interesting when conducting the research with the polyglots to see whether their initial experience of a second language leads to shared beliefs and perceptions about language acquisition.

2.2.4 Multilingual Competence

It is pertinent when conducting a study into a group of people to clearly define that group so that one knows who is included in this group and who is excluded. Hence the nature of this study necessitates a discussion on what constitutes a multilingual or a polyglot. Their linguistic proficiency is one of the determining factors in categorization of the group. Many definitions of the required level of proficiency have been posited by academics. Several of these focus on the bilingual, with the intention that the same level of proficiency would be required for any subsequent languages. As Mackey (1970, p.555) states, when defining bilingualism we must "include the use not only of two languages, but of any number of languages. We shall therefore consider bilingualism as the alternate use of two or more languages by the same individual." Moreover, Bassetti and Cook in their article on language and cognition state that "the term bilingual includes multilingual, trilingual and so on…" (2011, p.145). In addition, Haugen (1956) included multilingualism under bilingualism and stated that the term bilingual includes a polyglot (p.9).

Hoffmann (1991) opines that "some of the definitions of bilingualism that have been put forward are surprisingly vague, and even contradictory" (p.15). Bassetti and Cook (2011) highlight that

most definitions can be clustered into two groups. The first group considers maximal proficiency to be necessary, while the other group advocates minimal proficiency. At the maximal proficiency end of the spectrum are linguists like Leonard Bloomfield and Christopher Thiery. Bloomfield defines bilingualism as "native-like control of two languages" (1933, p.56). Thiery discussed the notion of a *true* bilingual in his 1978 chapter titled "True Bilingualism and Second-Language Learning." He proceeded to define a bilingual as "someone who is taken to be one of themselves by the members of two different linguistic communities, at roughly the same social and cultural level" (1978, p.146). He pointed to the futility of using equality between two linguistic performances to define bilingualism as there is no means of determining whether someone speaks two languages equally well. At the other end of the spectrum are linguists that hold that bilingualism constitutes the use of more than one language, regardless of the level of proficiency. Haugen asserts that bilingualism starts at "the point where a speaker can first produce complete meaningful utterances in the other language" (1953, p.7). Other advocates of minimal proficiency in the L2 are John MacNamara and François Grosjean. For MacNamara, a bilingual is a person who possesses a minimal competence in only one of the four language skills, listening, speaking, reading and writing, in a language other than his mother tongue (1967). While Grosjean (1989, p.6) states that "the bilingual is rarely equally or completely fluent in the two languages."

Defining bilingualism at either end of the spectrum is fraught with problems. As Baker (2011) opines, a maximalist definition which requires native-like proficiency is too extreme, while a minimalist definition is also problematic. The maximalist definition does not consider the different uses that a multilingual may have for their languages. A multilingual may use his or her different languages for different purposes and in different domains. They may operate with ease

within these domains, so does failure to maneuver across *all* domains render this person deficient? Let's suppose that an L1 English speaker grows up in Japan, becoming a sequential bilingual. In their late teens they then begin to drive in Japan. All of their interactions with mechanics are subsequently in Japanese. Such a bilingual may therefore be stronger in their non-dominant language when talking technically about cars. Does this deficiency in this domain in their L1 mean that they should not be classified as a native speaker of their mother tongue? If not, then why should certain deficiencies in the L2 result in the individual not being considered bilingual? As Grosjean (1989) explains:

> The bilingual uses the two languages-separately or together-for different purposes, in different domains of life, with different people. Because the needs and uses of the two languages are usually quite different, the bilingual is rarely equally or completely fluent in the two languages. Levels of fluency in a language will depend on the need for that language and will be domain specific (hence the "fossilized" competencies of many bilinguals in each of their two languages). (p.6)

Many aspects of bilingualism are researched by academics. These include linguistic systems in the brain, interference, language processing, the cognitive effects of bilingualism, and many other phenomena. Another criticism of the maximalist definition of bilingualism is that it fails to acknowledge that even a smidgen of knowledge of another language can have a tangible effect on such areas. Yelland, Pollard, and Mercuri (1993) demonstrated that only one hour of Italian a week for a year was sufficient for a group of L1 English kindergarten children to change their concept of 'word'. Furthermore, Boroditsky (2001) reported the effects on non-language cognitive tasks of learning an artificial language for a short period of time. Hence, it is wrong and unproductive to conclude that meaningful studies can only be done with *true* bilinguals who

have achieved native-like proficiency. It must also be noted that native-like proficiency is not a wholly objective term. Even within unilingual populations native speaker proficiency varies considerably.

The minimalist definition of bilingualism is problematic because it is too inclusive. If all that is required is some meaningful utterances in a second language, then secondary school language classes around the world consist entirely of bilingual students. This would make the task of finding solely monolingual individuals for research on bilingualism extremely challenging. While one may acknowledge that a bilingual is rarely equally competent in their two languages, as they are not the sum of two monolinguals (Grosjean, 1989), nevertheless this does not mean that one must advocate a definition that is so wide it is almost all-inclusive.

The definitions posited have also been criticised for being single dimensional. For Hamers and Blanc (2000), such definitions solely focus on the level of proficiency in both languages, ignoring non-linguistic dimensions, and thus they only refer to a single dimension of bilingualism. In an attempt to address this, some definitions of bilingualism focus on usage rather than proficiency, suggesting that proficiency need not be *perfect.* Weinreich (1953, p.1) defines bilingualism as "the practice of alternately using two languages." Moreover, Mackey states that bilingualism is also "the alternate use of two or more languages by the same individual" (1970, p.555). Again, the aforementioned definitions are not comprehensive. The problem is that the definitions do not delve into the different ways a language may be used. Traditionally, there are four language skills which both monolinguals and bilinguals encounter; reading, writing, listening and speaking. It is not necessarily the case that a bilingual will be able to alternately use two languages across the range of language skills. A bilingual may, for example, listen to their native language and then seamlessly alternate to listen to their L2 without any reduction in

comprehension. They may, however, not be able to match this feat when speaking. Likewise, there are many individuals who can speak two or more languages fluently, but they are not able to write like a native. Should such an individual be classified as a bilingual? For Bassetti and Cook (2011), "Someone who is a fluent listener or reader of a language but cannot speak it is indeed a bilingual..." (p.144). While this point of view has some credence, the analogy that the researchers use does not hold up to scrutiny. They likened an individual who's listening and reading skills are exemplar but is unable to speak, to a monk with a vow of silence. The obvious difference here is that the monk has the ability to speak, but chooses not to, whereas the individual with exemplar reading and listening skills is unable to speak. Despite the weakness of analogy, the point is still valid. Both Weinreich and Mackey would have to elaborate further about the skills which are required to be alternately used for the person to be deemed a bilingual.

Definitively defining what a bilingual is, is not a straightforward task. Indeed it may be "impossible ever to provide a satisfactory definition of bilingualism" (Bassetti and Cook, 2011, p.144). It is a phenomenon which is researched in an array of disciplines, and for different purposes. The rationale for any given study will influence and direct the way bilingualism or multilingualism is defined. For example, a use-based definition is adequate for educators trying to formulate educational policy. They might define a bilingual child as one "who regularly needs to understand or use more than one language (e.g., at home and at school)" (Frederickson & Cline, 2002, p. 246). Whereas when investigating bilingual cognition the definition will be tailored to include the kind of person that will give valuable insight into what is being studied. As Bassetti and Cook (2011) highlight:

> For the purposes of bilingual cognition research, a bilingual is someone who knows more than one language, regardless of ability to produce the languages, and regardless of

> whether the languages are spoken or written. While language production can be evidence of knowledge, there is no evidence that it is needed for the process of acquiring new concepts. Nor is it is necessary to know the spoken language, as new ideas can be acquired by reading. (p.144)

The present study is focused on the beliefs and practices of polyglots. The idea is to gain insight into the practices of people who are successful and excel at what they do. This does not require perfection. However, a minimalist definition would result in data being collected from people who may be described by themselves as mediocre language learners. A detailed discussion on the participants and the rationale for their participation can be found in the methodology section.

2.2.5 Multilingual Education

Multilingualism research has axiomatically increased in recent times across several academic fields. One area which has witnessed a growth of research is multilingual education. The way multilinguals are educated can have a long-lasting and profound effect on the way they perceive multilingualism and language education. As a result, an overview of multilingual education is required. A myriad of definitions have been posited for multilingual education, and similarly to definitions of multilingualism they often vary depending on the academic discipline from which they originate. Cummins (2007, 2009) and Baker and Garcia (2007) put forward a sociocultural educational perspective. They advocate for school subjects to be taught through the medium of more than one language which will in turn enhance students' language skills, rather than teaching the languages as separate subjects. Research into such school curricula where content is taught through the medium of a second language has reflected positively on such an approach. It shows that students are able to vastly improve their language proficiency as well as gain content knowledge (Genesee, 1987; Hoffmann, 1998). For Cenoz (2009), it is important to consider the

aims of a school when deciding whether they are in reality providing multilingual education. He advocates multilingual education where the goal of schools and programs is to attain communicative competence and literary skills in more than two languages. The term multilingual education has also been used to refer to the education of minority language children in the dominant language of the society. Brisk (1998) reports that in the USA the term is often used to describe non-native English children's education.

Baker (2007) categorizes bilingual education programs into ten different categories, which can be divided into three major groups. Baker acknowledged that the ten types of program have multitudinous sub-varieties as demonstrated by Mackey's (1970) 90 varieties of bilingual education. Moreover, Baker recognised that the intrinsic limitation of typologies is that not all real-life examples can easily be placed in a single category. Nevertheless, the methods of each group gives one insight into the advocates' understanding of bilingual education. The first major group of bilingual education programs is predicated on a monolingual education rationale and structure. Submersion education seeks to assimilate minority language students into mainstream schools in order for them to acquire the majority language. Subsequently, the curriculum is delivered through the majority language and no emphasis is given to the students' native language. This type of program has been shown to lead to negative consequences such as disinterest of the students, frustration, and educational, political and economic impoverishment (Carrasquillo and Rodriguez, 2002; Skutnabb-Kangas, 2000). Skutnabb-Kangas (1981) highlights the stresses of learning through submersion education. Due to deficiencies in language, the child spends a lot of time worrying about the form and structure of the language rather than concentrating on the curriculum content. The second type of bilingual education with the aim of monolingualism in the language outcome is submersion education with pull-out

classes. In such a system, minority children in mainstream schools may be withdrawn for remedial classes in the majority language. The rationale for such a program is to keep minority children in mainstream schooling while providing the added support that they require. However, as Baker (2007) states, withdrawing children may cause them to fall behind in the regular curriculum. Moreover, being withdrawn may cause stigma as the children are seen as 'remedial', 'disabled' or 'limited in English' by their peers. The third kind of program with a monolingual framework is called segregationist education. In this type of education minority language children are educated separately from majority language speakers. They are denied access to mainstream schools and programs either by law or by practice. Baker (2007) is very critical of such a form of education stating that it is a way for the ruling elite to maintain subservience and segregation. Furthermore, Skutnabb-Kangas (1981) highlights that in such a system minority individuals "do not learn enough of the power language to be able to influence the society or, especially, to acquire a common language with the other subordinated groups, a shared medium of communication and analysis" (p.128).

The next group of bilingual education models can be considered truly bilingual in nature, but nonetheless a weak form of bilingual education. Transitional bilingual education programs consist of teaching minority children in their language until they are deemed ready to move into mainstream majority language education. The aim of such a program is assimilation, however it differs from submersion education because it affords minority children this grace period. In preparation for the children's transition into mainstream education, use of the majority language is incrementally increased while use of the minority language is reduced. While the ultimate aim of transitional bilingual education is majority language monolingualism, bilingual teachers are required to facilitate the transition. The rationale behind transitional bilingual education is that

competency needs to be established in the majority language quickly so that the children do not fall behind their peers (Mitchell et al., 1999). The second program is this group is called mainstream education with foreign language teaching. This is the experience of many children around the world. They go through mainstream schooling, and they have foreign language classes as a subject in the curriculum. The problem with this kind of education is that few people excel and become functional bilinguals. As Baker (2007) highlights, the reality for the great majority of children is that their second language "quickly shrivels and dies" (p.200). The final program in this group is called separatist education. This is where school programs seek to foster minority language monolingualism. Schermerhorn (1970) coined this kind of education as a secessionist movement. A minority language community looks to detach itself in order to obtain an independence from the majority language and culture. Although this form of education is not widespread, it can be witnessed, for example, in religious schools that seek to preserve their language and identity.

Submersion, withdrawal classes and transitional models are often referred to as bilingual education merely because bilingual children participate in them. However, this term is not wholly accurate when referring to submersion or withdrawal education, and should be referred to as a weak form of bilingual education when referring to transitional models. This is because such education "does not, by aim, content or structure, have bilingualism as a defined outcome" (Baker, 2007, p.204). In contrast, the next group of bilingual education models have bilingualism and biliteracy as integral aims in the programs and so Baker (2007) coined them 'strong' forms. The first of these bilingual education models is called immersion bilingual education. The aim of such a program is for the children to become bicultural and bilingual without suffering any loss of achievement. The immersion movement started in Montreal, Canada, in 1965. In immersion

programs, children are taught the curriculum in a second language with the aim of producing competent bilinguals. Immersion programs differ in the age at which a child begins the experience and also the amount of time they spend in immersion. In immersion programs the teachers are bilinguals themselves, and the second language is learnt through the curriculum content. The idea is for children to acquire their second language incidentally and unconsciously in the same way that their first language was acquired. Most students who join such programs are monolingual and share a lack of experience of the second language. Accordingly, the first language is also used and respected in the classroom. Research into immersion bilingual education has shown that the success reported in Canada has also spread to other countries. For example, success has been reported in Spain (Artigal, 1997; Bel, 1993; Gardner, 2000), Finland (Laurén, 1994; Manzer, 1993), Japan (Oka, 1994; Maher, 1997), Switzerland (Stotz & Andres, 1990) and many other countries. Furthermore, this success has not come at the expense of the children's first language. Artigal's research (1993) into immersion bilingual education in Spain reported that Spanish speaking children who were entered into an immersion program to acquire Catalan, became fluent in Catalan and maintained the standardized level of Spanish.

Another 'strong' form of bilingual education is called developmental maintenance and heritage language bilingual education. In such a program, language minority children use their first language as a vehicle for instruction with the aim of achieving bilingualism. The minority language is used for about half of the curriculum time and the majority language is used for the remaining time. In some developmental maintenance programs the minority language is used for a majority of the time with the belief that children can transfer concepts, skills and knowledge into the majority language. Moreover, the belief is that the minority language is more easily lost and so deserving or more attention. An example of this model in practice is the Rock Point

Community School in Arizona, USA. The school has a large percentage of Native Americans. In fact, 99% of the student body are Navajo speaking. The languages used in the bilingual education school from kindergarten to grade twelve are Navajo and English. The stated aims of the school are for the students to become proficient in both languages, as well as gaining an understanding of both the Navajo and Anglo-American culture. It has been noted that such programs preserve the language and culture of the Native American children as well as giving them a sense of identity and pride in their ancestry (Cantoni, 1996; McLaughlin & McLaughlin, 2000).

The next model of bilingual education, dual language bilingual education, occurs when there is a mixture of language minority and language majority children in the same class. Instruction is delivered in both the minority and majority language and the aim is for the students to become balanced bilinguals (Lindholm, 1991; Lindholm-Leary, 2001; Morison, 1990). Moreover, an aim of dual language programs is to nurture students who are more aware and understanding of cultural differences. A comprehensive evaluation of dual language schools was undertaken by Kathryn Lindholm-Leary (2001). She analysed data from eighteen such schools and concluded that dual language programs are successful in upholding high levels of language proficiency as well as facilitating mutual cultural awareness.

The final type of bilingual education program highlighted by Baker (2007) is bilingual education in majority languages. In such programs, two major languages are used in the school for instruction. This kind of program is popular in a society where the majority of the population is bilingual or multilingual (e.g. Luxembourg, Nigeria) or where there a large number of natives or expatriates who wish for their children to be bilingual. International schools are an example of bilingual education in majority languages. The curriculum will be in both the local language as

well as a second majority language such as English. An example of this is the American Diploma Program schools established in Saudi Arabia. Here the students study both the Saudi curriculum that is administered in government schools as well as an American curriculum.

2.3 Language Acquisition

Historically, research on language acquisition has been studied from the perspective of second language acquisition (SLA) or foreign language acquisition. The long held belief was that the findings from research into SLA can be generalized to incorporate the acquisition of a third, fourth, or any subsequent languages (Gass & Selinker, 2008, p.7). The influence of previously acquired languages on the process of future acquisition has long been disregarded by linguists and considered insignificant (Hammarberg, 2009). All attention was given to the learner's L1 and so all instances of non-native language acquisition were examined as second language acquisition. However, the last few decades have witnessed a seismic increase in third language acquisition research. Researchers have now begun to analyse learners and their acquisition process based on the intricacies of their linguistic background. This has yielded theories about language acquisition in general and challenged previously held notions. Nonetheless, a vast amount of research has been carried out on SLA which provides the foundation of language acquisition theory and so an analysis of this is an apt place to begin.

2.3.1 Second Language Acquisition

Before any meaningful discussion can proceed on research findings in SLA it is important to establish a clear understanding of what is meant by key terms, the first being 'second language acquisition'. As previously mentioned, the initial meaning of SLA was not restricted to monolinguals who were in the process of attaining a second language. The term was intended to

apply to all multilinguals who were acquiring an additional language. As Ellis states (1994, p.11), "the term 'second' is generally used to refer to any language other than the first language." A distinction is often made between *second* language acquisition and *foreign* language acquisition. Second language acquisition refers to the acquisition of a language that has an institutional and social role in the society. For example, English is learnt as a second language in parts of South Africa. In contrast, foreign language acquisition involves the learning of a language which plays no major role in the society. An example of this is people in England studying Japanese. This distinction is relevant when analysing curricula and teaching strategies. However, when the purpose of the research is to gain an understanding of cognitive styles, the bilingual mind, or language transfer, the distinction is less relevant. As Ellis (1997) opines, the learning of second and foreign languages involves the same fundamental processes. This led academics (De Bot, Lowie & Verspoor, 2005) to include foreign language learning when using the term SLA because they assume that "the underlying process is essentially the same" (p.7).

Another contentious distinction is made between language acquisition and language learning. Krashen and Terrell (1983) define acquisition of a language as a subconscious process where proficiency in a language is attained without formal teaching. This is likened to the way children acquire their first language through exposure. In contrast, learning a language involves the conscious process of studying it, thereby accumulating metalinguistic and declarative knowledge about the L2. This distinction is also posited by Galasso (2002) where he states that acquisition "is a sub-conscious process identical in all important ways to the process children use in acquiring their first language, while learning is a conscious process that results in knowing about language" (p.12). Schmidt (1990) clarifies that when linguists mention the subconscious acquisition of a language it cannot be meant in the technical sense of the word which would

imply a total lack of awareness. Neither can subliminal learning be the intended meaning which would imply not being aware of having noticed something. This is because, as he contends, it is widely accepted that a certain level of attention is required to notice something, and that noticing is required to gain new information. Rather he asserts that linguists refer to language acquisition being subconscious, meaning that an individual is unable to explain what he knows. For example, a child may correctly add an‘s’ to third person singular verbs without knowing why they do so. Once again, whether a researcher stresses the difference between language acquisition and language learning will very much depend on the nature of their study. In certain studies the terms are used interchangeably because the way the individual gained their second language is irrelevant to the phenomenon being studied. In other studies, such as those that focus on the process of language learning, the distinction may be pertinent to the study.

2.3.2 Theories of Second Language Acquisition

Several theories and hypotheses have been posited regarding how languages are acquired. These theories have multidisciplinary origins including social psychology, linguistics, and psychology. One of the foci of this research is the perceptions and beliefs of polyglots regarding their language learning feats. It is, therefore, useful to outline the theories which have historically had a huge impact on the language acquisition debate in order to establish a framework by which to analyse the participants’ responses.

2.3.2.1 Universal Grammar Theory

Universal Grammar (UG) is a linguistic theory which proposes that the ability to learn a language is innate, distinctly human and distinct from all other aspects of human cognition (O’Grady et al., 1996; Chomsky, 1986, 2007; Pesetsky, 1999). Moreover, human languages, despite their clear diversity, have some rudimentary similarities and structural rules which are

attributable to innate principles, independent of sensory experience. A prominent proposer of UG is the linguist Noam Chomsky, however, other linguists such as Lydia White have advocated UG in second language acquisition. Chomsky (1986) describes UG as an intricate and highly constrained structure which consists of various subsystems of principles with a limited degree of parametric variation. The exact nature and sum of these parameters have not been exhaustively provided. Baker (2001) discusses 10 parameters, while Fodor and Sakas (2004) list 13, however, they emphasise that their lists are not complete. Moreover, it should be noted that only three parameters occurred on both lists (Haspelmath, 2007). Linguists' estimations for the number of parameters vary greatly from tens to hundreds (Fodor, 2003; Roberts and Holmberg, 2005; Kayne, 2005). Advocates of UG have been categorised as arguing for either a strong form of UG or a weak form. The strong form of UG is heavily associated with Chomsky's theory, although there are other ways the notion that the human brain is specially wired for human language learning can manifest itself. Strong forms do, however, advocate that UG is supported by a language organ which is a part of the brain which is specifically associated with language learning. In contrast, the weak form of UG is based on the idea of a more general system of learning mechanisms and perceptual and articulatory abilities. It recognises that there are commonalities between languages and, for example, innate constraints on the structure of human language due to our physiology, cognitive abilities and brain structure, without taking the further leap of suggesting a language organ.

A number of arguments have been put forward in support of UG theory (Dąbrowska, 2015). Firstly, it has been observed that there are certain language universals; patterns that occur systematically across natural languages and are potentially true for all of them. Chomsky (2000) states that "in their essential properties and even down to fine detail, languages are cast to the

same mold" (p.7). He continues to state that an alien scientist, following observation of human language, may conclude that there is a single human language with differences only at the margins. Moreover, Stromswold (1999) states that, "in essential ways all human languages are remarkably similar to one another" (p. 357). The linguist Joseph Greenberg (1963), derived forty-five universals following an analysis of thirty languages. However, typologists such as Evans and Levinson (2009) give counter examples to nearly all of the proposed universals. Another argument put forward for UG is the idea of convergence. This is the claim that children are exposed to different input yet converge on the same grammar. As Crain et al. (2009) state, "…every child rapidly converges on a grammatical system that is equivalent to everyone else's, despite a considerable latitude in linguistic experience" (p.124). A number of recent studies (Chipere, 2001, 2003; Street and Dąbrowska, 2010, 2014) have challenged the notion that children converge on a common grammar. The poverty of the stimulus argument claims that children have linguistic knowledge which they could not have acquired from available input. "Universal Grammar provides representations that support deductions about sentences that fall outside of experience…" (Lidz and Gagliardi, 2015). Once again this particular argument is debated in the literature (Pullum and Scholz, 2002; Lasnik and Uriagereka, 2002).

A related argument is the lack of negative evidence argument. This is the belief that language learners must generalize beyond the data they are exposed to, yet they cannot overgeneralize. In order to do this they would need negative evidence to align their grammar with the speech community. Since such evidence is not available, UG must be what constrains the learner's generalizations. Those who reject this argument point to the fact that parents do give their children corrective feedback and also request clarification. Studies have shown that this can have a positive corrective effect on the developing grammar of a child (Demetras et al., 1986; Saxton

et al., 1998; Saxton, 2000; Chouinard and Clark, 2003). They hold that this acts as a form of negative evidence. Advocates of UG also highlight the fact that we are the only species that has language. Chomsky (2000, p.50) states that "To say that language is not innate is to say that there is no difference between my granddaughter, a rock and a rabbit" in their language acquiring capabilities. For Chomsky there is something unique in human beings that enables them to acquire language. The question remains whether UG satisfactorily explains this phenomenon. Is it language specific, or can it be attributed to more general cognitive processes? Tomasello et al. (2005) discuss other characteristics which are unique to human beings. Moreover, Janik and Sayigh's (2013) research on bottlenose dolphins questions whether human communication is really that different from complex animal communication. Supporters of UG also point to the ease and speed of child language acquisition. They hold that children acquire complex grammatical systems by exposure alone and with no formal instruction (Chomsky, 1999; Guasti, 2002). Critics have questioned whether children acquire language from mere exposure alone, citing studies conducted on hearing children with deaf parents (Sachs et al., 1981). Moreover, they have stressed the effect of the quality of the input a child receives on linguistic competence (Dąbrowska, 2012).

Linguists (Stromswold, 2000; Guasti, 2002) who favour UG as an explanation for human language acquisition also point to what they believe is the uniformity of children's language journey. They hold that children go through the same stages at approximately the same ages despite a lack of uniformity in the exposure and input. As Stromswold states, "within a given language, the course of language acquisition is remarkably uniform…" (2000, p.910). For Stromswold this uniformity indicates that language acquisition is predetermined by an innate program. Once again detractors question the premise of UG advocates' arguments. Studies have

shown vast individual differences in the rate and structure of language development (Shore, 1995; Goldfield and Snow, 1997; Peters, 1997; Huttenlocher, 1998) as well as grammatical development (Fox and Grodzinsky, 1998; Maratsos, 2000; Huttenlocher et al., 2002).

Researchers (Fodor, 1983; Gleitman, 1981; Crain and Lillo-Martin, 1999; Stromswold, 2000) have also claimed that the language faculty develops according to a biologically determined timetable. Fodor notes that language acquisition is 'highly sensitive to maturational factors" and "surprisingly insensitive to environmental factors" (1983, p.100). There is, however, a vast amount of research that suggests that the amount and quality of input play a significant role in language acquisition (Huttenlocher, 1998; Huttenlocher et al., 2002; Ginsborg, 2006; Hoff, 2006). While it has been acknowledged that maturation plays an important role in acquisition, as Dąbrowska opines (2015), "the existence of maturational effects does not entail the existence of an innate UG: they are, at best, an argument for general innateness, not linguistic innateness" (p.14). Despite the clear debate present in the literature, UG remains very relevant until the present day. This is also the case with Krashen's Monitor Theory.

2.3.2.2 The Monitor Theory

Linguist Stephen Krashen's Monitor Theory placed him at the forefront of language acquisition research which specifically focused on SLA. Although his theory has since been the subject of much criticism (Gass & Selinker, 1994; Gregg, 1988; McLaughlin, 1987; Towell & Hawkins, 1994; Zafar, 2011), it is outlined here as it is still historically relevant and "particularly influential among practitioners, and it has also laid the foundation for important ideas in contemporary theorizing within SLA" (Van Patten & Williams, 2015, p.25). Krashen proposed the Monitor Theory in his influential text Principles and Practice in Second Language

Acquisition (1982). The theory posits five hypotheses about second language acquisition and learning:

- The Acquisition Learning Hypothesis
- The Monitor Hypothesis
- The Natural Order Hypothesis
- The Input Hypothesis
- The Affective Filter Hypothesis

The Acquisition Learning Hypothesis differentiates between acquisition and learning as the two independent ways that adults develop L2 proficiency. For Krashen, acquisition occurs passively and unconsciously via implicit, informal, or natural learning. Rather than being aware of the rules of a language, the learner gradually gets a feel for what is correct subconsciously, similarly to the way a child acquires their first language. This is made possible by our inbuilt Language Acquisition Device (LAD) (Krashen & Terrell, 1988). In contrast, learning involves consciously and explicitly knowing about language. Learning results in metalinguistic knowledge and awareness. The implication of the first hypothesis is that explicit teaching and learning is unnecessary and inadequate for second language acquisition. Critics of the first hypothesis question whether the LAD is fully functional in adults who have passed puberty (McLaughlin 1978b, 1987; Gregg, 1984). Even Chomsky, an advocate of the LAD, holds that it is weakened in adults (1972). In defence of the aforementioned criticism one only need point to an adult L2 learner who has reached native like proficiency. As previously discussed, establishing native like proficiency is no mean task. Another criticism of the hypothesis is the lack of clarity offered for key terms like acquisition/learning, implicit/explicit, and subconscious/conscious. In addition, it

is not clear how two separate language systems operating within one individual can be utilised by L2 learners (Gass & Selinker, 1994).

The Monitor Hypothesis is the claim that people use the acquired system when they speak naturally. The learned system is overlooked in favour of the acquired one (Krashen, 1981, 1982; Krashen and Terrell, 1988). The learning system merely acts as a monitor helping to plan, edit and correct speech. However, this function is only activated when the learner has enough time, consciously focuses on form and is aware of the rule. Gregg (1984) criticises the limited function that learning is given in comparison to acquisition. To counter the hypothesis he demonstrates how learning is also utilized in comprehension. McLaughlin (1987) is very critical of the hypothesis. He claims that speech is a rule-governed system which is learned. He challenges Krashen's assertion that children are superior to adults in L2 acquisition due to their lack of the monitor. He highlights research (McLaughlin, 1987) that has shown adult learners to be just as capable as children at attaining an L2. Moreover, although acknowledging that the hypothesis has gained traction with practitioners, he denounces it for its lack of empirical evidence.

The Natural Order Hypothesis is based on findings that suggest that there is a certain sequence or natural order for the acquisition of grammar. Krashen (1987) cited particular studies to substantiate this claim. Firstly, Brown's study (1973) reported that children acquiring English as a first language tend to acquire certain grammatical morphemes earlier than others. Moreover, De Villiers and De Villiers (1973) confirmed Brown's results. In the years that followed, Dulay and Burt (1974, 1975) reported that there also appeared to be a natural order for the acquisition of grammar for children acquiring English as a second language. The learners' F1 also showed to be irrelevant, however, the natural order for grammatical morphemes was different to those reported by Brown. Other researchers subsequently supported the findings of Dulay and Burt

(Kessler and Idar, 1977; Fabris, 1978; Fathman, 1975; Makino, 1980). Researchers also reported a similar natural order for the acquisition of grammar amongst adults (Andersen, 1976; Bailey, Madden and Krashen, 1974; Christison, 1979). Furthermore, Krashen refers to unpublished papers which affirm the hypothesis in other languages; Bruce (1979) and Van Naerssen (1981) in Russian and Spanish respectively. This hypothesis is not without its critics. Gass and Selinker (1994) and McLaughlin (1987) have questioned the studies which address English grammatical morphemes. Moreover, Zafar (2011) believes that Krashen has overlooked the considerable influence of L1 on L2 and the role of positive and negative transferences (p.142).

For Krashen (1982, p.20), the Input Hypothesis is of great significance theoretically and practically because it attempts to answer what he believes to be the most important question in the field of linguistics: How do we acquire language? The hypothesis applies to language acquisition rather than language learning and lays down the path for second language learners to move through the natural order of acquisition of grammatical structures. The hypothesis states that learners need comprehensible input (i+1) to progress from their current level of acquisition to the next level. Comprehensible input is explained as input which is a little beyond the learner's current understanding of meaning. The Input Hypothesis supposes an innate LAD which enables comprehensible input to lead to language acquisition. Similarly to previous hypotheses, the Input Hypothesis is scrutinised for not adequately defining its terminology. Gregg (1984) and Gass (1997) both criticise the hypothesis for not clearly defining what comprehensible input is. Krashen (1985) mentions that learners should receive comprehensible input in sufficient amounts and right quantities. However, no indication is given as to how to ascertain what sufficient amounts or right quantities are. Moreover, Swain (1993) finds fault with the hypothesis for solely focusing on the role of input to the exclusion of output. According to

Swain, language production can also aid the language acquisition process by allowing them to identify gaps in their linguistic knowledge and subsequently rectify these deficiencies with suitable input.

The final hypothesis, the Affective Filter Hypothesis, accounts for affective variables which play a role in facilitating or hindering the transfer of input to SLA. The notion of a filter was first proposed by Dulay and Burt (1977) and subsequently advocated by Krashen. (1982). He states that there are a number of variables which relate to success in second language acquisition. These variables can be placed into three categories: motivation, self-confidence and low anxiety. Krashen notes that learners with high motivation generally do better in SLA. Moreover, performers with self-confidence and a good self-image tend to be more successful in SLA. Finally, he claims that low anxiety seems to be conducive to SLA, whether it is personal anxiety or classroom anxiety. The presence of any of these variables raises an effective filter which forms a mental block and impedes SLA despite comprehensible input. Krashen remarks that the filter hypothesis "explains why it is possible for an acquirer to obtain a great deal of comprehensible input, and yet stop short (and sometimes well short) of the native speaker level" (1982, p.32). Krashen likens the filter to the fossilization mechanism introduced by Selinker (1972). The Affective Filter Hypothesis can positively affect pedagogic practices according to Krashen. Just as the Input Hypothesis highlights the importance of comprehensible input, the Affective Filter Hypothesis implies that our pedagogical goals should also be to create an environment which encourages a low filter. The hypothesis has also drawn negative comments from SLA researchers. According to McLaughlin (1987), "the affective filter hypothesis provides no coherent explanation for the development of the affective filter and no basis for relating the affective filter to individual differences in language learning" (p.56). Towell and

Hawkins (1994) also critique the models failure to explain the extent to which the variables limit internal mental mechanisms to process a second language. In addition, the hypothesis has been criticised for declaring that children do not possess the affective filter despite the fact that children also experience differences in non-linguistic variables such as motivation, self-confidence and anxiety. Finally, Gregg (1988) highlights the case of a Chinese second language learner who achieved native-like proficiency except for a single grammatical element. He questions how the filter evidently let out all of the information but withheld only the third-person singular. Krashen does not explain how the filter determines which parts of the language are to be blocked.

2.3.2.3 The Acculturation Model

Another very influential model in SLA research is Schumann's Acculturation Model (1978). The model is rooted in social-psychology and maintains that there are various social and psychological variables which gather into a single variable, acculturation. Schumann defines acculturation as the social and psychological integration of the learner with the target language (TL) group (1986, p.379). He holds that the model predicts SLA success to the degree they acculturate to the target language group. For Schumann, it is important to distinguish between two kinds of acculturation. In the first kind, the learner is socially integrated with the TL group and creates enough contact with TL native speakers to facilitate his acquisition of the language. Moreover, he or she is psychologically open to the TL so the input which he receives becomes input. In the second kind of acculturation the learner also regards the TL group as a reference point and subsequently endeavours to adopt their life styles and values either consciously or subconsciously. He makes this distinction to highlight the fact that adoption of the lifestyle and

values of the TL is not necessary for successful acquisition of the TL, rather social and psychological contact with the TL group is.

The social variables are concerned with the relationship between the second-language learning group and the target language group. Social variables can either facilitate or impede contact between the two groups. This will affect the acculturation of the language learning group which will in turn affect their acquisition of the target language. The first social variable is dominance. If the second language learning group is politically, culturally, technically, or economically superior to the TL group it will impede their acquisition of the target language. Schumann gives the example of the French colonists being superior to the Arabic speaking Tunisians and so not seeing a need to acquire Arabic (1986, p.381). If the second language learning group is inferior to the TL group, this may lead to them resisting to learn the TL. For example, American Indians failing to acquire English from the dominant Anglo group. For Schumann the optimum condition is when the two groups are roughly of an equal status. Here, acculturation is likely to occur because contact between the two groups will be more extensive and subsequently the second language learning group's acquisition will be enhanced. The second social variable which Schumann expresses (1986) is assimilation, preservation and adaptation. If the second language learning group assimilates, then it gives up its own values and lifestyle and adopts those of the TL group. This maximizes contact between the two groups and improves acquisition of the target language. If the second language group picks preservation as integration strategy, then it rejects the values and lifestyle of the TL group and maintains its own lifestyle and values. This is bound to cause distance between the two groups and make it unlikely that language acquisition will occur. If the second language learning group chooses adaptation as its integration strategy, then it adapts to the values and lifestyle of the TL group, but also maintains its own values and lifestyle

for contact within the group. Such a scenario leads to varying degrees of contact between the two groups and subsequently varying degrees of language acquisition.

The third social variable, enclosure, refers to the extent to which the two groups share the same churches, schools, clubs, recreational facilities, crafts, professions and trades. If the two groups do share these social constructs then enclosure is said to be low, and consequently contact between the two groups frequent, and acquisition likely. On the other hand, if they do not share these social constructs then enclosure is said to be high, contact reduced, and opportunities for acquisition of the TL greatly reduced. The fourth social variable is cohesiveness, but it also related to size. If the second language learning group is cohesive then it is more likely that its members will not mix with the TL group. Moreover, if the second language learning group is large, there is more likely to be intragroup contact than intergroup contact. Both of these social factors will reduce the likelihood of second language acquisition. The next social variable which Schumann mentions is congruence. This concerns how similar the culture of the TL group and the second language learning group are. If they are similar, social contact is potentially more likely which would result in SLA. However, if the cultures differ greatly, there will inevitably be less intermingling between individuals of each group, making SLA less likely. The following social variable is attitude. Schumann maintains that if the two groups have positive attitudes towards each other, then this will facilitate second language acquisition. However, if the two groups view each other negatively, it makes assimilation an unrealistic goal and therefore impedes language acquisition. The final social variable which Schumann mentions is the intended length of residence in the target language area for the second language learning group. If they intend to remain for a lengthy period of time, they are more likely invest in the process and make contacts with the TL group, thereby aiding language acquisition. However, if their

intended length of stay is short, they are less likely to exert themselves which may lead to preservation and little language acquisition.

Schumann included four psychological variables in his model which he also refers to as affective variables (1986). In contrast to social variables which concern language learning by groups of people, the psychological variables relate to individual's language learning. Schumann (1986) concedes that an individual "may learn under social conditions which are not favourable for SLA and may not learn under social conditions which appear to be favourable" (p.382). This makes one question the relevance of the social variables he outlines. However, he stresses that the psychological variables are affective in nature, by which he means having an even greater and more direct impact on language learner success. The first psychological variable which Schumann outlines is language shock. Stengal (1939) likened speaking in a second language to wearing fancy dress. Adult learners will be more self-conscious and fear mockery and ridicule, whereas children see language as a method of play and gets pleasure from communicating. The more adults can preserve these infantile characteristics, the more likely they are to succeed in their acquisition of the TL. For Schumann, language shock must be overcome in order for the second language learner to have a chance of success. The second psychological variable is cultural shock which refers to the disorientation, stress, anxiety and fear that a learner feels when entering into a new culture. This mental state can produce a powerful syndrome of rejection which diverts attention and energy away from language acquisition. In such a scenario, the learner may fall into despair and become incapable of doing what is necessary to become bilingual. The third psychological variable, motivation, has been the source of much research in SLA and is widely considered as pertinent in the SLA process. Motivation relates to the learner's reasons for attempting to acquire the second language. Schumann (1986) refers to research

conducted by Gardner and Lambert (1972) where they identified two kinds of motivation for second language learning; integrative and instrumental motivation. A learner who has integrative motivation has the desire to acquire the TL in order to meet and communicate with speakers of the target language that he or she values and admires. A learner who has instrumental motivation has little interest in members of the target language community, however he wants to learn the TL for utilitarian reasons such as progressing in his career or gaining recognition from the second language learning community. Schumann states some reservation as to whether motivation is a simple indicator of language acquisition success. He notes that while integrative and instrumental motivation are useful when considering the acquisition process, they are nevertheless complex constructs which interact with the social variables. The final psychological variable which Schumann mentions is ego-permeability. Influenced by the writings of Guiora (1972), Schumann explains ego-permeability as the boundaries of one's language. Sounds, words, syntax and morphology of one's language become objectified and develop firm outlines and boundaries. These boundaries are initially permeable, but in the latter stages of development they become fixed and rigid. In order for one to succeed in acquisition of the TL, they may need to lower their level of inhibition so that ego-permeability can be induced.

Schumann reviews the evidence for his model in his 1986 article published in the Journal of Multilingual and Multicultural Development. The studies cited (England, 1982; Kelley, 1982; Kitch, 1982; Maple, 1982; Schmidt, 1983; Stauble, 1981) view the model from several perspectives: single case studies, multiple case studies, large sample statistical studies. They also use a wide range of participants. The results are mixed and lead Schumann (1986) to concede that "Measures of the various factors involved in acculturation may be difficult to devise" (p.389). Moreover, acculturation is a dynamic process and a learner's social and psychological

distance profile may change over time in the TL environment. For Schumann, “None of the research designs either used or proposed for testing the Acculturation Model are capable of handling this problem of history…” (p.390). This problem was highlighted by a number of critics of the model (Baker, 2001; Ellis, 1997). The model also faces other criticism from other SLA researchers. Larsen-Freeman and Long (1991) suggest that the model does not give a detailed enough explanation of the combinations and levels of social and psychological factors to predict language outcome. It is therefore not possible to determine the most significant factors or the degree to which each factor affects acquisition. Several researchers (Giddens, 1991; Lave & Wenger, 1991; Norton, 2000) believe that the model should investigate further how individuals become accepted as fully functioning members of the TL communities in the process of SLA. Furthermore, researchers have criticised the model for not including important personal factors which can impact upon a learner’s performance like previous educational experience or family separation. As Coelho (1998) opines, “The extent to which the ‘host’ society and its institutions are responsive to the needs of recently arrived immigrants, and the effects of other stress factors that may exist, will have an effect on the adjustment and acculturation process” (p.31).

2.3.2.4 The Socio-Educational Model

The final model to be examined in depth is Gardner’s Socio Educational Model. The model is also deeply rooted in social-psychology. It has been recognised as one of the most dominant models in SLA (MacIntyre, 2007, p.565). Williams and Burden (1997) praise the model as being the most influential social-psychological model in SLA. Gardner and Lalonde clarify that "A socio-educational model of second language learning suggests that the learning of a second language involves both an ability and a motivational component and that the major basis of this motivation is best viewed from a social psychological perspective" (Gardner & Lalonde, 1985,

p.1). The initial model was developed by Lambert (1967, 1974) who posited that aptitude, attitudes, orientation, and motivation affect the development of language proficiency. Gardner and Smythe (1975) adapted Lambert's model to differentiate between formal and informal language learning contexts. The model has since been revised several times (1975, 1979, 1981, 1985, 2000). Gardner's initial model proposes that ability and motivation are the two primary individual variables in language learning. His revised model (1979) declares four variables: social milieu, individual differences, second language acquisition contexts and outcomes. Social milieu refers to an individual's cultural beliefs or environment. Individual differences includes four sub-variables: intelligence, language aptitude, motivation and situational anxiety. Second language acquisition contexts refers to the environment where the language is being learned. Language learning outcomes refers to an individual's linguistic knowledge and language skills as well as their non-linguistic skills. Gardner (1985) later modified the model to include the concept of integrative motivation within the individual differences variable. Integrative motivation consists of two components: attitudes toward the learning situation and integrativeness.

According to the model, social dimension is significant in determining one's reaction to the learning situation which, in turn, affect one's motivation to learn the TL. Gardner (1985) defines motivation as "the combination of effort plus desire to achieve the goal of learning the language plus favourable attitudes toward learning the language" (p. 10). Furthermore, individuals who have the characteristics of integrativeness should have integrative motivation to learn the TL, as well as display favourable attitudes towards the TL community. Gardner (2001) defines integrativeness as "genuine interest in learning the second language in order to come closer to the other language community" (p. 5). In addition, motivation and language aptitude determine, in

both formal and informal settings, second language proficiency. Gardner holds that aptitude and intelligence are more significant to language learning in formal settings than in informal settings.

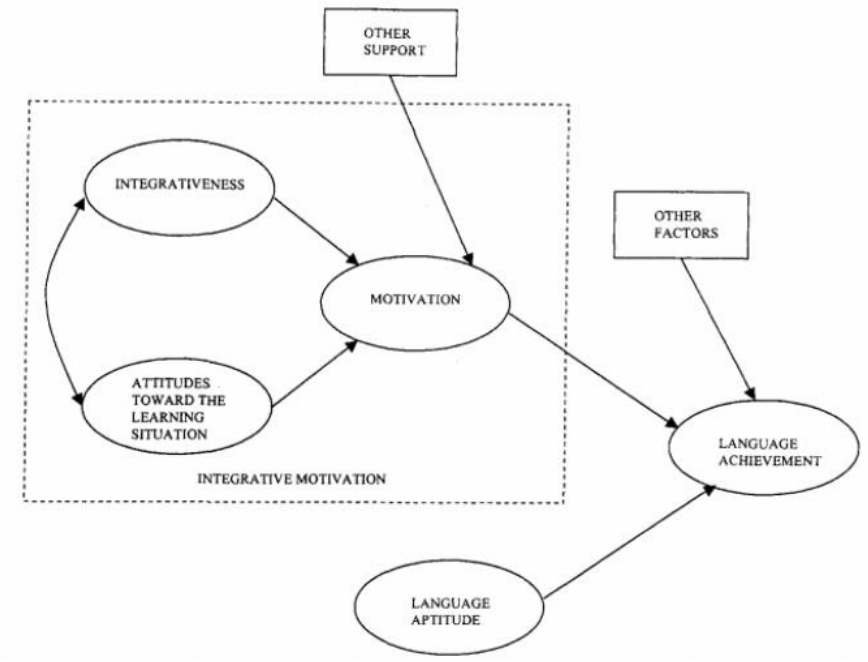


Figure 2.1 Gardner's (2000) socio-psychological model

Gardner (1985) has drawn comparisons between his model and Krashen's Monitor Theory. Both models include motivation and attitude as integral parts of the model. However, while motivation and attitude have a facilitating function in Krashen's model, for Gardner they are considered instigators to action. Furthermore, comparisons can be made with Schumann's model. Many of the social variables in Schumann's model are comparable to the cultural beliefs in Gardner's model. The model has been praised by numerous academics. Gu (2009) and Gardner (2006) recognize that the model overcomes one of the criticisms of Schumann's model by the way it allows for empirical tests of the model by being associated with the Aptitude/Motivation Test Battery (AMTB) which provides reliable assessments of its major constructs. Furthermore, "it satisfies the scientific requirement of parsimony in that it involves a limited number of

operationally defined constructs" (Gardner, 2006, p. 237). Another criticism of the Acculturation Model which Gardner's model overcomes is the fluidity of the model. Researchers (MacIntyre et al., 2001; Ellis, 2008; Baker, 1992) have praised the non-static nature of the Socio-Educational Model. As Gardner stresses, the model "is a dynamic one in which individual difference variables are seen to influence language achievement and language achievement is seen to have an influence on the individual difference variables" (2010, p.85). This also points to the cyclical nature of the model where the outcomes of the learning process feed back into the model (Baker, 1992). The experience of the learners in both formal and informal settings can have a positive or negative effect on their attitude which in turn affects motivation. The learner's level of motivation then greatly influences their learning outcomes, and so on. The dynamism of the model allows for a more realistic model where the leaner's ever changing circumstances are considered. The model has also been the subject of some criticism. Dörnyei (2005) observes that there have been dramatic changes in motivation research following the cognitive revolution in psychology. However, he feels that Gardner's motivational theory has remained unaltered over time. In response, Gardner states that "Revolutions in psychology come and go, and though the socio-educational model is not phrased in 'cognitive' terms, this does not mean that the research findings and the model itself are no longer relevant" (2010, p. 203). Gardner fails to acknowledge that developments in psychology may be well supported by empirical research and therefore have enough credence to impact his motivational theory. Another criticism of Gardner's model is that the stated role of integrativeness does not account for the scenario where a learner with a negative outlook and attitude towards the target language and culture is nevertheless successful in learning it. Crookes & Schmidt remark that, "the superiority of integrative motivation is not supported by empirical evidence" (1991, p.473). In fact, studies

have shown that both integrative and instrumental motivation play a pertinent role in one's language acquisition journey (Burstall et al, 1974; Spolsky, 1989; Broady, 2005). Lamb (2004) goes further by arguing that integrative and instrumental motivation should not be separated or identified as two separate concepts. This is because due to globalisation English is no longer associated with a specific western country.

The aforementioned SLA theories have had a seismic impact on research in the field. They have helped shape the landscape of SLA research over the past decades. A number of other SLA theories have been posited (e.g. Bates and MacWhinney's Competition Model, Bickerton's Language Bioprogram Hypothesis, Bresnan and Kaplan's Lexical-Functional Grammar, Cummins's Linguistic Interdependence Hypothesis,) and debate continues in earnest in the literature as to what the definitive account of the SLA process is.

2.3.3 Language Learning as a Talent

An area of language acquisition research which has grown in significance due to developments in the cognitive sciences is the relationship between talent and language learning. Researchers often use the term aptitude interchangeably with talent, thus foreign language aptitude research addresses the notion of learners possessing a talent for language learning. As Wen et al. state, "Foreign language aptitude generally refers to the specific talent for learning a foreign or second language" (2017, p.1). Dörnyei and Skehan (2003) purport that foreign language aptitude research assesses whether "there is a specific talent for learning foreign languages which exhibits considerable variation between learners" (p.590).

Educational psychologist, John Carroll, contributed greatly to early research on foreign language aptitude. His Modern Language Aptitude Test (MLAT) (Carroll & Sapon, 1959) and foreign

language aptitude construct greatly influenced subsequent research. As Dörnyei and Skehan note, “Carroll researched foreign language aptitude and established the parameters within which the sub-field still operates” (2003, p.591). For Carroll, foreign language aptitude consisted of four components: phonemic coding ability, grammatical sensitivity, inductive language learning ability, and associative memory. Up until recent, little empirical work had been conducted since the foundational work of Carroll. As Wen et al. note, “...knowledge about FL aptitude has not developed very much since it started some 50 years ago” (p.6). Dörnyei and Skehan concur that, “Since Carroll’s influential work, the story of aptitude has not changed very much” (p.593). However, boosted by developments in cognitive psychology and cognitive neuroscience, “the bleak scenario for FL aptitude research began to improve slightly at the start of the twenty-first century” (Wen et al., p.6). Thus, in recent years “interesting and challenging reconceptualizations of aptitude have emerged” (Dörnyei & Skehan, p.593).

A series of models of foreign language aptitude have been developed in recent decades. Sparks and Ganschow (2001) proposed the Linguistic Coding Differences Hypothesis (LCDH) model. The premise of the model is that native language literacy skills are a predictor of L2 acquisition. Grigorenko et al. (2000) posited the Cognitive Ability for Novelty in Language Acquisition-Foreign (CANAL-F) theory. The accompanying CANAL-F test measures one’s ability to recall and infer in order to process and acquire new linguistic material. The test is purported to assess five knowledge acquisition processes: selective coding, accidental encoding, selective comparison, selective transfer, and selective combination. Skehan (2002) developed the Macro-SLA aptitude model which aimed to be compatible with developments in SLA research. According to Skehan, SLA consists of three macro-stages (input processing, central processing, and output) which have L2 cognitive processes embedded in each stage. These cognitive

processes are affected by aptitude constructs such as working memory, phonemic coding ability, language analysis ability, and retrieval memory.

Robinson also sought to attribute the observable differences between language learner outcomes to FL aptitude. Robinson's Aptitude Complex and Ability Differential framework (2005) further re-conceptualised FL aptitude. For Robinson, "Cognitive resources implement cognitive processes drawn on by primary abilities involved in language-learning task/test performance" (2001, p.372). Sets of higher second-order abilities, which can be grouped into aptitude complexes, are derived from these primary abilities, and they are believed to support language learning. The Ability Differential Hypothesis holds that language learners have varying levels of cognitive abilities which leads to different aptitude complexes.

The High-Level Language Aptitude Battery (Hi-LAB) (Doughty et al., 2010) was developed to target language learners with a high level of L2 proficiency. The researchers at the University of Maryland postulated that the components of aptitude for high proficiency learners may differ from those of low proficiency learners. The Hi-LAB consists of constructs with associated measures which are intended to measure the language aptitude of test takers. Linck et al. (2013) report that high level proficiency is related to working memory, associative learning, and implicit learning. They state that the Hi-LAB test is effective at distinguishing between very successful language learners and other individuals. They report that "Results from a series of analyses indicate that the tests correctly classified high-attainment learners with up to 70% classification accuracy" (2013, p.555). Researchers continue to optimistically examine the effectiveness of the Hi-LAB. As Wen et al. state, "At a construct validity level this is a very impressive test and it is likely to be a milestone for high-level aptitude testing for some time to come" (2017, p.12).

There is a growing amount of research conducted in the field of cognitive neuroscience which critically examines whether there are individual differences between language learners, and whether it could be said that some individuals possess a talent or high level of aptitude for language learning. Researchers have examined brain structure to ascertain whether it is an indicator of a high aptitude for language learning. They have reported that grey matter volumes in the left inferior parietal lobe (IPL) (Reiterer et al., 2011) and the right auditory cortices as well as gyrification (Turker et al., 2017) were higher in individuals with high overall language aptitude. Furthermore, according to Novén et al. (2019), higher cortical thickness in Broca's area is related to linguistic analytic abilities, and the anterior segment of the right arcuate fascicle is related to the ability to analyse grammar (Kepinska et al., 2017). In addition, Della Rosa et al. (2013) suggest that grey matter density in the left auditory cortex is linked to foreign language aptitude, and Golestani et al., (2011) report that grey and white matter volume in the left and right Heschl's gyrus (HG) is linked to phonetic ability.

Researchers have also assessed brain function in relation to FL aptitude. Jouravlev et al. (2021) report greater cortical processing efficiency in polyglots. Deng et al. (2016) link the efficiency of the left superior gyrus (LSTG) to language speaking outcomes. They conclude that "sound-to-word learning success is predicted by the regional spontaneous activities of "task-positive" regions, such as LSTG, and "task-negative" network regions" (2016, p. 76). Barbeau et al. (2017) suggest that functional activation of the left IPL is correlated to L2 reading speed post learning, and a number of studies (Karuza et al., 2013; Qi et al., 2019; Yang et al., 2015) found that the left inferior frontal gyrus (IFG) is linked to tonal vocabulary learning. Researchers continue to conduct research which links both the structural and functional aspects of the brain to

FL aptitude. This research is significant in ascertaining whether successful language learners possess innate abilities which aids their acquisition process.

2.3.4 Experience and Language Learning

Copious research has examined whether language learning is aided by experience. This research has mainly been undertaken through the prism of bilingualism and multilingualism in order to ascertain whether they lead to advantages for future language acquisition. Researchers have posited that experienced language learners are aided by their previous experiences. Paradis (2008) suggests that bilinguals and multilinguals rely on more tools and strategies than monolinguals. Other researchers (e.g. Hörder, 2018; Witney & Dewaele, 2018) postulate that experienced language learners are advantaged by their prior exposure to other linguistic structures. Some studies have focused on the effect of early exposure to more than one language. Early infant bilinguals have been reported to be more willing to explore than their monolingual counterparts (D'Souza et al., 2020). They have also been found to have an increased sensitive period for phonetics and developmental window for perceiving phonetic contrasts (Petitto et al., 2012). Singh et al. (2018) report that bilingual infants display more awareness of vowel changes in similar sounding words, and consequently are able to learn more words than their monolingual peers.

Other studies have focused on the general effect of prior linguistic knowledge on learners of varying ages. As Festman (2021) notes, "When learning a new language, learners can profit from their available linguistic repertoire, that is, the already existing linguistic knowledge stored in memory in terms of vocabulary, grammatical structures, sound patterns of their other language(s), and so on" (p.125). Various studies have demonstrated that positive transfer occurs between the target language and a previously learned one (Kemp, 2007; Krenca, et al., 2020;

Witney & Dewaele, 2018). Montanari (2019) conducted a review of linguistic transfer amongst multilinguals. She found that "As with children, research with adults has revealed facilitated vocabulary learning among multilinguals, with the advantage increasing with the number of languages spoken" (p.305). However with regards to novel grammatical learning, she cautions that "While the extant studies suggest a multilingual advantage in the acquisition of additional morphosyntactic systems, the same investigations point to the importance of other variables, including language relatedness and literacy..." (p.311). Furthermore, "it appears that multilingualism facilitates literacy development in additional languages but only to the extent that multilingualism is associated with other characteristics..." (p.314). Empirical research (Papagno & Vallar, 1995; Tremblay & Sabourin, 2012) has suggested that "Multilinguals can experience a catalytic effect when learning new languages" (Festman, 2021, p.127). However, some findings suggest that while multilingualism can be advantageous to language learners, there are several factors which determine its effect. "Multilingualism is a diverse variable that can take many shapes and does not necessarily lead to one set of effects" (Claussenius-Kalman & Hernandez, 2019, p. 657).

2.3.5 Motivation and Language Learning

Motivation has long been recognised as an integral component of successful outcomes across a myriad of human endeavours. This has also been posited by researchers examining language acquisition (e.g. Dörnyei et al. 2006; Oxford & Ehrman, 1995; Oxford & Crookall, 1989; Gardner & MacIntyre, 1991). This is despite the lack of agreement on the precise definition of motivation. As Dörnyei notes, "Although 'motivation' is a term frequently used in both educational and research contexts, it is rather surprising how little agreement there is in the literature with regard to the exact meaning of the concept" (1998, p.117). Definitions of

motivation were influenced by the initial behavioural framework in which they were coined, and subsequently by cognitive developmental theory. Thus, a shift can be seen in the terms used to define motivation. Components such as drive, instinct and need were replaced by components such as goal and aspiration which focused on the individual's role in his or her behaviour. Brown (1994) defines motivation as "inner drive, impulse, emotion, or desire that moves one to a particular action" (p.152). For Gardner (1985), motivation is "effort plus desire to achieve the goal of learning the language plus favourable attitudes toward learning the language" (p.10). According to Oxford and Shearin (1994), motivation is "a built-in unconscious striving towards more complex and differentiated development of the individual's mental structures" (p.23), while Dörnyei cautioned that motivation is "a multi-faceted construct and describing its nature and its core features requires particular care" (1994, p.274).

The perceived pertinent role of motivation in language acquisition is witnessed in the models of SLA outlined previously in this chapter. Most notably, the Socio-Educational Model developed by Gardner outlined integrative and instrumental motivation which he held to encapsulate learner motivation. Much of the criticism aimed at Gardner's model is targeted at his concept of integrative motivation and its lack of parallel in motivational psychology (Dörnyei, 2003a). Furthermore, researchers have taken umbrage at the implication that successful language learners need relinquish their identity and adopt that of the target language community. As Webb states, "...the cultural identity of the second language learners is conceptualized as hazardous in the second language learning process" (2003, p.63). Furthermore, researchers highlighted that the model does not factor in social and political motivations for learning a language. As Pennycook states, "we cannot reduce questions of language to such social psychological notions as

instrumental and integrative motivation, but must account for the extent to which language is embedded in social, economical and political struggles" (1995, p.41).

Dörnyei's framework of motivation (1994) built upon the criticisms of Crookes and Schmidt (1991) towards Gardner's approach. Dörnyei's framework specifically describes motivation in the language classroom and comprises of three levels: the language level, the learner level, and the learning situation level. The most general level is the language level "where the focus is on orientations and motives related to various aspects of the L2, such as the culture it conveys, the community in which it is spoken, and the potential usefulness of proficiency in it" (Dörnyei, 1994, p.279). The learner level has two underlying components of the need for achievement and self-confidence. Self-confidence encompasses "various aspects of language anxiety, perceived L2 competence, attributions about past experiences, and self-efficacy" (Dörnyei, 1994, p.279). The learner situation level is made up of intrinsic and extrinsic motives concerning course-specific motivational components, teacher-specific motivational components and group-specific motivational components.

Goal-setting theories have also gained prominence in the research literature on motivation and language acquisition. The goal setting theory, mainly developed by Locke and Latham (1990), posits that people are motivated by the pursuit of goals which can either be internal or external. Furthermore, goal-setting and performance are related as the goals dictate the performance of the task, the energy exerted, and the strategies adopted. Dörnyei (1994) suggests that learners set short-term subgoals since mastering a language is a lengthy endeavour. For Dörnyei, subgoals can be motivating as they indicate learner progress, and once achieved further increase self-efficacy and motivation. Goal-orientation theory is associated with the classroom context and suggests that a learner's performance is related to his or her stated goals. A distinction is made

between performance and mastery orientations. The primary focus for learners with performance orientation is looking good and capable, whereas learners with mastery orientation are concerned with actually increasing their knowledge.

Today, L2 motivation continues to be of great interest to researchers. The scope of this interest continues to expand to different components of L2 motivation. Al-Hoorie's (2017) historical analysis of L2 motivation suggests that the socio-psychological period (Gardner, 1979) and the cognitive-situated period (Dörnyei & Ryan, 2015; Dörnyei & Ushioda, 2011) has been followed by the present period where the focus is on a number of diverse themes such as dynamic motivation, affect and emotions, unconscious motivation, long-term motivation, languages other than English, and technology and motivation. Al-Hoorie warns that the growing scope in language motivation research may lead to a situation where researchers in the field no longer share a common language. He states, "The real danger is when different research strands use different jargons to describe very similar phenomena but with little overlap in their reference lists" (2017, p.8). As Lamb (2017) highlights, L2 motivation research in the present day has also increasingly focused on the role of language teachers in motivating learners. According to Lamb, this research "is serving to mediate between L2 motivation theory and classroom practice, enhancing the real-world impact of the former..." (2017, p.336).

2.3.6 Metacognition and Language Learning

Researchers continue to assess the importance of metacognition during the language learning process. Metacognition has been defined as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, p.232). Flavell made a distinction between metacognitive knowledge and metacognitive experiences. For Flavell "metacognitive knowledge consists primarily of knowledge or beliefs about what factors or

variables act and interact in what ways to affect the course and outcome of cognitive enterprises" (1979, p. 907). In contrast, "Metacognitive experiences are any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise" (Flavell, 1979, p.908). Wenden (1987) was one of the earliest researchers to highlight the importance of metacognition in language learning. Drawing on the works of earlier researchers (Brown et al, 1983), she differentiated between metacognitive knowledge and metacognitive strategies. She states:

> Metacognitive knowledge refers to information learners acquire about their learning, while metacognitive strategies are general skills through which learners manage, direct, regulate, guide their learning, i.e. planning, monitoring and evaluating. (Wenden, 1987, p.519)

Other researchers have posited definitions of metacognition (Anderson, 2002; Georghiades, 2004; Jacobs & Paris, 1987; Schraw, 1994; Swanson, 1990). Despite the fact that some of the definitions are more comprehensive than others, the common theme is that metacognition denotes a learner's awareness and management of his or her learning.

A vast amount of research has been undertaken looking at various aspects of metacognition. One of these areas is the importance of the language learner planning their learning. Activating prior knowledge is considered to be one way in which learners prepare and plan for effective learning (Anderson, 2009). Research conducted by Carrell (1983, 1984) and Carrell and Eisterhold (1983) provides evidence that activating prior knowledge has positive effects for learners. Furthermore, Panahandeh and Asl (2014) concluded that metacognitive strategies of planning and monitoring effectively enhance students' argumentative writing accuracy. Another area which research has focused on is the learner's self-evaluation of their progress. According to Oxford (1990), meta-cognitive strategies help learners to "evaluate their progress as they move toward communicative competence" (p.8). Other researchers have highlighted the fact that metacognition regulation skills enable learners to evaluate themselves and the effectiveness of the strategies they are

adopting (Brown, 1987; Zimmerman, 2000; Zwiers, 2010). This has been recognised as an important tool that good language learners utilise. As Anderson (2008) states "Good language learners must be able to evaluate the efficacy of what they are doing. Poor learners often do not evaluate the success or failure of their learning" (p.101). Numerous studies show positive effects of students using meta-cognitive strategies to evaluate their learning (Abolfazli & Sadeghi, 2012; Butler & Lee, 2010; Mican & Cuesta Medina, 2017).

Research has also focused on the importance of learner autonomy. Learner autonomy has been defined as "the ability to take charge of one's own learning" (Holec, 1981, p.3). Little (1991) stressed that learner autonomy does not suggest that "autonomous learners make the teachers redundant" (p.3). Rather, learner autonomy encourages learners to take responsibility for their learning and reflect critically on their learning process. The drive for learner autonomy stems from the belief that it enhances motivation and ultimately leads to effective learning (Benson & Huang, 2008; Bhattacharya & Chauhan, 2010; Liu, 2012; Sanprasert, 2010). Oxford (1999) holds that learner autonomy leads to greater proficiency, and this is supported by various studies. Lowe (2009) reported a positive, significant correlation between learner autonomy and academic performance. Myartawan at al. (2013) also reported a significant correlation between learner autonomy and language proficiency. Yen and Lui (2009) indicated that learner autonomy is a valid predictor of academic achievement. Furthermore, Tilfarlioglu and Ciftci (2011) concluded their study by stating that learner autonomy is linked to language proficiency.

Different methods have been posited to develop learner autonomy. It has been suggested that learners should receive explicit instruction to help them develop leaner autonomy (Little, 1995; Nunan, 1996b; Oxford, 1999; Wenden, 1991). Advocates of explicit instruction hold that learner autonomy is not a trait that will naturally develop in all students. Thus, students would benefit

from instruction that increases their awareness about different strategies they can adopt in order to assist their language learning and give them more control of the process (Cohen, 2011; Nunan, 1996; Oxford, 2008). In order to plant seeds of learner autonomy, it is important to develop a learner's metacognitive knowledge about learning (Cotterall & Murray, 2009; Wenden, 2001; Zhang, 2016). Thus, language learning strategies instruction should encourage learners to reflect and evaluate their learning and gain an understanding of the strategies that are effective for them and why (Rubin et al., 2007). Furthermore, in order to facilitate learner autonomy it is important that LLS instruction addresses any pre-existing metacognitive knowledge that learners have about language learning or about themselves as learners that may hinder them and from developing autonomy in their learning (Victori & Lockhart, 1995). Wenden (1998) purports that the use of introspective or retrospective self-reports is a method of promoting learner autonomy. The rationale for their use is that they raise learner's awareness of the strategies they are adopting and encourage learners to evaluate their strategies, goals, and outcomes. According to Wenden, "without awareness [learners] will remain trapped in their old patterns of beliefs and behaviors and never be fully autonomous" (1998, p.90).

2.4 Language Learning Strategies

2.4.1 Definition

The increase in research focused on SLA has led to added interest in the strategies that language learners adopt in order to augment the process. Researchers have acknowledge that language learning strategies (LLS) have the potential to be "an extremely powerful learning tool" (O'Malley et al, 1985, p.43). Before any meaningful discussion on language learners' LLS can proceed it is important to garner an understanding of what is meant by LLS. Defining the term has proved problematic in the literature. This is not merely because "There is no consensus on

what constitutes a learning strategy in second language learning or how these differ from other types of learner activities…" (O'Malley et al, 1985, p.22), but also because the literature contains other terms which express a similar concept. These terms include words like technique (Stern, 1983), tactic (Seliger, 1984), move (Sarig, 1987), style (Cornett, 1983), and learning behaviours (Wesche, 1977; Politzer & McGroarty, 1985). The lack of parity between SLA researchers' terminology will be addressed. Larsen-Freeman and Long (1991) decided to use the term strategy since it was used by Rubin (1975) "in perhaps the earliest study in this area and it enjoys the widest currency today" (p.199). As a result, the definitions posited for this term are a suitable starting point. Rubin (1975) offered a broad definition of the term strategy as "the techniques or devices which a learner may use to acquire knowledge" (p.43). She later (1981) opined that learning strategies can be categorised as either direct learning strategies or indirect learning strategies. Direct strategies refer to learners utilizing clarification/verification, monitoring, memorization, guessing/inductive inferencing, deductive reasoning, and practice. Indirect strategies are those that create opportunities for practice, as well as production tricks. Rubin includes communication strategies under production tasks. Other researchers have stressed the difference between learning strategies and communication strategies. Brown (1980) notes that "communication is the output modality and learning is the input modality" (p.87). Ellis (1986) also distinguishes between LLS and communication strategies. He even opines that successful communication strategies may even prevent language learning as skilful compensation for a lack of linguistic knowledge may negate the need for learning. Stern defines LLS as "broadly conceived intentional directions" and the "behavioural manifestations of the strategies" he named techniques (1992, p.261). O'Malley et al (1985) define LLS as "operations or steps used by a learner that will facilitate the acquisition, storage, retrieval or use of information" (p.23).

Wenden and Rubin define LLS as "the various operations that learners use in order to make sense of their learning" (1987, p.7-8). For Oxford, LLS are "operations employed by the learner to aid the acquisition, storage, retrieval, and use of information" (Oxford, 1990, p.8). Oxford proceeded to divide these strategies into six categories: memory strategies, cognitive strategies, compensation strategies, metacognitive strategies, affective strategies and social strategies. Ellis holds that Oxford's taxonomy is "perhaps the most comprehensive classification of learning strategies to date" (Ellis, 1994, p.539). Oxford has subsequently defined LLS as "purposeful, conscious (or at least partially conscious), mental actions that the learner uses to meet one or more self-chosen goals" (2018, p.82). Ghani (2003) holds that LLS are specific actions, behaviours, steps, or technique that learners adopt in order to improve their language skills. This study is concerned with any action that polyglots take in order to aid their language acquisition process. As a result, LLS will be defined in its broadest terms so as to include other terms which give insight to language learners' methods.

Researchers have stressed the importance of LLS. They help develop learning autonomy and linguistic competence. Much of the research around LLS has been in order to decipher what successful language learners do. The belief is, therefore, that unsuccessful learners can benefit from gaining access into the strategies that their successful peers are adopting (Brown, 1994; Chamot, 1999; Cohen, 1990; Faerch & Kasper, 1984; Gregersent, 2001). Moreover, it is believed that such research can help inform instructors' pedagogical practices (Rubin, 1994; O'Malley & Chamot, 1990; Oxford, 1990; Cohen, 1998; Kumaravadivelu, 2003; Griffiths & Parr, 2001; Lessard-Clouston, 1997; Murat, 2000). For Murat (2000), the main purpose of empirical work conducted on LLS is to improve language learning and teaching in classrooms. Another interesting goal of LLS research can be to tackle the preconceived notion that many people share,

which is that people are simply born good languages learners. If two language learners are equally motivated and living in similar circumstances yet they have varying levels of acquisition success, could the key difference be in their LLS?

2.4.2 Research into Language Learning Strategies

The difficulty with researching learning language strategies is that often they cannot be observed directly. As a result, researchers have had to rely on learner testimony. This testimony often centres on good language learners in an attempt to ascertain what it is that separates them from their peers. Research into LLS became prominent in the 1970s. Rubin (1975) attempted to identify the strategies adopted by good language learners. She identified certain LLS that learners adopt in order to advance their learning. Naiman, Frohlich and Todesco (1975) also produced a list of strategies that language learners employ. They recognised that good language learners tended to use a higher number and a wider range of strategies. At the same time, Stern (1975) focusing on the good language learner, formulated a list of ten learning language strategies. He believed that, amongst other things, the good language learner is characterised by positive learning strategies. The theme of the good language learner was continued by Naiman, Frohlich, Stern and Todesco (1978). They tried to find the commonalities between good language learners, and produced a list of characteristics that they believed good language learners share. For example, they commented that good language learners are actively involved in the language learning process and are constantly working at expanding their language knowledge.

O'Malley et al (1985) also investigated the relationship between language acquisition success and learning strategies. They found that students with varying degrees of success in acquisition reported employing a number of LLS. However, they found the key difference to be in the use of

metacognitive strategies amongst high achieving learners. This opinion was shared by O'Malley and Chamot (1990) who categorised learning strategies under three main headings: cognitive, metacognitive and socio-affective. They maintained that "students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress, or review their accomplishments and future learning directions (1990, p.8). They stressed the importance of LLS in a later publication where they stated that "individuals who take a more strategic approach learn more rapidly and effectively than individuals who do not" (1993, p.105). Oxford (1990) divided LLS into six categories: metacognitive strategies, affective strategies, social strategies, cognitive strategies, memory strategies and compensation strategies. For Oxford, memory, cognitive and compensation strategies are direct strategies as they have a direct effect on the learning process and enable learners to bridge knowledge gaps in order to continue communication. Moreover, metacognitive, affective and social strategies are classified as indirect strategies as they do not directly influence the learning process. Green and Oxford (1995) found that high level students used LLS more frequently than their peers. Cohen (1998) discussed the wide ranging nature of LLS. He highlighted that language learners use strategies to organize and plan their learning (metacognitive strategies), rehearse preconceived utterances (performance strategies) and enhance their self-confidence (affective strategies). They also use mnemonic devices to help them learn vocabulary (cognitive strategies). Griffiths study (2003) also reported a positive correlation between learner competency and the use of LLS. Advanced students reported to use LLS considerably more frequently than elementary students. Ghani (2003) found that the strategies that language learners adopt depend greatly on their learning style. She noted that the

LLS of the participants in her extensive study differ greatly because their learning styles are so varied.

While the majority of research looking at LLS has focused on *good* language learners, research has also been conducted which focuses on unsuccessful language learners. The rationale is that their strategies must be unproductive, and can be used as a blueprint of what to avoid doing. Linguist, Jill Sinclair Bell (1995) attributes her own failure in Chinese acquisition to the fact that she used the same strategies and approaches for L2 literacy that had successfully worked for L1 literacy. Other linguists (O'Malley, 1987; Porte, 1988) have reported this inability to adapt learning strategies for an L2 as a cause for failure. Porte (1988) noted from his research on under-achieving language learners in London that "The majority of learners said that they used strategies which were the same as, or very similar to, those they had used at schools in their native countries" (p.168). However, he also reported that both under-achieving and successful language learners used similar strategies. The difference was in their levels of sophistication and their propensity for using a suitable response for any given activity.

Researchers have also been keen to discover whether there are any other factors which affect learners' strategy choices. Some studies have suggested that gender can affect strategy choices (Ehrman & Oxford, 1989; Green & Oxford; 1995; Oxford & Nyikos, 1989; Sy, 1994; Watanabe, 1990). Green and Oxford (1995) "found significantly greater overall use of language learning strategies among more successful learners, higher overall strategy use by women than by men, and significant differences by proficiency level and gender in students' use of the broad strategy categories on the SILL" (Strategy Inventory for Language Learning) (p.285). Oxford and Nyikos (1989) and Ehrman and Oxford (1989) found that motivation may be another factor which affects learners' strategy choices. Another variable which has been examined to discover

whether it influences LLS is nationality. Griffiths and Parr (2000) reported that European students use LLS considerably more often than students of other nationalities. Their higher frequency of LLS usage was coupled with a higher proficiency level. Researching students' LLS use in Taiwan, Yang (1999) commented that despite their awareness of these strategies, very few of them implemented these strategies. Politzer and McGroarty (1985) conducted research on 37 students enrolled in an English course in preparation for graduate school in the United States. The participants were approximately half from an Asian cultural background and half from a Hispanic cultural background. They found that Hispanic students displayed more of the LLS expected of good language learners than the Asian students. O'Malley (1987) attributed the difficulty of language acquisition for Asian students on their persistent use of familiar strategies.

Another strand of research into LLS which has gained much traction in recent decades is the impact of direct strategy instruction. The underlying claim is that LLS are teachable, and that students will benefit from implementing successful strategies. Tang and Moore (1992) investigated the effect on reading comprehension of teaching cognitive and metacognitive learning strategies. They reported that learning both strategies led to an improvement in reading comprehension, however, improvements were only maintained beyond the treatment for metacognitive strategy instruction. Nunan (1996a) researched whether LLS awareness training would enhance students' knowledge skills and attitudes. He concluded that there was sufficient evidence to support the idea of teaching both language content and an awareness of the learning process in the classroom. Other studies have suggested positive effects for speaking following strategy instruction (Dadour & Robbins, 1996; O'Malley, Chamot, Stewner-Manzanares, Küpper, & Russo, 1985). Chamot et al. (1996), Cohen et al. (1995), and Cohen and Weaver (1998) also reported some positive findings following LLS instruction along with some neutral

results. Nunan (1997) found that strategy instruction resulted in an increase in learner motivation and Chamot et al. (1996) discovered that it led to greater strategy use and self-efficacy. O'Malley (1987) reported a lack of effectiveness for LLS. However, he ascribed this to the persistence of familiar strategies amongst certain participants and their unwillingness to adopt the strategies which were presented in the training.

2.4.3 Taxonomy of Language Learning Strategies

Many academics have classified language learning strategies. The categorisations differ greatly and this can be attributed to the differing research methods or measuring strategies, as well as the different contexts in which the data has been gathered. Despite the lack of uniformity in the categorizations, many of the taxonomies contain the same components. The most frequently referenced taxonomies of language learning strategies in the literature are classifications by Naiman et al. (1978), O'Malley et al. (1985), Rubin (1987), Oxford (1990) and Stern (1992). Subsequently, these taxonomies are outlined in this section. Reference is made to some of the other taxonomies in Table 2.1.

2.4.3.1 Naiman et al. (1978)

The researchers interviewed 34 students in order to ascertain the learning strategies that good language users use. The participants' descriptions of their learning activities and experiences were correlated with self-reports of their language learning success. Their responses were categorised into five groups of language learning strategies: the active task approach, the realisation of language as a system, the realisation of language as a means of communication and interaction, management of affective demands, and monitoring of L2 performance. The active task approach means that the learner is actively involved in the learning process and seeks out learning opportunities. Realisation of language as a system entails the learner analysing the L2

and making their own inferences. The third group of language learning strategy, the realisation of language as a means of communication and interaction, involves the learner seeking opportunities for communication in the L2 and placing their emphasis on fluency rather than accuracy at the initial stages of their language learning journey. Management of affective demands entails language learners realising initially or with time that they need to cope with certain demands placed upon them by the language learning process, and they must succeed in doing so. Monitoring of L2 performance is a strategy whereby language learners constantly evaluate and revise their L2 systems. They monitor their language by testing their inferences, looking for needed adjustments as they learn new material, and by asking native speakers for corrections (Skehan, 1989). By isolating just five general strategies of good language learners, the authors clearly signalled that their project was a reductionist one, aimed at classifying strategies into the fewest possible types (Allwright & Hanks, 2009).

2.4.3.2 O'Malley et al. (1985)

The researchers divide LLS into three main subcategories: metacognitive strategies, cognitive strategies, and socioaffective strategies. Metacognitive strategies are strategies which are employed to manage the learning process. It is a term to express executive function, and involves the learner planning for learning and actively thinking about the learning process. It also involves the learner being aware of their production or comprehension and evaluating their learning as they progress. Examples of metacognitive strategies are: the learner identifying their learning style preferences, gathering suitable material, organising a study schedule, monitoring their mistakes, as well as self-evaluation of their learning strategies. Subsequent studies support the notion that metacognitive strategies aid the language acquisition process (Dreyer & Oxford, 1996; Oxford, Judd, & Giesen, 1998; Purpura, 1999). Cognitive strategies involve the learners

manipulating the learning material to maximise their benefit. They are more concerned with specific learning tasks. Cognitive strategies include: note taking, repetition, analysing, synthesizing, translating, summarizing, contextualization, making inferences, auditory representation and deduction. Various studies have linked cognitive strategies to L2 proficiency (Kato, 1996; Ku, 1995; Oxford and Ehrman, 1995; Oxford, Judd, and Giesen; 1998; and Park, 1994). Socioaffective strategies are strategies which involve the learner communicating with other people. An example of this is when learners collaborate with peers in problem-solving activities, or in order to get feedback on a task. O'Malley and Chamot (1990) give another example of the use of the strategy as self-talk, or "reducing anxiety for learning by using mental techniques that make one feel competent to do the learning task" (p.45). Brown (1987) reported that cooperation and question for clarification are the two main socioaffective strategies. The classification offered by O'Malley et al. is one of "the most widely known language learning strategy classification systems" (Oxford & Crookall, 1989, p.406).

2.4.3.3 Rubin (1987)

Rubin makes a clear distinction between strategies which contribute directly to language learning and those which contribute indirectly. For Rubin there are three major kinds of strategies: learning strategies, communication strategies and social strategies. She expresses that it is the learning strategies which "contribute to the development of the language system...and affect learning directly" (Rubin, 1987, p.23). She further divides learning strategies into two main types: cognitive and metacognitive strategies. Similar to the understanding of O'Malley et al., Rubin holds cognitive strategies to be those that require direct analysis, transformation, or synthesis of learning materials. She identifies six main cognitive learning strategies which directly affect language learning: clarification/verification, guessing/inductive inferencing,

deductive reasoning, practice, memorisation and monitoring. Rubin's understanding of metacognitive strategies is also in agreement with O'Malley et al.'s understanding. She defines metacognitive strategies as strategies which are deployed to oversee, regulate or self-direct language learning. Examples of metacognitive strategies include planning, prioritising, setting goals and self-management. Communication strategies are indirectly related to language learning. Their primary focus is on the process of participating in a conversation by relaying meaning and clarifying intention whenever required. Social strategies are also indirectly related to language learning as they do not directly lead to obtaining, storing, or retrieving the language (Wenden and Rubin, 1987). They are the strategies that language learners deploy in order to increase both their exposure to the language and their opportunities to practice their output. They include such activities as initiating conversations, listening to L2 media and forging links with speakers of the target language.

2.4.3.4 Oxford (1990)

Oxford's taxonomy of language learning strategies shares many of the same element of the aforementioned taxonomies. She also makes a key distinction between direct and indirect strategies. Direct strategies are those which involve direct learning and use of the subject matter. Indirect strategies are the methods which language learners use to improve their language acquisition, however they do not directly impact on the target language. Oxford further divided direct strategies into three groups: memory strategies, cognitive strategies and compensation strategies. Memory strategies are utilised by language learners to enter information into their long-term memories, and to retrieve information when communicating. Examples of memory strategies include creating mental linkages and applying images and sounds. Cognitive strategies are the mental strategies which learners use to understand and revise the target language. These

strategies include effective ways of analyzing the target language, and creating structures for input and output. Compensation strategies enable learners to overcome gaps in their knowledge and to continue communicating. These strategies include guessing the meaning of unknown words from context and using circumlocution when speaking or writing. Oxford also divided indirect strategies into three groups: metacognitive strategies, affective strategies, and social strategies. Metacognitive strategies help learners to regulate their own learning. This is done by the learner centring, arranging, planning and evaluating his learning. Affective strategies are concerned with the learner's ability to control his or her feelings, such as confidence, motivation and anxiety. Social strategies are the same strategies which Rubin (1987) outlined under the identical subheading. They are strategies, such as asking questions and cooperating with others, which lead to increased exposure to and interaction with the TL for the language learner.

It is important to note that Oxford's position on learning language strategies has evolved since she first posited her taxonomy. She (2018) opines that the categories came to be interpreted rigidly which led to a hardening of the categories. Both Cohen (2017) and Oxford (2017) called for more focus on strategy functions rather than on categories. In this new perspective which Oxford advocates, "the strategies of planning, organising, monitoring, and evaluating are broadly part of the metastrategic function and can move freely across cognitive, affective, motivational, and social functions" (2018, p.83). Oxford provides the example of Tammy, a learner of German, who not only uses the cognitive strategy of analysing for breaking down German grammar, but also uses it to fulfil a social and emotional function. She is able to analyse what is causing her anxiety and preventing her from interacting with German L1 speakers. Cohen (2017) and Oxford (2017) hold that many strategies have such fluidity and should not be restricted to a single subgroup.

2.4.3.5 Stern (1992)

Stern categorised LLS into five main groups: management and planning strategies, cognitive strategies, communicative – experiential strategies, interpersonal strategies and affective strategies. Management and planning strategies are concerned with the learner's intent to control his own learning. The learner uses these strategies to decide how much he or she is willing to strive to learn the TL, establish reasonable goals and objectives, choose a suitable methodology and evaluate his or her success according to pre-set objectives. Once again cognitive strategies are categorised as a group of LLS. These strategies are connected to procedures and activities that learners use to help them remember material, analyse material, synthesise, solve problems and complete tasks. Stern states that asking for clarification or verification, guessing or inductive inferencing, deductive reasoning, memorisation, monitoring and practicing are examples of cognitive strategies. Communicative strategies are methods used by learners to avoid interrupting the flow of communication. They involve the use of verbal or nonverbal instruments in order to achieve this goal. Examples of communicative strategies include gesturing, paraphrasing, asking for repetition and seeking clarification. Interpersonal strategies involves leaners monitoring their own development and evaluating their performance. Stern advocates that in order to aid this process learners should associate with native speakers and communicate with them as much as possible. They should also form familiarity with the target language culture. Affective strategies are those which help the language learner deal with emotional difficulties that they face on their language acquisition journey. Stern (1992) posits that L2 learners may at times have negative feelings towards the TL or the native L2 speakers. Affective strategies will enable the language learner to turn these negative emotions into positive ones and give them an optimistic outlook with regards to the TL, the L2 speakers and the learning activities involved.

The aforementioned taxonomies are often cited in discussions about LLS. However, repeated calls for greater definitional clarity and coordination of the LLS definitions continue to appear in the literature (Cohen, 2014; Dörnyei, 2005; Dörnyei & Ryan, 2015; Oxford, 2011, 2017). LLS will continue to be researched due to their perceived importance. Oxford (2018) believes a consensus-based LLS definition will help resolve some of the issues. She calls for intensive meetings between key researchers, theorists, teachers and learners in order to move in the direction of consensus. As researchers continue to analyse LLS from different perspectives and with differing emphases (linguistics, psychology, sociology) it is unlikely that a roundly accepted taxonomy will emerge. In fact, Griffiths (2013), advocates avoiding *a priori* strategy classification and instead grouping strategies according to *post hoc* thematic analyses.

Authors	**Strategies classification**
Dansereau (1985)	Strategies are divided into primary and support strategies. These strategies are then divided further according to language task (reading, writing, etc.)
Weinstein & Mayer (1986)	Weinstein and Mayer identify rehearsal, elaboration, organisational, comprehension monitoring, affective and motivational strategies.
Wild, Schiefele, & Winteler (1992)	The researchers identify primary (cognitive and metacognitive) and secondary strategies.
Yang (1999)	Yang produced a six-factor model: functional practice, cognitive-memory, metacognitive, formal-oral, social, and compensation strategies.
Bimmel & Rampillon (2000)	Direct strategies: memory, language processing. Indirect strategies: self-regulatory, affective, social, language use strategies.

Schmidt and Watanabe (2001)	Schmidt and Watanabe classified strategies into four groups: cognitive, social, study and coping strategies.
Cohen & Weaver (2006)	Language use strategies are divided into four subsets: retrieval, rehearsal, communication and cover strategies. The authors acknowledge that strategies can also be classified by language skills and by function.
Oxford (2011)	Oxford refined her earlier model to erase overlap and provide greater theoretical cohesion. The result was the following four categories: cognitive, affective, sociocultural-interactive, and metastrategies.

Table 2.1- A summary of other prominent language learner strategy taxonomies

2.4.4 Third Language Acquisition

A lot of research investigating language acquisition has been conducted under the umbrella of second language acquisition. The understanding of many researchers is that theories and observations derived from this research is not confined to second language acquisition but generalizable and applicable no matter how many languages are in the learner's repertoire. However, the past few years have witnessed a rapid expansion in the study of multilingualism and third language acquisition (TLA). This expansion is due to the growing belief that the acquisition of a third language has certain particularities and thus deserves to be regarded as a distinct process rather than a branch of SLA (García-Mayo, 2012). Researchers have investigated cross-linguistic influence (Alcantarini, 2005; De Angelis, 2005; Gibson and Hufeisen, 2003; Odlin and Jarvis, 2004; Ringbom, 2003), the multilingual lexicon (Cenoz, Hufeisen & Jessner, 2003; Dewaele, 2001; Dijkstra 2003; Ecke, 2003; Festman, 2005; Singleton, 2003; Wei, 2003), multilingual education (Aronin and Toubkin, 2002; Cenoz, Hufeisen & Jessner, 2001; Clyne, Rossi Hunt & Isaakidis, 2004; Cummins, 2001b), early trilingualim (Barnes, 2006; Dewaele,

2007; Edwards & Dewaele, 2007; Hoffmann, 1985; Quay, 2001) and a number of other areas. García-Mayo (2012) attributes the growing interest in multilingualism and TLA to the "increased awareness of the sociological reality present in most parts of the world, where over 50% of the population is bi- or multilingual…" (p.130).

TLA research has sought to investigate the belief that prior linguistic knowledge makes it easier to acquire an additional language. Early studies reported that multilingual learners exhibited more flexibility than monolinguals regarding their use of LLS (Nation & McLaughlin, 1986; McLaughlin & Nayak, 1989; Nayak et al., 1990). Subsequent studies (Balke-Aurell & Lindblad, 1982; Bild & Swain, 1989; Cenoz & Valencia, 1994; Clyne, Hunt & Isaakidis, 2004; Lasagabaster, 2000; Safont, 2005; Sanders & Meijers, 1995; Sanz, 2000; Swain et al., 1990) comparing immigrant learners of an L3 and non-immigrant learners of an L2 tend to support the notion that multilingual learners are advantaged compared to their monolingual peers. However, not all of the studies reported a significant difference between the two groups of learners. According to Cenoz (2013, p.75), most researchers attribute the advantage of bilingual learners over monolingual learners to three factors: metalinguistic awareness, learning strategies and the broader linguistic repertoire that is available in TLA as compared to SLA. The first of these factors is the belief that TLA learners are able to use their knowledge of two linguistic systems and their previous experience of learning a language to develop a higher level of metalinguistic awareness. Certain studies have supported the idea that TLA learners can approach their language learning task in a more abstract way and benefit from past experiences (Moore, 2006; Ransdell, Barbier & Niit, 2006; Jessner, 2008). In contrast, drawing on first language acquisition to aid the learning of a second can actually prove detrimental (Sinclair Bell, 1995). The second factor highlights the benefit of LLS on the language learning process. The belief is that due to

their experience of this process, TLA learners have access to more strategies which enhance their acquisition of the TL. 'They look for more sources of input, make an early effort to use the new language, and show self-direction and a positive attitude toward the task' (Bowden, Sanz & Stafford, 2005, p.122). Kemp (2007) conducted a study looking at whether multilinguals use more grammar learning strategies than monolingual learners. The results supported the idea that multilinguals use a larger number of strategies and use them more often. Subsequent studies have substantiated this claim (Psaltou-Joycey & Kantaridou, 2009). However, it is important to highlight the fact that TLA learners may be simultaneous bilinguals. Thus, although they have two languages in their repertoire, both may have been acquired from birth and so the bilingual may not actually have any more experience of the language learning process or of effective strategies than the monolingual. The third factor is summarised well by Cenoz and Todeva (2009). They state that "multilinguals get many "free rides" when learning additional languages as their prior linguistic knowledge helps on all levels of language – grammar, pragmatics, lexicon, pronunciation, and orthography" (p.278). The fact that bilinguals have a broader linguistic repertoire than monolinguals is viewed as advantageous for TLA learners. This is especially the case when the TL is closely related to one of the languages of the multilingual (Cenoz, Hufeisen & Jessner, 2001, 2003; De Angelis, 2007; Ringbom, 2007; Jarvis & Pavlenko, 2008). The similarity in grammatical structure and lexical items can aid the acquisition process.

Cenoz (2013) acknowledges the progress in TLA studies and states that it gives us more insight to the language acquisition process. However, he criticises most studies for paradoxically adopting a monolingual rather than a multilingual focus. He arrives at this conclusion for two main reasons. Firstly, TLA studies use the native speaker as the yardstick for measuring overall proficiency in the L3. Cenoz upholds the belief that bilinguals and multilinguals achieve a

different kind of knowledge which should not be compared to that of monolinguals (Herdina & Jessner, 2002). Therefore, researchers should endeavour to create measurement tools specifically for TLA learners rather than using the ones used for monolingual learners. Secondly, TLA research focuses on one language at a time. They examine the proficiency or some aspect of language acquisition in the L3 only. This methodology is adopted from SLA studies. However, for Cenoz and other linguists (Jessner, 2008), theoretical contributions in the study of TLA and multilingualism have already highlighted the dynamic interaction between complex systems. Furthermore, Cenoz (2013) laments the fact that most TLA studies have focused on psycholinguistic aspects of language processing and have neglected social and educational aspects. He calls for a new holistic approach to research on multilingualism and TLA. He coins this new perspective 'focus on multilingualism' and clarifies that it is characterised by its focus on three elements. Firstly, multilingual speakers should not be compared to monolingual speakers as multilingual competence is different from monolingual competence (Grosjean, 1992, 2008; Cook, 2003, 2007). Moreover, focus on multilingualism differentiates between different types of L3 learners. The rationale is that not all multilinguals have the same linguistic background, and so it is not right to group them together without recognising these differences. The second element of focus on multilingualism calls for researchers to examine all the languages in the multilingual speaker's repertoire and how the different subsystems are connected rather than focusing on one language only. "By looking at the whole linguistic repertoire we see not just one part of the picture – as in studies focusing only on the third language – but the whole picture of the interaction among the languages" (Cenoz, 2013, p.81). The final element of focus on multilingualism is that the importance of context should be highlighted when analysing the effect of bilingualism on TLA. Bilingualism and multilingualism

can be examined as "a matter of ideology, communicative practice and social process" (Wei, 2008, p.144) rather than merely a matter of mental representation.

Rothman, Cabrelli Amaro, and De Bot (2013) state that despite the proliferation in recent years of high-quality research dedicated to multilingualism, the study of L3/Ln is still in its infancy. They suggest four distinct areas crucial for future research: the parameters which should be used to define an L3/Ln speaker, the comparative fallacy applied to L3 acquisition, the creation of independent measures of proficiency, revealing how an understanding of the L3 acquisition process sheds light on subfields of linguistic inquiry. They explain that determining the parameters which should be applied to L3/Ln speakers is an important matter of empirical prudence and would allow for cross-study comparisons. Hammarberg (2010) details the importance of making true L2 acquisition distinct from L3. Thus one can be a multiple L2 speaker learning an L3 which is actually their fourth or fifth language. With regards to the comparative fallacy applied to L3 acquisition, Rothman, Cabrelli Amaro, and De Bot (2013) suggest that initial state studies which look specifically at transfer need not have a comparison to a native control group. Regarding the creation of independent measures of multilingual proficiency, they concede that we are far from honing in on standardized measures. The complexity of adult multilingualism and the myriad of variables makes this a complex task. Finally, they hold that future research in L3/Ln acquisition should keep in mind the macro-interest in multilingualism so that it can meaningfully contribute to larger issues about the nature, cognitive function and sociological of language. It is under this fourth area that the present study is rooted. It is underpinned by the belief that there is still a lot to learn from polyglots about the nature of languages and how they are learnt. "If multilingualism is indeed one of the 'great achievements of the human mind,' as Vildomec (1963, p.240) claims, it is regrettable that few

linguists have studied polyglots and what it is they know about language learning" (Alkire, 2008, p.vii). This is especially the case in the present day which has witnessed a technological revolution that has no doubt affected LLS.

2.5 Technology and Language Learning

Technology, in its different guises, now plays a significant role in language learning. As Bećirović et al. note, "Digital technology has become an essential factor in the process of language learning" (2021, p.245). A major piece of technology that has contributed to the language learning process is the computer. The field of computer-assisted language learning (CALL) has expanded and "evolved at a remarkable rate" (Levy & Stockwell, 2006, p.1) since the introduction of computers and more recently the internet into language education. A growing number of researchers are investigating various aspects of CALL as it increasingly becomes a part of the language learning process. Indeed, the need for the use of the term CALL has been questioned as technology has become so integrated into every aspect of our lives. The claim is that just as the term BALL (Book Assisted Language Learning) is unnecessary, CALL should be too (Bax, 2003; Hubbard & Levy, 2006; Warschauer, 1999). Despite this proliferation of research into CALL, there is a paucity of research on the way polyglots utilise technology for language acquisition. Do they use technology in the same way as less accomplished language learners? Or are there key strategies which polyglots exploit? Research is needed in this area to answer these germane questions.

CALL has been defined as "the search for and study of applications of the computer in language teaching and learning" (Levy, 1997, p.1). Subsequent definitions have broadened being more inclusive in embracing computer technologies and language learning: "CALL means learners learning language in any context with, through, and around computer technologies" (Egbert,

2005, p. 4). Although it may be more accurate to refer to technology assisted language learning, CALL has largely remained as the uniform term describing the field. Hubbard and Levy (2006) believe it would be counterproductive "to invent new labels every time technology takes a step forward" (p. 148). CALL is viewed from two distinct perspectives: learning from and learning with technology (Reeves, 1998, p. 1). Learning from technology generally views computers as filling the role of the teacher and thus the goal is to produce instructional material for the learner. An example for this is computer-assisted instruction (Ringstaff & Kelley, 2002). In contrast, learning with technology encourages active participation as the learners are "no longer solely taking the information, [but are also] contributing to the knowledge base" (Hill et al., 2004, p. 443). The Internet has certainly increased the possibility of active participation as learners are able to interact with the TL community remotely. There is a great need and value in understanding the impact of CALL on the language learning process, especially since the introduction of Internet-based technologies (Hill et al., 2004). The present study focuses more on the aspect of learning with technology. This is because the intention is to discover how polyglots incorporate technology into their language learning, rather than how instructional material has been provided for them in language institutions.

There has been much discussion amongst theorists about the theoretical framework for CALL research. Theorists such as Chapelle (1997) have argued that CALL research should be connected to SLA research. The belief is that this would give the research a strong foundation. However, other theorists have questioned limiting CALL research to an SLA framework as it does not cover all aspects of CALL research. Egbert and Petrie (2005) advocate CALL research embracing a number of theoretical approaches. Kern (2006) highlights the existing theoretical approaches which can be found in CALL research, such as sociocultural, systemic-functional

linguistics, anthropology, ethnography and semiotic theories. From a sociocultural perspective, social relationships and cultural understandings play a fundamental role in human learning and development. For Vygotsky (1978), "All higher functions originate as actual relations between human individuals" (p. 57). He believed that learning takes place on an inter-psychological plane between individuals. Moreover, the primary interpersonal function of speech is to establish social contact. Individuals learn by socially interacting with others and thus the connection is made between language use and language learning.

2.5.1 CALL Research Review

With regards to online blogs being used to augment language learning, Ward (2004) reported their positive effect. Ward remarked that "For the language teacher the weblog is a timely arrival which can fulfil many of the needs identified for the effective teaching of writing" (2004, p.3). Pinkman (2005) investigated the usefulness of blogs to encourage learner independence beyond the classroom. While it was concluded that further research is needed to establish whether blogs do actually encourage greater learner independence, the results did show that blogs were communicative resources. Ducate and Lomicka (2005) investigated the use of blogs amongst German and French students. They concluded that blogging promoted ownership and creativity (also supported by Lee (2010)) amongst the students, however, they noticed that the blog functioned more as a private writing space rather than a communal one where students interacted. Miceli, Murray and Kennedy (2010) reported a strong communal feeling amongst the students and an increase in student production. Sun (2009) concluded that "blogs constitute a dynamic forum that fosters extensive practice, learning motivation, authorship, and development of learning strategies'' (p.99). Dippold (2009) explored another aspect of blog use. She investigated the usefulness of blogs as a tool for peer feedback. She found that even if students

were familiar with web-based technology they may lack the required skills to use it in an educational context. Therefore, it is very important to consider what to expect from a pedagogical design and it may even be necessary to "abandon traditional roles and writing models in order to be able to fully engage with the medium" (2009, p. 34).

Wiki technology is another form of CALL that has been investigated. Wiki technology is defined as "a freely expandable collection of interlinked Web pages, a hypertext system for storing and modifying information — a database where each page is easily editable by any user with a forms-capable Web browser client" (Leuf & Cunningham, 2001, p. 14). Essentially wikis are interactive websites that offer a simple editing and publishing interface which can be understood easily (Leuf & Cunningham, 2001; Wagner, 2004; Kille, 2006). Lund and Smørdal (2006) examined the interaction of students in wiki environments. They discovered a tension between collective and individual ownership in a teamwork activity. Mak and Coniam (2008) looked at the use of a wiki as a collaborative writing tool. Their results showed that the students produced more writing than was expected of them, and that they wrote at a higher level of complexity. Kessler and Bikowski (2010) also examined the use of a wiki as a collaborative writing tool. They noticed that the students collaboration increased as their comfort with the tool grew. Kuteeva (2011) investigated the effect of writing within a wiki for a diverse group of students. The results showed that the wiki made students pay close attention to the organization of their writing as well as the grammar. They also suggested that writing on a wiki can raise students' awareness about the intended audience, resulting in them adapting their writing and producing more reader-oriented texts.

2.5.2 Other Technologies

In addition to computers, there are other technologies which have emerged in recent years which people utilise for language learning. Telephones have been used in language learning for a number of years now. In 1988, Twarog and Pereszlenyi-Pinter provided feedback and general assistance for language learners using telephones. One of the earliest studies using mobile phones was developed by the Stanford Learning Lab (Brown, 2001). The results suggested that mobile phones could be an effective way to deliver vocabulary lessons and administer tests. However, the phones small screens were believed to be "unsuitable for learning new content but effective for review and practice" (Thornton & Houser, 2002, p. 236). Thornton and Houser (2002; 2003; 2005) investigated the use of mobile phones to teach vocabulary to Japanese students of English. The effectiveness of mobile phone use was compared to Web use and the traditional use of paper. The results showed that students who received their vocabulary via their mobile phone learnt twice the number of vocabulary items as students who received them via the Web. Furthermore, the students who received the vocabulary items by SMS improved their scores by nearly twice as much as students who received the items on paper. Other studies focused on the speed and accuracy of students completing language learning tasks. Stockwell (2010) compared the use of mobile phones with computers. The results showed that vocabulary activities completed via SMS routinely took more time than those completed using computers. Kiernan and Aizawa (2004) added the extra element of face-to-face speakers in their comparison. They found that students using face-to-face communication completed their tasks faster than the other two groups of students. The difference in speed was attributed to fact that for most people speaking is faster than typing.

Another form of technology which has emerged in recent years is electronic dictionaries. Subsequently, a number of studies have been conducted to examine their effectiveness compared to traditional paper dictionaries. One would expect electronic dictionaries to save time when looking up the meanings of words. This is confirmed in the literature, and the consequence is that they make completing reading tasks markedly faster (Aust et al., 1993; Koyama & Takeuchi, 2007; Leffa, 1993). Koyama and Takeuchi (2004) did not report increased speed for task completion for those using electronic dictionaries. This may be due to the fact that the ease of looking up words makes students with electronic dictionaries look up the meanings of more words rather than trying to infer the meaning from the context. This idea is supported by research by Aust et al., (1993) and Koyama & Takeuchi (2004) who revealed that users of electronic dictionaries looked up more words than students using paper dictionaries. However, both sets of students scored similar results on comprehension tests. Leffa (1993) and Knight (1994) found that electronic dictionaries were specifically beneficial for weaker language learners' comprehension and vocabulary learning. Several researchers have investigated whether the use of electronic dictionaries improves the retention rate of the vocabulary items. Laufer and Hill (2000) did not find a link between increased rate of searched words and retention rate. Koyama and Takeuchi (2004) found a better retention rate amongst users of paper dictionaries. One of the posited reasons for the increased retention rate amongst users of paper dictionaries is that electronic dictionaries induce shallow processing due to the ease at which the meanings of words can be accessed. However, Peters (2007) did not find evidence to support this claim and posited that task-relevance was in fact important for vocabulary retention. A few studies have claimed that leaner attitudes towards electronic dictionaries are positive (Aust et al., 1993; Laufer & Levitsky-Aviad, 2006; Liou, 2000; Loucky, 2005). The researchers found that students were a lot

happier to use electronic dictionaries and that they increased the students' willingness to read in the TL. However, Koyama and Takeuchi (2004) did not report and difference in student preference between electronic and paper dictionaries. Electronic dictionaries are becoming increasingly popular. Bower and McMillan's survey (2007) in A Japanese EFL setting showed that as many as 96% of the students owned and used electronic dictionaries. Some researchers have voiced their concern about students becoming too reliant on electronic dictionaries (Nesi, 2010; Svendson, 2006; Deng, 2006; Feng, 2007). The use of electronic dictionaries amongst polyglots and their perceived benefits of paper and electronic dictionaries is an area which remains under researched.

A number of studies have specifically examined the use of text or voice chat for language learning purposes. Sykes (2005) reported that text chat helped students of Spanish produce more complex output with a variety of pragmatic strategies compared to students who face-to-face discussions or used voiced chat. Sykes posited that the natural delay in text chat enabled the students to construct and practice more complex structures. Researchers (Abrams, 2003; Blake, 2009; Payne & Ross, 2005; Payne & Whitney, 2002) also found that text chat can improve oral proficiency. Satar and Ozdener (2008) reported that voice and text chat improves oral proficiency, while Kern, (1995) and Sullivan & Pratt (1996) reported that students are more likely to communicate through chat as it is less intimidating for a language learner than a large face-to-face group discussion held in a traditional classroom. Once again, while research in the area is growing, there remains a paucity of research on polyglots' perceptions of and practices with text and voice chat for language learning purposes.

2.5.3 Social Media

Internet technology has evolved considerably with the birth of collaborative web tools like social media. Social media platforms have increased their total user base from 970 million users in 2010 to 4.48 billion users in July, 2021 (Dean, 2021). The popularity of social media, especially amongst younger generations, has led educators to examine their use in education in general, and for language learning purposes specifically. A number of studies have reported benefits from using social networking sites from a general educational standpoint, such as improved communication between teachers and students (Blattner & Fiori, 2009; Roblyer et al., 2010), increased motivation and engagement (McBride, 2009; Mills, 2011), improved attitudes (O'Sullivan et al., 2004) and the building of a sense of community (Baird & Fisher, 2005; Blattner & Fiori, 2009; Mills, 2011). Another stated benefit of social media usage for language learning is that it provides the opportunity for authentic interaction. This authentic interaction may motivate students as they are using the language they have acquired for real communication. As Chapelle (1998) suggests, "it may be important that learners have an audience for the linguistic output they produce so that they attempt to use the language to construct meanings for communication rather than solely for practice" (p. 23). Kabilan et al. (2010) reports that students improved their language skills and expanded their vocabulary following the use of social media. Students in three studies, Borau et al. (2009), Antenos-Conforti (2009), and Hattem (2012), reported linguistic benefits after using the social-networking site Twitter as a platform for communication. Researchers have also posited that students benefit from being part of a social-networking community, even if they don't actively participate by writing posts. Arnold and Paulus (2010) and Blattner and Fiori (2011) noted that learners benefit from pedagogical lurking where they read other participants' posts and observe native speakers' interactions.

2.5.4 Intercultural Competence

A few studies have investigated intercultural competence development through the use of social media. Borau et al. (2009) and Antenos-Conforti (2009) reported that students' cultural awareness and competence increased as a result of interaction with native speakers on social media. In the Antenos-Conforti (2009) study, the students were required to subscribe to a number of Italian native speakers and they claimed that this gave them insight to Italian culture. Lee (2009, 2011) reported that blogs and podcasts gave the participants a valuable insight into the target culture. Mills's study (2011) looked specifically at the potential of Facebook for developing students' intercultural competence. She found that the students were indeed able to expand their cultural awareness and competence via product sharing activities on Facebook. Elola and Oskoz's (2008) and Jin (2015) endeavoured to provide evidence for this perceived benefit using an intercultural competence measuring tool. The Intercultural Behavioural Assessment Indices (Byram, 2000) highlight five dimensions of intercultural competence: attitude, knowledge, skills of interpreting and relating, skills of discovery and interaction and critical cultural awareness. Elola and Oskoz (2008) discovered that blog exchanges had a positive effect on intercultural competence, while Jin (2015) concluded that Facebook had an overall positive effect on intercultural competence despite the fact that there were conflicted results in some of Byram's criteria.

2.5.5 Online Peer Reviewing

Another area which researchers have been interested in is online peer reviewing and feedback. Web-based environments have changed the traditional feedback-giving role of the native expert. Collaborative language learning has removed the onus from the teacher and emphasised the benefit of learners collaborating by giving and receiving feedback. Liu and Carless (2006)

remark that this peer response process develops skills of critical reflection. Min (2006) and Rollinson (2005) both report that online peer reviewing can help students become more critical readers and give them more insight into the writing process. Lundstrom and Baker (2009) add that it can give students an understanding of how others write which can in turn improve their own writing. Despite these reported benefits, Hyland & Hyland (2006) still opine that research into peer response is inconclusive as to how it contributes to learning. However, a number of studies have been conducted since 2006 which may lead them to revise their position. Some researchers have focused on the conditions which need to be present for peer response to be productive. Baggetun and Wasson (2006) stressed the importance of students being given some guidelines of how to give feedback. They stated that posting feedback on a blog requires certain participation skills which may not come naturally to students. This view is supported by other researchers' findings. (Arnold et al., 2009; Chang, 2012; Guardardo & Shi, 2007). Studies (Berg, 1999; Min, 2006; Zhu, 1995) have shown the effectiveness of peer response training on the quality of feedback given.

It is also important to recognise that computers themselves can provide instant and individualised feedback. Certain programs offer grammar checkers and spell checkers which instantly provides feedback on students' written work. Burston (2001) reported that advanced learners of French benefitted greatly from a French grammar checker. He states, "the effectiveness of the use of Antidote (the grammar tool) in improving morphosyntatic accuracy in assigned compositions were overwhelmingly positive." (p. 507). Technology can also be used to help students' pronunciation by providing feedback that is easily accessible. Traditionally, pronunciation was modelled for students by native-speaker teachers. This meant that it was difficult for students who wanted to study independently to correct their pronunciation, adversely affecting their drive

to acquire new vocabulary. Advancements in speech recognition technology has made it possible for students to receive feedback in effective ways (Dalby & Kewley-Port, 1999; Ehsani & Knodt, 1998; Eskenazi, 1999; Mostow & Aist, 1999).

2.6 Conclusion

This chapter has outlined the theoretical perspectives and empirical findings which relate to matters under investigation in this thesis. Multilingualism and bilingualism were outlined, before the historical development of multilingual research was detailed. An overview of the different types of multilingual individuals was presented, followed by a discussion on multilingual competence and multilingual education. A review of the literature on language acquisition and language learning strategies provided points for investigation when proceeding with this research. Furthermore, an overview of the literature and the empirical findings regarding the use of technology for language learning helped guide the inquiry into how polyglots use technology to aid their language learning.

The following chapter will detail the philosophical and methodological decisions which were taken in order to conduct this research. In addition, the research design will be outlined and the reliability and validity of the study will be discussed. The chapter will also detail the sampling procedures that were followed for this study, as well as the data collection procedures. The ethical considerations that were given while undertaking this research will also be presented in the next chapter.

CHAPTER 3. METHODOLOGY

3.1 Introduction

This chapter will give an overview of the philosophical and methodological considerations which guided this research. The chapter begins by giving a detailed account of the research design. A review of quantitative and qualitative research approaches is given, before a justification of the methods chosen to undertake this research. The chapter continues with a discussion on the reliability and validity of the study, before detailing the sampling procedures used to obtain the participants. The data collection procedures are then outlined, followed by an overview of how the data was analysed. After this, a detailed account of the pilot study is given, followed by an overview of the ethical considerations which were given while carrying out this research.

3.2 Research Design

3.2.1 Overview

The choice of research design is significant in determining the outcomes of a study. It is crucial that a research design is adopted which allows the researcher to successfully conduct the investigation as each method has certain advantages when answering particular research questions (George & Bennett, 2005). According to Bryman, "A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process" (2001, p.29). This research design consists of a questionnaire and document analysis. It is therefore comprised of the collection of both quantitative and qualitative data. This approach is best suited to the phenomenon under investigation in this research as the questionnaire allows the researcher to sample a substantial number of the population which is pertinent when positing their perceptions and beliefs. The qualitative data then allows the researcher to gain a more nuanced

understanding and elaborate on findings if required. For Cohen et al. (2007), mixed-methods research can "map out, or explain fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data" (p.141). When using mixed methods it is important to decide whether equal status will be given to quantitative and qualitative data, or whether priority will be given to one method over the other (Burke Johnson et al., 2007). Creswell and Plano Clark (2007) synthesise the array of mixed methods approach into four main typologies; the triangulation design, the embedded design, the explanatory design and the exploratory design. A brief outline of these typologies follows, with explanation of the choice for this research.

a) The Triangulation Design

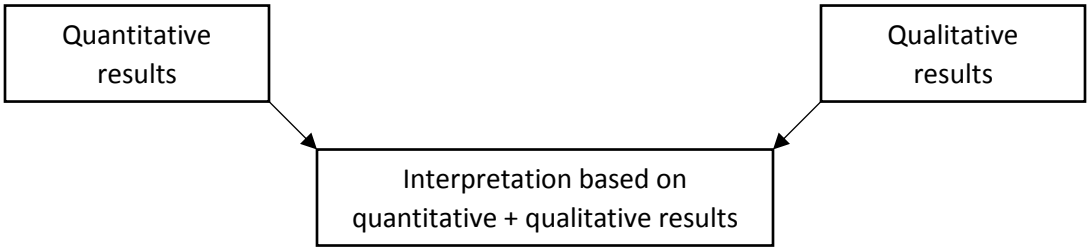


Figure 3.1 The triangulation mixed methods design (Creswell & Plano Clark, 2006)

There are four variants of the Triangulation Design, however the design illustrated in Figure 3.1 is the most common and well-known approach to mixed methods research (Creswell et. al. 2003). The researcher hopes to "obtain different but complementary data on the same topic" (Morse, 1991, p.122). As Creswell and Plano Clark (2006) clarify, "This design is used when a researcher wants to directly compare and contrast quantitative statistical results with qualitative findings or to validate or expand quantitative results with qualitative data" (p.62). This design was not adopted for the current research because of the anticipated disparity in the number of participants contributing quantitative data and qualitative data. While the qualitative data in this

study gives insight to the mindset and rationale of polyglots, it was not considered appropriate to give equal weighting to a considerably smaller group of polyglots in order to discover their beliefs and perceptions.

b) The Embedded Design

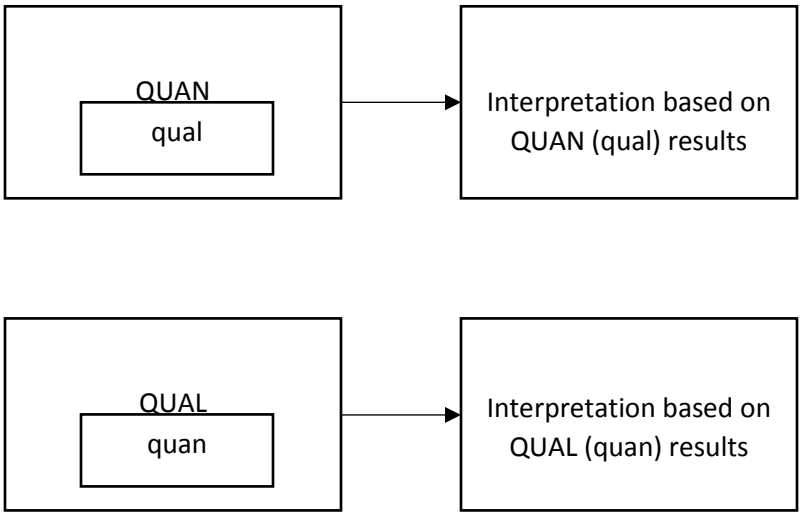


Figure 3.2 The embedded mixed methods design (Creswell & Plano Clark, 2006)

"The Embedded Design includes the collection of both quantitative and qualitative data, but one of the data types plays a supplemental role within the overall design" (Creswell & Plano Clark, 2006, p.68). This is due to the premise that "a single data set is not sufficient, that different questions need to be answered, and that each type of question requires different types of data" (Creswell & Plano Clark, 2006, p.67). This design is used when a researcher has a study which is mainly quantitative or qualitative, but there is a need to include the other type of data to answer the research question in a satisfactory manner. At the design level one type of data is embedded within the methodology framed by the other data type (Caracelli & Greene, 1997). This design was not chosen because it was the goal of this research to use the two different data sets to answer the same questions as is not typically the case with the Embedded Design. Qualitative

data collected from a questionnaire containing Likert scale items would likely need some elaboration, thus the embedded design is not the most suitable design.

c) The Exploratory Design

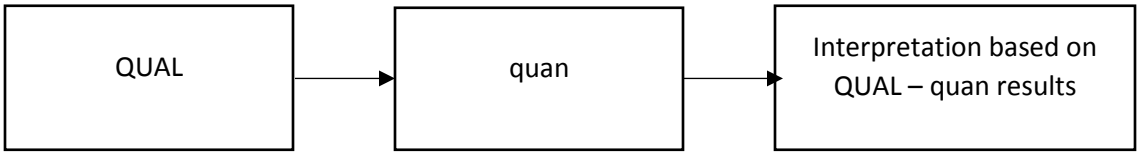


Figure 3.3 The exploratory mixed methods design (Creswell & Plano Clark, 2006)

The Exploratory Design consists of a two-phase approach which begins with qualitative data, and subsequently quantitative data is collected. "Researchers using this design build on the results of the qualitative phase by developing an instrument, identifying variables, or stating prepositions for testing based on an emergent theory or framework" (Creswell & Plano Clark, 2006, p.77). This design was rejected because the quantitative data would then be confirming or negating the beliefs of the polyglots who contributed to the qualitative phase. While such an approach can be justified, the researcher opted to use the qualitative data to rationalise and elaborate on the perceptions of the larger sample of polyglots who contributed to the quantitative phase.

d) The Explanatory Design

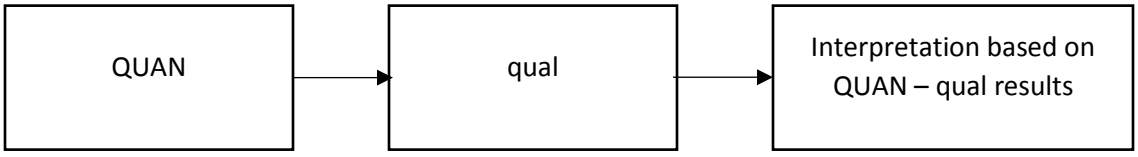


Figure 3.4 The explanatory mixed methods design (Creswell & Plano Clark, 2006)

The Explanatory Design is the reverse of the Exploratory Design. It also consists of two phases. "The overall purpose of this design is that qualitative data helps explain or build upon initial

quantitative results" (Creswell & Plano Clark, 2006, p.71). Morse (1991) highlights that this design is ideal for a researcher who needs qualitative data to explain significant quantitative results, outlier results, or surprising results. Once quantitative data has been collected and analysed, the qualitative phase of the study "is designed so that it follows from (or connects to) the results of the first quantitative phase" (Creswell & Plano Clark, 2006, p.72). This design fits well with the goals of this research, and so it was the design that was opted for.

3.2.2 Choice of Research Design

The choice of research design for this study is the Explanatory Design because it best fits the research aims. The research consists of both quantitative and qualitative data. A mixed methods approach was chosen for the oft stated rationale that "neither quantitative nor qualitative methods are sufficient, by themselves, to capture the trends and details of a situation" (Ivankova et al., 2006, p.3). The quantitative data highlights commonly held beliefs of the polyglot participants. However, qualitative data is required for a deeper understanding. It allows for elaboration of positions held and provides insight to areas where the quantitative data is inconclusive. "When used in combination, quantitative and qualitative methods complement each other and allow for a more robust analysis, taking advantage of the strengths of each" (Ivankova et al., 2006, p.3). Moreover, mixed methods research "provides strengths that offset the weaknesses of both quantitative and qualitative research" (Creswell & Plano Clark, 2007, p.9). For Cohen et al. (2007) mixed methods research helps the researcher "map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data" (p.141).

The explanatory design facilitated the gathering of data to adequately answer the research questions. It was pertinent to get a largescale understanding of polyglots' views. Questionnaires

are the most effective and practical way of gathering such data. As Dörnyei (2007) highlights, a questionnaire allows the researcher to collect a vast amount of information from a large number of participants in a short amount of time. This was particularly pertinent in this study where the participants were dispersed throughout the world. Questionnaires are often the research tool used to investigate participants' attitudes and perceptions as was the aim of this study. They "seek to answer questions about people's feelings, attitudes and perceptions, having first decided what kind of attitudes and perceptions are relevant and valued" (Tymms, 2017, p.175). Moreover, "the researcher can be expected to have a fairly advanced understanding of the issue of the topic being investigated. That is certainly the case if one is asking about questions involving rating scales; "To what extent do you agree that …" which can be answered on a strongly disagree to strongly agree rating" (Tymms, 2017, p.175). As Morse (1991) alluded to, the explanatory design is suitable for a researcher who then needs to expound upon quantitative results.

There are a number of procedural issues that need to be considered when using the mixed methods sequential explanatory design. The first of these is the priority that will be given to either quantitative or qualitative methods throughout the data collection and analysis. As Ivankova et al. state, "In the sequential explanatory design, priority, typically, is given to the quantitative approach..." (2006, p.9). However, a researcher may give priority to qualitative data over quantitative data depending on the research aims, the theoretical drive, the design of each phase, and the scope of the quantitative and qualitative research questions (Morse, 1991; Morgan, 1998). Morgan (1998) held that the determining factor should be which data collection method is best suited to answer the research questions. In line with the research aims, priority was given to the quantitative method. However, in this study the document analysis, which

formed the qualitative data, was significant in elaborating on points raised by the quantitative data.

Another important consideration is the implementation, which refers to the order in which the data is collected and analysed by the researcher. The implementation is said to be concurrent when the researcher applies quantitative and qualitative methods during a single phase of the study. If the researcher applies quantitative and qualitative methods during two distinct phases then the implementation is said to be sequential. The decision to use sequential timing for this study was based on the desire to use qualitative data to expound upon the statistical results. As Teddlie and Tashakkori note, in a sequential design "The second strand of the study is conducted either to confirm/disconfirm the inferences of the first strand or to provide further explanation for findings from the first strand" (2006, p.22).

The third procedural consideration is how the quantitative and qualitative data will be mixed or integrated. As Creswell and Plano Clark (2006) warn, "A study that includes both quantitative and qualitative methods without explicitly mixing the data derived from each is simply a collection of multiple methods" (p.83). Therefore, "A rigorous and strong mixed methods design addresses the decision of how to mix the data, in addition to timing and weighting" (Creswell and Plano Clark, 2006, p.83). There are three main strategies for integrating quantitative and qualitative data. The researcher may merge the data sets, embed data from one method within the design of the other method or connect from the data analysis of one method to the data collection of the other. The quantitative and qualitative data in this study was integrated by connecting the results of the data analysis from the quantitative phase to the data collection of the qualitative phase. As Ivankova et al. highlight "Another connecting point might be the development of the qualitative data collection protocols, grounded in the results from the first, quantitative, phase, to

investigate those results in more depth through collecting and analyzing the qualitative data in the second phase of the study" (2006, p.11). The statistical analysis of the questionnaire informed and guided the document analysis in the second phase. It directed the qualitative data collection by highlighting areas which needed further investigation.

3.3 Data Collection

3.3.1 Data Collection Instruments

Data was collected in two distinct phases. First, quantitative data was collected using a questionnaire. This was followed by document analysis which provided qualitative data.

3.3.1.1 The Questionnaire

A questionnaire is defined as "a document containing questions and other types of items designed to solicit information appropriate to analysis" (Babbie, 1990, p. 377). Historically, questionnaires are a favoured method of data collection in the social sciences. This is especially the case, as in this study, when exploring participants' perceptions and beliefs. Pajares (1992) describes beliefs as a messy construct since they do not lend themselves to observable investigation. However, questionnaires allow for self-reporting of such beliefs allowing the researcher to "identify important beliefs and attitudes of individuals" (Creswell, 2012, p. 376). Subsequently, a significant number of researchers (Horwitz, 1985; Cotterall, 1995; Rifkin, 2000; Takač, 2008; Tseng et al., 2006; Victori and Lockhart, 1995) have utilised questionnaires to investigate learners' beliefs. There are numerous advantages of using questionnaires as a research tool, which supported its use in this study. Firstly, questionnaires allow for the standardisation of data which facilitates the tabulation and statistical analysis of it. Moreover, questionnaires can generate a large amount of data in a short amount of time (Dörnyei &

Taguchi, 2010). This enables the researcher to understand "how a large population views an issue and the diversity of these views" (Creswell, 2012, p.13). This is achieved with little demand on the researcher's or respondents' time and money (Gay and Airasian, 2000; Oppenheim, 2000; Cohen et al., 2004). The participants in this study were spread throughout the world, and so a questionnaire was the most practical and feasible way to gather a substantial amount of data from them.

Questionnaires provide ample time for respondents to consider their answers. The participants in this research were not under time restraints to complete the questionnaire. This should improve the veracity of their responses, in turn, improving the validity of the research instrument. Finally, the respondents of a questionnaire are often anonymous. Consequently, they are free to express their views and opinions without fear of reprisal. This also improves the validity of the research instrument.

There are some disadvantages of using questionnaires which a diligent researcher must consider and endeavour to overcome. Firstly, respondents generally complete the questionnaire without the researcher present. There is, therefore, no way of checking for understanding or seeking clarification of unintelligible responses. In order to overcome this potential problem, a pilot study was conducted and feedback was obtained on the clarity of the questionnaire items. Secondly, respondents may answer superficially which would affect the reliability of the data collected. Moreover, respondents may also fall victim to what Dörnyei (2003) coined fatigue effects. This would lead them to answer inaccurately due to being bored or tired. A multi-item questionnaire was used in order to facilitate the discovery of erratic responses and overcome these potential problems. Finally, poor formulation of the questionnaire items may unduly influence the participants' responses. Preparation of the questionnaire therefore requires skill and

diligence which a novice researcher may lack. Measures were taken to counter this potential problem. A pilot study was conducted and feedback helped adjust questionnaire items, and the questionnaire was checked by experienced researchers who utilise questionnaires.

Questionnaires consist of either open-ended questions, closed-ended questions or a mixture of both. The rating scale used for the questionnaire was the Likert Scale created by Rensis Likert. This is a multiple-item measure which "measures intensity of feeling about the area in question" (Bryman, 2012, p.166). The scale was originally designed to contain five response options. However, researchers have adapted the scale to include as few as two and as many as seven response options. Some researchers have chosen to avoid providing five response options out of fear that some respondents will consistently pick the middle option to avoid committing themselves to a real position. However, research (Nunnally, 1978; Robson, 1993) has shown that excluding the middle option does not modify the results significantly. A scale without a neutral choice was also rejected as it potentially forces respondents to answer against their immediate inclination. A scale consisting of more than five choices was rejected as literature suggests that a five-point scale is less confusing and can increase the response rate (Babakus & Mangold, 1992; Devlin et al., 1993; Hayes, 1992). As a result, a five-point Likert scale was utilised in the questionnaire for this study ranging from strongly agree to strongly disagree (see appendix A).

An additional benefit of this format for this study was that it facilitated the coding and analysis of the responses. In addition, it made completing the questionnaire less of a daunting task for would-be participants, subsequently improving the response rate. The specific nature of closed-ended questions also enabled the researcher to generalise the results amongst the sample. Moreover, by standardising the range of responses throughout the instrument the degree of guesswork and chance was reduced (Gay and Airasian, 2000; Oppenheim, 2000; Cohen et al.,

2004). This format of questionnaire was deemed to be the most feasible, and likely to yield the desired large response rate. It also allowed for descriptive statistics and correlations to be analysed. Using open-ended questions, as well as diminishing the response rate, would have replicated qualitative data found in the document analysis.

3.3.1.2 The Questionnaire Design

The importance of designing a good questionnaire cannot be understated. As Gillham (2000) points out "good research cannot be built on poorly collected data" (p.1). Dörnyei (2003) highlights a common misconception about questionnaire design; "People appear to take it for granted that everybody with reasonable intelligence can put together a questionnaire that works. Unfortunately, this is not true..." (p.3). Designing a questionnaire with sufficient reliability and validity for this study required care, thought and adherence to principles of best practice described below.

Face-to-face, telephone and postal surveys are three traditional methods of conducting research surveys. However, due to its practicality, internet-based data collection is fast growing in popularity (Van Selm & Jankowski, 2006). The decision was taken to produce an online questionnaire on Survey Monkey (appendix B), which is one of the popular dedicated platforms. This decision was taken because of the difficulty of administering any other kind of questionnaire to a sample of a population which is unknown and scattered around the world.

The first step when constructing the questionnaire was to devise four sub-scales for each subsidiary research question (see table 3.1). It was, therefore, initially intended for the questionnaire to consist of twelve sub-scales. However, the number of sub-scales grew to thirteen following the factor analysis (see chapter 4.4.1). Using a multi-item questionnaire, while aiding validity and reliability, limited the areas that could be addressed for each sub-scale. Each

sub-scale consisted of five multiple items (except for the additional sub-scale which was comprised of two items, and the sub-scale from which these two items were taken which subsequently consisted of three items) which addressed a particular aspect of the research question.

Subsidiary research question	Questionnaire sub-scales
What are essential characteristics of a successful language learner?	Language learning as a unique talent
	Metacognition and language learning
	Interaction
	Motivation
What are important considerations for successful language acquisition?	Experience and language learning
	Language learning in schools
	Language learning goals
	Importance of language learning strategy
	Value of language learning
What are the benefits of technology for language acquisition?	Technology Aiding Language Learning
	The Use Of Social Media
	Learning From Online Peers
	Technology And Intercultural Competence

Table 3.1- Questionnaire sub-scales and corresponding subsidiary research question

The sub-scale items were preceded by a section which gathered background information about the respondents. This background information was important as it enabled the researcher to compare responses against certain variables and analyse whether there were any correlations among these variables (Bell, 1999). Some theorists (e.g. Dörnyei, 2003b; Oppenheim, 1992) believe that the request for this information is best left at the end of the questionnaire in order to not resemble bureaucratic forms and dampen respondents' enthusiasm. However, my belief was that rating language abilities would have the opposite effect with polyglots due to their apparent love of languages. Reflecting on their successes was believed unlikely to deter them. Dörnyei (2003) recommends a renewed promise of confidentiality following questions about personal information. Subsequently, before respondents could proceed to the next section of the questionnaire there was a renewed promise of anonymity and confidentiality along with a request

for consent to use the responses given for the study. With regard to the length of the questionnaire, Dörnyei (2003) warns that "less is often more because long questionnaires can become counterproductive" (p.18). He advises that a questionnaire should be no more than four pages in length and take no longer than thirty minutes to complete. This advice was considered applicable, regardless of the questionnaire being online. The questionnaire consisted of sixty-seven items which covered three and a half pages when transferred onto a Microsoft Word document. The questionnaire was piloted and the average time that it took to complete the questionnaire was considered reasonable (roughly twenty minutes). The questionnaire was given a title "to identify the domain of the investigation, to provide the respondent with initial orientation, and to activate various content schemata" (Dörnyei, 2003b, p.25). This was followed by instructions which were "informative and well-pitched" (Dörnyei, 2003b, p.25) as recommended.

Principles of best practice were followed when writing the questionnaire items. Firstly, the items were not lengthy as "...short questions are good questions" (Brown, 2001, p.45). Furthermore, the items were written in a clear and direct way "without any acronyms, abbreviations, colloquialisms, proverbs, jargon, or technical terms" (Dörnyei, 2003b, p.53). The items were constructed so that they would be meaningful and interesting to the respondents (Oppenheim, 1992). Moreover, ambiguous and loaded words were avoided, as were double-barrelled questions. Moreover, an attempt was made to order the questions in an orderly and well-organised fashion so as to not make the study appear ill-considered or amateurish (Newell, 1993). This was achieved by avoiding suddenly changing the content or style of the questionnaire items.

Some theorists (e.g. Dörnyei, 2003b) have advised against using negative constructs in the questionnaire. In fact, Ellard and Rogers include this warning in their ten commandments of question writing (1993). However, the decision was made to use a small percentage of items with negative wording as they can implicitly correct for acquiescence (Weijters & Baumgartner, 2012). This is where respondents use a set pattern of responding due to a preference for a selection of a number from one side of the scale. Negative worded items can "work as cognitive "speed bumps" and can cause a slower, more careful reading" (Józsa & Morgan, 2017, p.9).

3.3.1.3 Ethical Considerations

Byrman (2012) characterises authors on social research ethics into different categories. A universalist stance was adopted during the course of this study. The universalist stance takes the view that "ethical precepts should never be broken" (Bryman, 2012, p.133) and that "Infractions of ethical principles are wrong in a moral sense and are damaging to social research" (Bryman, 2012, p.133). Ethical considerations are of even more importance when conducting research with human participants (Cohen, Manion & Morrison, 2007; Punch, 2009). Subsequently, this study was conducted in accordance to the ethical guidelines outlined by the British Educational Research Association (BERA, 2011). The association stresses that "educational researchers should operate within an ethic of respect for any persons involved in the research they are undertaking. Individuals should be treated fairly, sensitively, with dignity, and within an ethic of respect and freedom from prejudice" (BERA, 2011, p.5). Moreover, the study followed the ethical guidelines outlined by Cohen et al. (2004).

Before commencing the research, ethical approval was obtained from the School of Education Ethics Committee at Durham University (appendix C). Following scrutiny of the data collection procedures, the committee was satisfied that the robust ethical standards which the university

sets would be upheld. All participants were sent a letter accompanied with the questionnaire (appendix D). This letter outlined the purpose of the study and requested informed consent from the participants. The minimum age for participation in the study was eighteen and so all participants were able to give consent themselves. Participants were assured of the anonymity and confidentiality of their responses. They were not required to provide their names when completing the questionnaire and they were assured that all information they provided would solely be used for the purpose of the study. Furthermore, the digital platform which was used to create the questionnaire (SurveyMonkey.com) provided an option to turn on anonymous responses. Selecting this option meant that participant IP addresses and e-mail addresses were not stored by the researcher.

The participants were reminded that filling out the questionnaire was completely voluntary, and that they could withdraw at any point while completing the questionnaire. To assure data protection, the participants' responses were stored securely on a password protected digital platform, which only the researcher had access to. Finally, the responses were to be stored for the duration of the study and then deleted.

3.3.1.4 Pilot Study

Once ethical approval was obtained from the Ethics Committee at Durham University, a pilot study was conducted. The importance of carrying out a pilot study cannot be underestimated. According to Sudman and Bradburn (1983), ""if you do not have the resources to pilot-test your questionnaire, don't do the study" (p.283). Moser and Kalton (1971) warn that any attempt to shortcut the piloting stage will seriously threaten the psychometric quality of the questionnaire. Piloting the questionnaire can increase the reliability, validity and practicability of the questionnaire (Oppenheim, 1992; Morrison, 1993; Wilson & Mclean, 1994). According to Bell

(1999), “All data-gathering should be piloted ... to check that all questions and instructions are clear and to enable you to remove any items which don't yield usable data” (p.84). Dörnyei (2003, p.64) lists other functions of piloting the questionnaire. They include highlighting questions with ambiguous wording and discovering questions which are too difficult for a respondent to reply. Moreover, the researcher is able to gain valuable feedback about the overall appearance of the questionnaire, the clarity of the instructions, the appropriateness of the cover letter and also the length of time that it took for the respondents to complete the questionnaire.

Dörnyei (2003, p.66) recommends selecting three or four people who are motivated to help scrutinise the questionnaire. He notes that “Some of them should not be specialists in the field” (Dörnyei, 2003b, p.66) as they “are very useful in locating unnecessary jargon” (Dörnyei, 2003b, p.66). Converse and Presser (1986) concede that researchers often turn to "that familiar source of forced labor - colleagues, friends, and family" (p. 53). To pilot the questionnaire, it was given to seven polyglots of varying backgrounds. Some of the participants in the pilot study were accustomed to survey research as recommended by Dörnyei (2003, p.66). Some were familiar with language acquisition and its parlance, while others were not specialists in the field. The participants were asked to complete the questionnaire and then provide general comments and feedback. They were also asked to note down any items whose wording they did not like, or items that they thought were not completely clear. Moreover, they were requested to mark any items which they thought were redundant. The participants also commented on the clarity of the instructions and the overall appearance of the questionnaire.

According to Brown (2001), the danger for a researcher is that “you put so much personal time and effort into developing the questionnaire that it becomes 'your baby.’ If someone is subsequently critical of it, you may find yourself reacting as if you have been personally

attacked" (p.62). Brown continues by stating that "rule number one in the critiquing/revision process is that the creator should never take the criticism personally" (Brown, 2001, p.62). The suggestions made by the participants of the pilot study were welcomed by the researcher. As a result of the pilot study, the wording of some of the items were altered in order to improve comprehensibility. Furthermore, a few of the items were removed which the participants felt were repetitive. More than one participant commented that it was not initially entirely clear whether they should answer the questionnaire according to their beliefs or according to what they felt the case was for the majority. Subsequently, an important line was added to the instructions clarifying that the participants are requested to complete the questionnaire according to their own perspective, and not what they felt the case may be for the majority of polyglots. Finally, the pilot study confirmed to the researcher that the questionnaire took no longer than twenty-five minutes to complete and thus did not exceed the thirty minute limit which Dörnyei (2003) proposed.

3.3.1.5 Population and Sample of Participants

Bryman (2012) defines the population in research as "the universe of units from which the sample is to be selected" (p.187). While the sample refers to "the segment of the population that is selected for investigation" (Bryman, 2012, p.187). As Dörnyei (2003) highlights, in most cases "investigating the whole population is not necessary and would in fact be a waste of resources" (p.71). If appropriate sampling procedures are adopted, meaningful results can be garnered from the sample. In the present study, the population is all of the world's polyglots. As previously mentioned, there is no consensus on the definition of the word polyglot. For the purpose of this study, a polyglot is defined as someone who speaks four or more languages to at least an intermediate level (B1 on CEFR- appendix E). This study relied on self-reporting of the

polyglots' levels, as testing each respondent was not feasible. The size and constitution of this population is an unknown entity. There is no worldwide census which charts the number of languages spoken by individuals, and such is the nature of language learning, that the population is likely to be fluid and ever-changing. Sampling an unknown or concealed population can be methodologically challenging for researchers. In this research it was not possible to gather the world's polyglots and then take a random sample of them. Subsequently, this study adopts snowball (chain-referral) sampling as its method of gathering research subjects. "With this approach to sampling, the researcher makes initial contact with a small group of people who are relevant to the research topic and then uses these to establish contacts with others" (Bryman, 2012, p.202). This method of sampling was the best choice for this study as initial contact could be made with polyglots, and then they in turn could pass on the questionnaire to other members of the population that were known to them. This method of sampling is often used to overcome problems associated with sampling concealed, shifting, unknown or isolated populations (Faugier and Sargeant, 1997). The process is based on the assumption that those initially contacted have a bond or a link with others in the target population (Berg, 1988). Language enthusiasts gather in global conferences and often liaise with each other. This sampling method allowed the researcher to reach members of the population that may otherwise have been very difficult to reach. Figure 3.5 below illustrates the sampling technique.

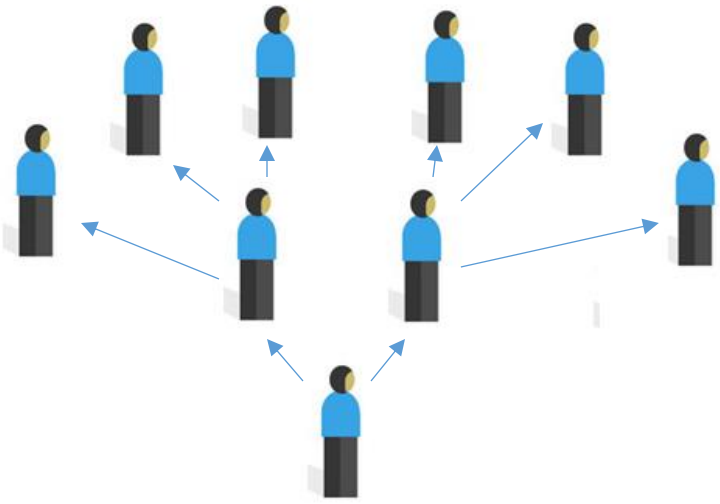


Figure 3.5 Snowball Sampling

The main strength of snowball sampling is that it facilitates research on otherwise hidden populations. Many researchers have used this method to conduct studies on such populations. (Bryman, 1999; Inciardi, 1977; Kaplan et al, 1987; McNamara, 1994; Pollak & Schlitz, 1988; Sudman & Freeman, 1988). As Bryman (2012) admits in his study on British visitors to Disney theme parks, the lack of an accessible sampling frame for the population means that "a snowball sampling approach is the only feasible one" (p.203). This was also the case in this study. Once initial contact was made with the population, the questionnaire was able to spread amongst them.

The problem with snowball sampling is that selection bias limits the validity of the sample (Van Meter, 1990; Kaplan et al, 1987). As Becker (1963) remarks about a snowball sample, "The sample is, of course, in no sense 'random'; it would not be possible to draw a random sample, since no one knows the nature of the universe from which it would have to be drawn" (p.46). Since the sample relies on the subjective choices of the people initially contacted, snowball samples do not allow researchers to generalise from the data to a wider population (Griffiths et

al, 1993). While snowball sampling may not allow the researcher to generalise, "The problem of selection bias may be partially addressed, firstly through the generation of a large sample" (Atkinson & Flint, 2001). This study does not attempt to generalise from the data to the wider population. The beliefs and perceptions of the polyglots sampled are still of value. Such is the nature of the phenomenon under investigation that the opinions of every member of the population are of interest, even if they are not representative of the population. That is to say that the techniques of a polyglot who has, for example, learnt ten languages are of value, even if he or she is the sole user of such techniques. The large sample size of polyglots surveyed, nevertheless, addresses the problem of selection bias and strengthens the study.

The process of sampling was initiated by contacting polyglots who organise annual gatherings and conferences. They were requested to complete the questionnaire, and to share it with their mailing lists. Furthermore, university language departments around the world and interpreter departments of international political organisations were contacted. Requests were also made on polyglot forums. The digital platform used to host the questionnaire had provisions to ensure that multiple questionnaires where not received from the same IP address. Table 3.2 below details the total number as well as the sex of the polyglots who completed the questionnaire. Further information about the sample, including the ages and nationalities of the respondents is outlined in the Chapter 4.2.

Total number of respondents	*513*
Male	248
Female	265

Table 3.2- Total number and sex of questionnaire respondents

3.3.1.6 Data Analysis

In order to ensure the rigour of the questionnaire results presented, it is important to choose a suitable form of statistical data analysis. According to Coolican (2014), "Inappropriate statistical procedures, or other statistical errors, may be responsible for the appearance of a difference or correlation that does not represent reality" (p.95). The aims of the research along with the sampling methodology for the questionnaire dictated the most appropriate manner to analyse the data. Snowball sampling does not support generalising from the sample to the wider population. Subsequently, descriptive analysis was considered an apt way of providing a summary of the questionnaire results for the sample in this study. As Dörnyei (2003) contends, "...descriptive statistics offer a tidy way of presenting the data we have" (p.114). This is in contrast to inferential statistics which supports generalisations concerning the wider population. "When an individual uses descriptive statistics, he talks about the data he has; but with inferential statistics, he talks about data he does not have" (Popham & Sirotnik, 1973, p.40). Inferential statistics (one way analysis of variance and t tests) were used to examine the correlation of variables. However, the inferential statistics were used to characterise the sample, and generalisations were not made regarding the wider population. The questionnaire data was exported from the digital platform where it was collected to the Statistical Package for the Social Sciences (SPSS) 26.0. This facilitated the analysis of the data and the subsequent identification of patterns in the data. The mode and standard deviation of each Likert scale item highlighted areas of consensus amongst the participants. Furthermore, correlation analysis was used to evaluate the strength of relationship between variables.

3.3.1.7 Reliability and Validity

"The reliability of a psychometric instrument refers to the extent to which scores on the instrument are free from errors of measurement" (Dörnyei, 2003b, p.110). Furthermore, reliability is concerned with the extent to which research findings are "independent of accidental circumstances" (Kirk & Miller, 1986, p.20). If a questionnaire as a research instrument is reliable, there should be consistency of scores over time or across raters. Reliability therefore refers to "the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions" (Hammersley, 1992, p.67). There are different methods which researchers use to ascertain the reliability of their questionnaire.

Test-retest reliability is concerned with showing the stability of scores over time. Absolute test-retest reliability looks "to systematically evaluate the consistency, reproducibility, and agreement among two or more measurements of the same tool under unchanged conditions" (Aldridge et al., 2017, p. 208). Reliability is reported when the results of the questionnaire are the same or similar when repeated by the same group of participants. In this study the researcher had minimal contact with a handful of participants. It was therefore not possible to issue the questionnaire to the same respondents for a second time. It is also questionable whether they would have been willing to repeat the questionnaire had they been given the opportunity.

Alternate form reliability evaluates the degree of correlation between respondents' answers to two different questionnaires administered in close succession. The items in the questionnaire are worded differently, but they measure the same construct. The Pearson product-moment correlation coefficient is used to assess the reliability of the two forms. Once again, due to the

nature of the sampling and the researcher contact with the participants, alternate form reliability was ruled out as a method of establishing the reliability of the research instrument.

Another way of assessing the reliability of a questionnaire is to measure and ensure internal consistency reliability. Internal consistency reliability is often measured by the Cronbach Alpha coefficient. This is a value between 0-1. The closer the value is to 1 the more reliable the questionnaire is at measuring the intended construct. Dörnyei, (2003) recognises that L2 researchers are often trying to measure several different areas in a questionnaire and subsequently they cannot use very long scales. This results in lower Cronbach Alpha coefficients being expected. Nevertheless, he warns that "even with short scales of 3-4 items we should aim at reliability coefficients in excess of 0.70; if the Cronbach Alpha of a scale does not reach 0. 60, this should sound warning bells" (2003, p.112). This form of reliability testing was adopted in this study. The items which measured the same trait were analysed for internal consistency reliability. To ensure that the items in the questionnaire related to the intended constructs, factor analysis was performed. The relatively large sample size gave credence to the factor analysis. According to Tolmie et al. (2011), sample size is the most important factor to consider before proceeding with factor analysis. Tabachnick and Fidell (2001) elaborate that 200 participants would represent a fair sample size. A sample size smaller than this would make it difficult to rule out that 'the observed correlations are not being substantially influenced by random errors' (in Tolmie et al., 2011, p.174-175). They conclude that 300 participants would represent a good sample size (Tolmie et al., 2011). The confirmation of the constructs facilitated the measurement of internal consistency reliability. The results of the factor analysis and the internal consistency reliability are outlined in the following chapter.

"Validity refers to the issue of whether an indicator (or set of indicators) that is devised to gauge a concept really measures that concept" (Bryman, 2012, p.171). There are several ways of gauging the validity of a research instrument. However, discussions about validity often focus on four main kinds of validity: content validity, face validity, construct validity and criterion-related validity (Creswell, 2005; Pallant, 2011). In this study, content validity, face validity and construct validity were used to establish the validity of the questionnaire. Content validity "seeks to establish that the items or questions are a well-balanced sample of the content domain to be measured" (Oppenheim, 2000, p.162). It is concerned with the extent to which the items on the questionnaire and the scores which are derived from it represent or reflect all possible questions about the content or skill (Creswell, 2005). Thus, the more the questions on the research instrument are representative of the domain being measured, the greater the content validity (Shekaran & Bougie, 2010). Ascertaining the extent to which a research instrument represents a certain domain is not a statistical process. Rather a judgemental approach is required to establish content validity. Experts in the field of investigation scrutinise the research instrument and help establish its validity. In order to ensure content validity, certain steps were followed during the course of this study. Firstly, an exhaustive literature review was conducted in order to determine the content domain to which the instrument would be applied. The items then went through a process of drafting and modification aided by supervisor feedback. Once the questionnaire had been developed it was then piloted as outlined in section 3.5.1.4. Feedback from the participants of the pilot study led to further modifications of the questionnaire. Finally, the questionnaire was reviewed by two experts in the field of language acquisition. They evaluated the questionnaire and assured that the items offered a good representation of the domain under investigation.

Face validity is essentially an intuitive process where a researcher establishes "that the measure apparently reflects the content of the concept in question" (Bryman, 2012, p.171). It refers to the degree to which an instrument measures what it claims to measure (Leedy & Ormrod, 2004). Thus, face validity is asserted without empirical testing being undertaken (Cook & Beckman, 2006). Fink (1995) differentiates between content validity and face validity by acknowledging that the latter does not rely on established theories for support. Rather face validity depends on the subjective assessment of reviewers as to whether the instrument items are relevant, reasonable, unambiguous, and clear (Oluwatayo, 2012). As Bryman (2012) states, "Face validity might be established by asking other people whether the measure seems to be getting at the concept that is the focus of attention" (p.171). Accordingly, the questionnaire was reviewed and judged by colleagues and deemed to reflect the concepts concerned.

Construct validity refers to "the degree to which inferences can legitimately be made from the operationalizations in a study to the theoretical constructs on which those operationalizations were based" (Agarwal, 2011, p.1). In order to establish construct validity of the questionnaire, a principal component analysis (PCA) with varimax rotation was conducted post administration. The PCA sought to determine convergent and discriminant validity. Convergent validity refers to the extent to which two measures of the same construct are in fact related, and discriminant validity refers to the extent to which a measure diverges from another measure with an unrelated underlying construct. As Trochim notes, "If you can demonstrate that you have evidence for both convergent and discriminant validity, then you've by definition demonstrated that you have evidence for construct validity. But, neither one alone is sufficient for establishing construct validity" (2006). The correlation tests reported in the next chapter established the construct validity of the questionnaire.

3.3.2.1 Document Analysis

The second phase of an explanatory mixed methods design is qualitative in nature. In this study, document analysis makes up the qualitative element of the research. Document analysis is specifically relevant to this research as it elaborates on the data collected in the quantitative phase. In rudimentary terms document analysis involves the analysis of documents to gather facts (Caulley, 1983). These documents include "any symbolic representation that can be recorded or retrieved for analysis" (Altheide, 1996, p.2). Bowen (2009) defines document analysis as "a systematic procedure for reviewing or evaluating documents—both printed and electronic (computer-based and Internet-transmitted) material" (p.27). The aim of reviewing the documents is to elicit meaning and obtain a richer understanding of the research problem (Merriam, 1988; Rapley, 2007). The analytic procedure in order to achieve this "entails finding, selecting, appraising (making sense of), and synthesizing data contained in documents" (Bowen, 2009, p. 28). Document analysis is often used in mixed methods research as a way of triangulating data (e.g. Angers & Machtmes, 2005; Rossman & Wilson, 1985; Sogunro, 1997). The rationale for the researcher is to provide "a confluence of evidence that breeds credibility" (Eisner, 1991, p. 110). Document analysis differs from other research methods in its unobtrusive nature. The data is "found rather than made through the researcher's intervention in the field" (Jensen, 2002, p.243). As Bryman states, documents "are simply 'out there' waiting to be assembled and analysed' (Bryman, 2001, p.370).

Bowen (2009, p. 31) lists several advantages of document analysis. Firstly, it is less time-consuming than other research methods. The focus of the researcher is on data selection rather than data collection. Secondly, many documents are readily available in the public domain and can be accessed without the authors' permission. This is especially the case since the advent of

the Internet. Another advantage of document analysis is its unobtrusive nature. The effect of the researcher on the phenomena being investigated is not usually a concern as it is with other qualitative research methods. In addition, documents are stable and thus not altered by the researcher's presence. This allows for repeated reviews of the documents.

Bowen (2009, p.31) also highlights what he prefers to describe as potential flaws, rather than disadvantages, of document analysis. Firstly, there is the danger that documents do not contain sufficient detail as they were not produced with the intention of research. Secondly, documents may on occasion be irretrievable. As Yin (1994) states, documents may be purposely removed or blocked. Furthermore, biased selectivity may cause certain documents to be available while others are deliberately withheld. This is more a concern when the practices of a particular organisation are being investigated, rather than the declared beliefs of individuals as is the case in this study. Bowen (2009) concludes that "Given its efficiency and cost-effectiveness in particular, document analysis offers advantages that clearly outweigh the limitations" (p.32).

3.3.2.2 Document Analysis Design

The purpose of the document analysis in this study was to gain a better understanding of the polyglots' beliefs and perceptions which emerged from the questionnaire. To achieve this, an analysis of documents produced by 13 polyglots was conducted. These documents consisted of blogs, videos, lectures, interviews and authored books that were in the public domain and readily available. The sampling method for the document analysis is detailed in section 3.5.2.4. Once the 13 polyglots were identified, an extensive search was done to amass as much of their documents as can be found in the public domain. Subsequently, any authored books, websites, blogs, recorded lectures, social media sites, and interviews were identified for each polyglot. The polyglots release documents in the multiple languages that they speak. However, only the

documents that they release in English contributed to the study. It was not considered feasible to obtain translations for documents released in the myriad of languages that they converse in. The polyglots whose documents were used for the analysis have previously conducted several interviews and written numerous articles which address the areas which needed further investigation following the questionnaire. Subsequently, using document analysis was considered a more efficient method than attempting to re-interview the polyglots.

The design of the document analysis was shaped by the results of the quantitative phase of this study thereby achieving integration of the data. The importance of integrating mixed methods research data has been previously mentioned in this chapter. According to Woolley (2009), "Quantitative and qualitative components can be considered ''integrated'' to the extent that these components are explicitly related to each other within a single study and in such a way as to be mutually illuminating, thereby producing findings that are greater than the sum of the parts" (p.7). Connecting the results from the questionnaire to the design of the document analysis is initially done through the sampling frame (Fetters et. al, 2013). "In the sequential explanatory design, a researcher typically connects the two phases while selecting the participants for the qualitative follow-up analysis based on the quantitative results from the first phase" (Ivankova et al., 2006, p.11). The selection of the 13 polyglots was influenced by the analysis of the data from the questionnaire, as polyglots who focus on other aspects of life as a language enthusiast were not chosen to contribute to the study. Another way of connecting the data from the quantitative phase to the qualitative phase is through the data collection protocols for the document analysis. As Ivankova et al. state, "Another connecting point might be the development of the qualitative data collection protocols, grounded in the results from the first, quantitative, phase, to investigate those results in more depth through collecting and analysing the qualitative data in the second

phase of the study" (2006, p.11). This was the case in this study where the quantitative data from the questionnaire highlighted areas to explore further in the document analysis.

3.3.2.3 Ethical Considerations

When conducting the document analysis the researcher considered the ethical principles which are well known in social research. Diener and Crandall (1978) categorise these principles into four main areas: harm to participants, lack of informed consent, invasion of privacy and deception. The universalist approach of the researcher towards ethical considerations necessitated that these ethical precepts be upheld. The nature of the document analysis, consisting of mainly online sources, meant that careful consideration had to be given to these ethical principles. As Bryman (2012) contends, "The Internet has also thrown up new dimensions of ethical decision-making for social researchers" (p.149). Much of the debate that surrounds how ethical principles should be upheld in digital research involves researchers actively partaking in online activities such as chatrooms and email discussion groups in order to elicit data. According to Bryman, "such 'lurking' is frowned upon" (2012, p.149). The central issue is whether such electronic communications are public or private. According to Walther (2002), "While some participants have an expectation of privacy, it is extremely misplaced" (p.207). Yet other researchers such as Pace and Livingston (2005) argue that there are conditions for the use of such electronic communications.

During this study, I did not have any interactions with the polyglots in order to elicit information that would then form part of the document analysis. All of the documents which were analysed were already in the public domain and thus considered public documents. As Hewson purports, "there is arguably a clear distinction between accessing and analysing (disseminating, publishing, etc.) material gathered from group discussion archives and assessing material in

published online documents for use as research data" (p.444). This distinction is very important when making ethical considerations. "Defining something as private or public has implications for how we assume it should be treated in a research context. Can we look at it? Can we analyze it? Can we reproduce it? Should we alter it for the sake of confidentiality? How should we ask about using it?" (Tiidinberg, 2018, p.471). According to Hewson (2014), when dealing with research that involves using documents that already exist online "Privacy is perhaps less of a concern here...as generally the types of documents discussed here are intentionally placed on the web in public spaces with the expectation that they will be readily accessible and viewed by third parties. Indeed, often this is the purpose of creating a blog, webpage, and so on" (p.444).

The decision was taken not to use pseudonyms when referring to the polyglots during the document analysis. The documents were treated in the same way as authored books and journal articles. The creators of the documents were named and their statements were referenced. The traceability of online sources including their authorship makes confidentiality and anonymity almost impossible (Stewart & Williams, 2005). In fact, researchers have noted the potential conflict between maintaining confidentiality and anonymity and adhering to copyright obligations (Bowker & Tuffin, 2004; Reips & Buffardi (2012). Consequently, the approach adopted in this research is open and rightly attributes material to its source.

Although, the polyglots were not given anonymity or confidentiality, every effort was made to prevent any harm coming to them. Furthermore, their statements were accurately represented in order to avoid deception. As Hewson (2014) stresses, "sensitivity on the part of the researcher and respect for individuals and good ethics practice is required when assessing different data sources..." (p.444).

3.3.2.4 Population and Sample of Participants

The selection of the polyglots for the document analysis was informed by the quantitative results from the first phase of the research. The sampling can therefore be described as purposive in nature. As Teddlie and Yu (2007) explain, "Purposive sampling techniques are primarily used in qualitative (QUAL) studies and may be defined as selecting units (e.g., individuals, groups of individuals, institutions) based on specific purposes associated with answering a research study's questions" (p.77). Maxwell (1997) elaborates further that in purposive sampling "particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices'' (p. 87). It was essential to select participants that maximised the explanatory power. The purpose of the qualitative phase in an explanatory sequential design is to improve the understanding of the quantitative results. The selection of participants is pertinent is being able to achieve this. As Marshall (1996) notes, "qualitative researchers recognise that some informants are 'richer' than others and that these people are more likely to provide insight and understanding for the researcher" (p.523). The size of the sample is usually determined by the researcher after considering numerous factors (Gall et al., 2003; Patton, 2002; Flick, 2009). According to Morse (2000), the sample size is determined by the scope of the research question, the nature of the topic and the quality of the data. He states that the richer the data is, the smaller the sample size need be. Malterud et al. (2016) also believe that one of the factors governing the sample size is the quality of dialogue. Thus rich dialogue requires a smaller sample.

Numerous studies have suggested that thematic saturation is reached before the contributions of 12 participants (Francis et al., 2010; Guest et al., 2006; Hennink et al., 2017; Morgan et al., 2002; Namey et al., 2016). Subsequently, the documents of 13 polyglots which were used for

this phase of the study were considered sufficient. These 13 polyglots were not intended to be from the sample of polyglots that contributed to the questionnaire. However, due to the nature of snowball sampling which was used for the questionnaire, one is not able to rule out the possibility that the questionnaire reached them. The 13 polyglots who contributed to the document analysis were chosen for the diversity of their backgrounds, the richness of information that their documents contain, and the range of their language learning experiences.

The table below details the polyglots whose blogs, videos, interviews and lectures contributed to the document analysis.

	Name of polyglot	Sex	Nationality	Upbringing
1	Benny Lewis	M	Irish	Monolingual
2	Luca Lampariello	M	Italian	Monolingual
3	Kerstin Cable	F	German	Monolingual
4	Steve Kaufmann	M	Canadian	Monolingual
5	Lydia Machová	F	Slovak	Monolingual
6	Richard Simcott	M	British	Sequential Bilingual
7	Emily Liedel	F	American	Monolingual
8	Olly Richards	M	British	Monolingual
9	Amber Gonzalez	F	American	Monolingual
10	Shannon Kennedy	F	American	Monolingual
11	Jonty Yamisha	M	American	Monolingual
12	Gabriel Silva	M	Brazilian/Canadian	Monolingual
13	Lindsay Williams	F	British	Monolingual

Table 3.3- The polyglots who contributed to the document analysis

3.3.2.5 Data Analysis

The data collected from the qualitative phase of the research is intended to augment the quantitative data. The "effectiveness of triangulation rests on the premise that the weaknesses in each single method will be compensated by the counter-balancing strengths of another" (Jick, 1979, p.604). There are many ways of handling qualitative data in order to achieve this. As Creswell (2012) highlights, “There is no single, accepted approach to analyzing qualitative data, although several guidelines exist for this process…It is an eclectic process” (pg. 238). The initial challenge, therefore, is selecting the best analytical method to tackle the sizeable qualitative data. As Patton (2002) points out, "The challenge of qualitative analysis lies in making sense of massive amounts of data” (p.432). The approach adopted by researchers is guided by their research questions and their research design. The document analysis formed the second phase of the research design. The analysis would have added substance to any sub-scale of the questionnaire that it was applied to, even if there was consensus amongst the participants of the questionnaire. In such an instance, it would provide insight to the mindset and reasoning of polyglots that cannot be ascertained from Likert scale items. It was not feasibly within the scope of this study to elaborate on every single sub-scale of the questionnaire. To do so with any meaningful depth was not compatible with the confines of the word limit. Subsequently, it was necessary to be selective about when to apply the document analysis. The document analysis was undertaken when the data from the questionnaire was inconclusive.

Qualitative content analysis was adopted as a systematic and robust approach to address inconclusive sub-scales. According to Bryman (2012), qualitative content analysis “is probably the most prevalent approach to the qualitative analysis of documents” (p.557). He describes the approach as “a searching out of underlying themes in the materials being analysed” (Bryman,

2012, p.557). Moreover, the goal of the approach is "to provide knowledge and understanding of the phenomenon under study" (Downe-Wamboldt, 1992, p. 314).

There are different forms of qualitative content analysis: conventional content analysis, directed content analysis and summative content analysis. In this study, the researcher considered directed content analysis (also referred to as deductive content analysis) to be the most suitable form. Directed content analysis uses existing theory or prior research to identify key concepts or variables which help formulate initial coding categories (Potter & Levine-Donnerstein, 1999). As Mayring (2000) states, "Deductive category application works with prior formulated, theoretical derived aspects of analysis, bringing them in connection with the text." The quantitative research identified key concepts which needed further investigation, and these concepts formed the initial themes. Special attention had to be paid to the potential dangers of using predetermined themes. As Dierckx de Casterlé et al. (2012) warn, "Using a preconceived framework runs the risk of prematurely excluding alternative ways of organizing the data that may be more illuminating" (p. 3). According to Creswell (2007), "Using 'prefigured' codes or categories…serve to limit the analysis to the 'prefigured' codes rather than opening up the codes to reflect the views of participants in a traditional qualitative way" (p.152). These concerns of directed content analysis are not as relevant when the analysis is done within a sequential explanatory design. The purpose of the qualitative phase is to expound on the findings from the quantitative phase. Nevertheless, due diligence was taken to analyse the documents in a thorough manner, in order to bring out all underlying themes from the documents. The qualitative content analysis was conducted manually following the eight step process suggested by Zhang and Wildemuth (2009) for applying directed content analysis. Below is further detail of how these steps guided the analysis of the documents:

1. Prepare the data- the documents of the 13 polyglots were gathered. Then initial searches were preformed amongst these documents to find specific documents which were related to the areas of investigation highlighted following analysis of the questionnaire. General interviews were listened to in case the areas of investigation were referenced. Audio documents were then transcribed.
2. Define the unit of analysis- Themes and codes were decided as the units of analysis.
3. Develop categories and a coding scheme- The content was classified into themes which corresponded to the key concepts which were identified for further investigation following analysis of the questionnaire data. Various codes were then identified from the documents which aligned to the themes.
4. Test your coding scheme on a sample of text- The coding scheme was applied to a transcribed interview to ensure that the codes clearly aligned to the themes.
5. Code all the text- The coding process was applied to the documents. In interviews that covered a myriad of areas, initial word searches highlighted key words which were associated to the themes. The text related to these themes were then coded. If the whole interview or blog post was related to the theme then it was coded in its entirety.
6. Assess your coding consistency- Although more of an issue when coding is distributed across multiple researchers (MacPhail et al., 2016), the coded transcripts were checked several times to ensure coding consistency.
7. Draw conclusions from the coded data- In this step, the codes which emerged were reviewed in order to draw inferences. Relationships between the codes were identified between the codes so that they could be presented as a result of the analysis. For example, the polyglots' belief that online peers can be a source of motivation was linked to their belief that motivation is an important aspect of language acquisition.
8. Report your methods and findings- In order to present the findings, the codes were supported by quotes from the documents. It was not practical to include all of the quotes which were associated to a particular code. Subsequently, an effort was made to use quotes from different polyglots in order to show that the codes were not the perceptions of one person.

An excerpt of a transcribed video with the themes and codes is included in the appendix (see appendix F).

3.3.2.6 Reliability and Validity

Qualitative researchers have long discussed the relevance of reliability and validity for qualitative research. Some researchers (e.g. Kirk & Miller, 1986; LeCompte and Goetz, 1982) have continued to write about reliability and validity in qualitative research, but have altered the

meanings of the terms when applied to qualitative research. However, other researchers, as Bryman (2012) states, "have suggested that qualitative studies should be judged or evaluated according to quite different criteria from those used by quantitative researchers" (p.390). Guba and Lincoln (1985) are amongst those that advocate for more appropriate ways to establish the quality of qualitative research. They suggest that qualitative researchers should pursue trustworthiness instead of conventional notions of reliability and validity in order to assure the quality of the research. Trustworthiness consists of four criteria which each parallel a criterion in quantitative research; credibility (parallels internal validity), transferability (parallels external validity), dependability (parallels reliability) and confirmability (parallels objectivity) (Bryman, 2012, p.390). Other researchers (Cohen, Manion and Morrison, 2007; Golafshani, 2003) have also advocated for these criteria in qualitative research.

Credibility refers to "the methodological procedures and sources used to establish a high level of harmony between the participants' expressions and the researchers' interpretation of them" (Given, 2008, p.138). Merriam (2007) states that credibility looks to answer the question "How congruent are the findings with reality?" (p.201). Guba and Lincoln (1989) suggest three credibility measures to ensure that the researcher's interpretation of the data matches the participants' construed realities. They stress the importance of prolonged engagement between the researcher and the participants, member checking and peer debriefing. Document analysis allows for prolonged engagement as it does not involve intrusive contact with the participants. Subsequently, the researcher was able to spend a vast amount of time searching for information relevant to the research. Furthermore, ample time could be spent interpreting the participants' statements. Creswell (2005) defines member checking as "the process in which the researcher asks one or more participants in the study to check the accuracy of the account" (p.252). During

the document analysis some of the polyglots were contacted to confirm that what they articulated was accurately interpreted. This aided the credibility of the analysis. In regards to peer debriefing, the analysis of the documents was sent to an impartial peer to examine and his feedback was welcomed. He confirmed the accuracy of the analysis.

Transferability refers to the extent to which research findings can be applied to a wider population or in similar contexts (Cohen, Manion and Morrison, 2007; Shenton, 2004). However, Guba and Lincoln (1985) warn against seeking generalisation in qualitative research. They remark that whether findings "hold in some other context, or even in the same context at some other time, is an empirical issue" (p.316). According to Bryman (2012), this is because "qualitative findings tend to be oriented to the contextual uniqueness and significance of the aspect of the social world being studied" (p.392). As previously mentioned, this study does not seek to make generalisations to a wider population. However, qualitative research is encouraged to produce thick description (Geertz, 1973; Guba & Lincoln, 1985) which allows others to make judgements about the transferability of the findings. The analysis of the documents provided a thick description of the polyglots' beliefs and perceptions, moreover extensive details regarding the methodology enable researchers and readers to gauge whether the findings would be applicable to other milieux.

According to Cohen, Manion and Morrison, (2007) dependability refers to the replicability and consistency of the measuring instrument over time. Furthermore, it signifies "the stability of findings over time" (Bitsch, 2005, p.86). Guba and Lincoln (1985) propose an audit trail in order to detail the phases of the research process, the decision-making process, the selection of participants and other methodological and theoretical issues. In order to achieve dependability in this study, the phases of the research study, the sampling techniques adopted, and other

methodological considerations have been outlined in detail. This has allowed the research process to be logical, traceable, and clearly documented (Tobin & Begley, 2004).

The final element of trustworthiness purported by Guba and Lincoln (1985) is confirmability. This is regarding whether the researcher has acted in good faith. As Bryman (2012) notes, "it should be apparent that he or she has not overtly allowed personal values or theoretical inclinations manifestly to sway the conduct of the research and the findings from it" (p.392-393). Certain steps were taken in order to ensure that the research findings accurately reflect the beliefs and perceptions of the participants, and not those of the researcher. Firstly, the ontological and epistemological position of the researcher was outlined which is a major criteria of confirmability (Miles and Huberman, 1994). According to Moon et al. (2016) "Such reflexivity does not necessarily demonstrate a removal of bias, but does help explain how the researcher's position can manifest in the research findings while still yielding useful insights". Moreover, the researcher engaged in general reflexivity throughout the research process in order to enhance "'the credibility of the findings by accounting for researcher values, beliefs, knowledge, and biases" (Cutcliffe, 2003, p.137). Thus, for example, the researcher was aware of his positive emotions towards applications for language learning. Subsequently, extra diligence was taken when analysing the documents related to this theme.

3.4 Conclusion

This chapter has demonstrated the rigour of this research by outlining the considerations taken at every stage of the project. The chapter has detailed the diligence taken to ensure the quantitative and qualitative data fit together by way of the research design. The robustness of the data collection procedures and the ethical considerations add to the credibility of the findings. The

following chapter is the first of four chapters which outline the results of this study. It details the results of the questionnaire which formed the quantitative phase of the study.

CHAPTER 4. QUESTIONNAIRE DATA ANALYSIS AND RESULTS

4.1 Introduction

The findings of this study will be reported across four chapters. This chapter focuses on the results of the questionnaire which constituted the first stage of the explanatory mixed methods design. The proceeding three chapters detail the findings of the document analysis which was used to collect qualitative data. This study addressed the following overarching research question:

1. What are the beliefs and perceptions of polyglots with regards to language learning/acquisition?

The area of language acquisition is so vast that subsidiary questions were required in order to give focus to the study. The investigation was guided by the subsequent subsidiary questions:

- What are essential characteristics of a successful language learner?
- What are important considerations for successful language acquisition?
- What are the benefits of technology for language acquisition?

The questionnaire facilitated the collection of a large amount of data from 513 respondents. Firstly, a demographic overview of these respondents is presented, followed by an outline of the reliability and validity of the research tool. The quantitative data from the questionnaire is subsequently presented using descriptive statistics.

4.2 The Participants

As previously mentioned in Chapter 3 (3.3.1.5), snowball sampling, otherwise referred to as chain-referral-sampling, was used to attain participants for this study. As detailed in Chapter

3.3.1.5, a polyglot, and thus a member of the population, is defined in this study as someone speaking at least four languages to a standard of B1 or higher on the CEFR. A total of 538 people responded to the questionnaire. However, some responses had to be discarded for various reasons as follows.

Item 8 of the questionnaire sought consent from the respondents for their responses to be used for this study. Despite submitting answers to the questionnaire, 5 of the respondents declined to give consent for their responses to be used for the study and 4 respondents skipped the question. Although consent may have been declined inadvertently, in adherence to high ethical standards, no assumptions were made and the nine respondents' answers were duly discarded. Furthermore, it is known that the use of intermediaries in snowball sampling can lead to a misleading account of the project and its aims being given. This can result in a researcher being inundated by a large number of ineligible respondents (Biernacki & Waldorf, 1981). Item 5 of the questionnaire required the respondents to detail their number of languages. Analysis of the questionnaire responses revealed that 2 monolingual, 2 bilinguals and 10 trilinguals responded to the questionnaire. Since they did not meet the eligibility criteria set out for this study, their responses were also discarded. A further 6 respondents skipped item 5 of the questionnaire, however by analysing their responses to item 6 which required them to list their languages under the appropriate CEFR descriptor, it was possible to determine that only 2 of these respondents did not satisfy the set criteria and so their responses were discarded . This left a total number of 513 valid respondents.

The sample consisted of people from 71 different countries. Tables 4.1, 4.2 and 4.3 below detail the gender, age range, and nationality of the respondents, respectively. Table 4.4 displays further information about the languages spoken by the respondents.

GENDER	FREQUENCY	PERCENT (%)
MALE	248	48.3
FEMALE	265	51.7
TOTAL	513	

Table 4.1- Total number and sex of research respondents

AGE GROUP OF RESPONDENTS	NUMBER OF RESPONDENTS	PERCENT (%)
18-24	177	34.5
25-34	216	42.1
35-44	76	14.8
45-54	18	3.5
55-64	20	3.9
65+	5	1.0
MISSING	1	0.2
TOTAL	513	

Table 4.2- Age range of questionnaire respondents

NATIONALITY	NO. OF RESPONDENTS	PERCENT (%)	NATIONALITY	NO. OF RESPONDENTS	PERCENT (%)
Afghan	1	0.19	Indonesian	1	0.19
Albanian	1	0.19	Irish	6	1.16
American	86	16.76	Israeli	3	0.58
American/Irish	1	0.19	Italian	17	3.31
American/Polish/Iranian	1	0.19	Jamaican	1	0.19
Argentinean	4	0.77	Korean	2	0.38
Australian	6	1.16	Lebanese	2	0.38
Australian/Macedonian	1	0.19	Luxembourger	2	0.38
Austrian	8	1.55	Malaysian	11	2.14

Azeri	1	0.19	Mexican	9	1.75
Belgian	12	2.33	Montenegrin	1	0.19
Bosnian	1	0.19	Moroccan	2	0.38
Brazilian	17	3.31	New Zealander	1	0.19
British	35	6.82	Nigerien	1	0.19
Bulgarian	2	0.38	Norwegian	4	0.77
Canadian	21	4.09	Pakistani	2	0.38
Chilean	2	0.38	Polish	9	1.75
Chinese	21	4.09	Portuguese	8	1.55
Croatian	4	0.77	Romanian	6	1.16
Cypriot	2	0.38	Russian	6	1.16
Czech	7	1.36	Sammarinese	1	0.19
Danish	5	0.97	Saudi	1	0.19
Dominican	1	0.19	Serbian	3	0.58
Dutch	29	5.65	Singaporean	4	0.77
Ecuadorian	1	0.19	Spanish	10	1.94
Egyptian	1	0.19	Swedish	6	1.16
Estonian	3	0.58	Swiss	7	1.36
Filipino	2	0.38	Swiss/Hungarian	1	0.19
Finnish	11	2.14	Taiwanese	2	0.38
French	13	2.53	Taiwanese/Dutch	1	0.19
German	43	8.38	Tunisian	1	0.19
Greek	3	0.58	Turkish	3	0.58
Guatemalan	1	0.19	Turkish/Norwegian	1	0.19
Japanese	2	0.38	Ukrainian	4	0.77
Hungarian	6	1.16	Vietnamese	2	0.38
Indian	12	2.33	Skipped question	5	0.97

Table 4.3- Nationality of questionnaire respondents

MINIMUM NUMBER OF LANGUAGES SPOKEN	4
MAXIMUM NUMBER OF LANGUAGES SPOKEN	15
MODE	4
MEDIAN	5
MEAN	5.31
STANDARD DEVIATION	1.77

Table 4.4- Overview of respondents' languages

As highlighted in Table 4.4, the mode for the number of languages spoken by the respondents at a minimum B1 level was 4. 43.07% of the respondents were speakers of four languages. The maximum number of languages spoken by a respondent was 15. One respondent spoke this many languages. Table 4.5 below details the number of languages spoken by the respondents.

NUMBER OF LANGUAGES	4	5	6	7	8	9	10	11	12	13	14	15
NUMBER OF RESPONDENTS	221	141	56	44	20	8	11	6	3	0	2	1
PERCENTAGE OF RESPONDENTS	43.07	27.48	10.91	8.57	3.89	1.55	2.14	1.16	0.58	0	0.38	0.19

Table 4.5- The number of languages spoken by the respondents

Item 6 of the questionnaire requested respondents to self-evaluate their languages according to the CEFR band descriptors provided. The responses were checked to ensure that all respondents met the minimum requirement of four languages at a B1 level or above. Moreover, the responses were checked to make sure that a respondent who stated that they spoke, for example, 8 languages, intended that all 8 languages were at the B1 level or above. For example, respondent 497 stated in item 5 that they spoke 8 languages. For item 6, the respondent stated that they spoke 2 languages at B1, 2 languages at B2, and 4 languages at C1. Table 4.6 details the level of the respondents' languages.

NUMBER OF LANGUAGES	CEFR LEVEL			
	B1	B2	C1	C2
1	190	181	204	162
2	100	98	89	210
3	12	29	27	66
4	6	8	6	19
5	2	2	3	2
6	2	0	0	1
7	0	0	0	0
8	0	0	0	1
9	0	0	0	0
10	1	2	1	1

Table 4.6- The level of respondents' languages

A total of 462 languages were graded as being at C2 level. 162 respondents reached C2 level in one language. 1 respondent reached C2 level in 10 languages. 330 languages were graded as being at C1 level. The majority of the respondents reached C1 level in 1 language. 320 languages were graded as being at B2 level and 313 languages were graded at B1 level.

Item 7 of the questionnaire asked the respondents to specify whether they were raised in a bilingual/multilingual household or not. The results reveal that the vast majority of the respondents were raised in a monolingual household. 163 (31.90%) respondents stated that they were raised in a bilingual or multilingual household. The majority (68.10%) stated that they were not raised in a household where more than one language was spoken. 2 of the respondents did not provide an answer to this question.

Were you raised in a bilingual/multilingual household?			
Yes		No	
Number	Percentage	Number	Percentage
163	31.9%	348	68.1%

Table 4.7- Item 7 of the questionnaire

4.3 Reliability of the Questionnaire

In research using a multi-item measurement scale, Cronbach's alpha is the dominant measure of internal consistency, and thus scale reliability (Flake et al., 2017; McNeish, 2018). As a result, Cronbach's alpha was calculated to establish the reliability of the measurement tool. The Statistical Package for Social Science (SPSS) was used to carry out all quantitative analysis.

Table 4.8 shows the 13 dimensions which were designed to be measured by the questionnaire along with their Cronbach's alpha values. As Dörnyei, (2003) recognises, L2 researchers are often trying to measure several different areas in a questionnaire and subsequently they cannot use extended scales. This usually results in lower Cronbach Alpha coefficients. Furthermore, Pallant (2011) notes that Cronbach alpha values are "quite sensitive to the number of items in the scale. With short scales (e.g. scales with fewer than ten items) it is common to find quite low Cronbach values (e.g. .5)" (p.97). In this questionnaire, each sub-scale consisted of 5 items (except for the 8th and 9th sub-scales which were divided following the factor analysis). Despite this, the Cronbach alpha scores were relatively high. Dörnyei warns that "even with short scales of 3-4 items we should aim at reliability coefficients in excess of 0.70; if the Cronbach Alpha of a scale does not reach 0.60, this should sound warning bells" (2003, p.112). It is widely accepted that a Cronbach alpha score of 0.7 indicates acceptable internal consistency (Adadan and Savasci, 2011; Kline, 1999; Nunnally, 1978). The Cronbach alpha score for seven of the thirteen sub-scales was above 0.8, and the other six sub-scales had a Cronbach's alpha score above 0.70.

Furthermore, the alpha coefficient for all of the sub-scales together was 0.88. This indicates that the questionnaire has good internal consistency and is reliable.

SUB-SCALE	ITEM NUMBER	CRONBACH'S ALPHA
LANGUAGE LEARNING AS A UNIQUE TALENT	9-13	.82
LANGUAGE LEARNING IN SCHOOLS	14-18	.83
EXPERIENCE AND LANGUAGE LEARNING	19-23	.76
LANGUAGE LEARNING GOALS	24-28	.76
IMPORTANCE OF LANGUAGE LEARNING STRATEGY	29-33	.82
METACOGNITION AND LANGUAGE LEARNING	34-38	.79
COMMUNICATION STRATEGIES	39-43	.86
MOTIVATION	44-45	.75
VALUE OF LANGUAGE LEARNING	46-48	.74
TECHNOLOGY AIDING LANGUAGE LEARNING	49-53	.79
THE USE OF SOCIAL MEDIA	54-58	.89
LEARNING FROM ONLINE PEERS	59-63	.86
TECHNOLOGY AND INTERCULTURAL COMPETENCE	64-68	.85
ALL SUB-SCALES	9-68	.88

Table 4.8- Cronbach's Alpha scores for the questionnaire components

The internal consistency of the questionnaire was further confirmed using the Pearson correlation coefficient. The Pearson correlation coefficients (r) indicate that there is a statistically significant correlation at the 0.01 level between the items of each dimension. This implies that the items in each dimension are internally homogeneous. The values for each item are displayed in table 4.9 below.

Item no.	Item	Pearson correlation
	Dimension 1: Language learning as a unique talent	
9.	Successful language learners are born with an aptitude for language learning.	.74**
10.	Not everyone can learn a second language.	.66**
11.	Only gifted people can learn several languages.	.81**
12.	Being a polyglot requires a special talent.	.83**
13.	The ability to learn languages is something you either have or don't have.	.78**
	Dimension 2: Language learning in schools	
14.	Language education in schools is adequate.	.72**
15.	The way languages are taught in schools should not be changed.	.75**
16.	Schools give students the tools to be successful language learners.	.76**
17.	Language learning in schools does not need reform.	.82**
18.	Schools teach languages the right way.	.86**
	Dimension 3: Experience and language learning	
19.	Language learning becomes easier with experience.	.66**
20.	The more languages someone learns the easier it becomes.	.78**
21.	With every additional language, a polyglot's language learning becomes more efficient.	.80**
22.	Language learning is a skill which improves with time.	.73**
23.	The first time learning a foreign language is the most challenging.	.67**
	Dimension 4: Language learning goals	
24.	The aim when learning a language should be perfection.	.72**
25.	The goal for a language learner should be to communicate without mistakes.	.75**
26.	One should learn a language to reach native like proficiency.	.80**
27.	One should not be satisfied with their language learning until they reach native like proficiency.	.76**
28.	Making mistakes means the language learning journey is not over.	.53**
	Dimension 5: Importance of language learning strategy	
29.	A language learner's strategy is an important factor in his or her success.	.75**
30.	Polyglots are successful because they have a good language learning strategy.	.75**
31.	Aspiring language learners would benefit from being taught language learning strategies.	.78**
32.	Language learners need to be taught how to learn a language.	.74**
33.	It is important to develop a strategy for language learning.	.83**
	Dimension 6: Metacognition and language learning	
34.	It is important for a language learner to plan their learning.	.70**
35.	It is important for a language learner to set goals.	.77**
36.	A successful language learner self-evaluates his or her progress.	.75**
37.	A successful language learner takes control of the learning process.	.77**
38.	A successful language learner makes an effort to find suitable material.	.68**
	Dimension 7: Communication strategies	
39.	A successful language learner finds opportunities to communicate in the target language.	.76**
40.	Successful language learners interact with people proficient in the target language.	.84**
41.	It is important to communicate with competent speakers of the target language.	.83**
42.	The best way to improve one's speaking is to find native speakers of the target language and practice with them.	.77**
43.	It is important to find native speakers with whom to practice with.	.85**
	Dimension 8: Motivation	
44.	Motivation is the most important factor determining acquisition success.	.91**
45.	A motivated learner will succeed in language learning.	.88**

	Dimension 9: Value of language learning	
46.	The value of speaking multiple languages should be explained to language learners.	.78**
47.	Many language learners do not succeed because they do not see the value in language learning.	.83**
48.	The benefits of being multilingual are not understood by most language learners in schools.	.83**
	Dimension 10: Technology aiding language learning	
49.	Technology has made language learning much easier than in the past.	.76**
50.	Technology has made language learning accessible to everyone.	.56**
51.	Technology-savvy learners have a distinct advantage over language learners that are less competent with technology.	.72**
52.	I am a more efficient language learner now because of technology.	.84**
53.	Technology has sped up the language learning process.	.81**
	Dimension 11: The use of social media	
54.	I use social media as part of my language learning activities.	.86**
55.	Social media is a good tool for a language learner.	.81**
56.	Social media is good for authentic interaction in the target language.	.76**
57.	I use social media to interact with native speakers of the target language.	.89**
58.	Social media has increased my contact with native speakers of the target language.	.89**
	Dimension 12: Learning from online peers	
59.	It is beneficial to have online peers who are learning the same language.	.83**
60.	Online peers aid my language learning.	.83**
61.	Feedback from peers online is useful in the language learning process.	.81**
62.	A language learner should try to find online peers who are learning the same language.	.81**
63.	Online peers are helpful because they are in an environment away from the pressure of the classroom.	.73**
	Dimension 13: Technology and intercultural competence	
64.	Technology has made foreign cultures accessible.	.69**
65.	The use of social media enables a learner to learn about a foreign culture as well as a foreign language.	.82**
66.	Communicating with people online has increased my cultural awareness of target language communities.	.81**
67.	Social media allows one to learn about a foreign culture without travelling.	.83**
68.	Interacting with native speakers online increases cultural awareness.	.80**

Table 4.9- Pearson correlation and significance label for each questionnaire item
**Correlation is significant at the 0.01 level (2-tailed)

Having established the reliability of the questionnaire, attention will now turn to the validity of the measurement tool.

4.4 Validity of the Questionnaire

Three approaches were adopted in order to ascertain the validity of the questionnaire. As mentioned in the methodology chapter, content validity, face validity and construct validity were used to gauge the validity of the research instrument. The process of establishing content validity and face validity is outlined in section 3.3.1.7. Accordingly, this section will focus on the

construct validity of the questionnaire which was established by a principal component factor analysis.

4.4.1 Factor Analysis

A principal component analysis (PCA) was conducted for two purposes. Firstly, in order to determine whether the structure of the dimensions of the questionnaire supported the intended dimensions formulated by the researcher. All of the questionnaire items were analysed to ascertain whether the responses of the respondents suggested additional unintended underlying dimensions. Furthermore, the PCA would provide evidence of construct validity by way of convergent and discriminant validity. If the items from one sub-scale load heavily on one component and have weak loadings on the other components then "loadings like these can serve as the basis for a convergent-discriminant validity argument" (Brown, 2010, p.34). As Lehmann states, "The most common approach to establishing convergent and discriminant validity is to demonstrate that multiple measures of a construct are (1) related, and (2) more related to each other than to measures of other constructs" (1988, p.411). Table 4.10 shows that the Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy was 0.848. A figure greater than 0.50 is considered suitable for factor analysis (Hair, Anderson et al., 1995; Tabachnick & Fidell, 2001).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.848
Bartlett's Test of Sphericity	Approx. Chi-Square	12145.392
	df	1770
	Sig.	.000

Table 4.10- KMO and Bartlett's Test

PCA with varimax rotation was utilised. The questionnaire was originally designed to measure 12 dimensions. However, the total variance explained shown in table 4.11 highlights that there

are 14 components which explain 65.87% of the variance where the eigenvalue was greater than one.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.974	16.623	16.623	9.974	16.623	16.623	4.201	7.001	7.001
2	4.328	7.214	23.837	4.328	7.214	23.837	3.506	5.843	12.844
3	3.758	6.263	30.100	3.758	6.263	30.100	3.505	5.842	18.686
4	3.403	5.672	35.772	3.403	5.672	35.772	3.391	5.651	24.338
5	2.735	4.558	40.330	2.735	4.558	40.330	3.128	5.213	29.550
6	2.510	4.184	44.514	2.510	4.184	44.514	3.024	5.040	34.590
7	2.316	3.861	48.374	2.316	3.861	48.374	3.014	5.024	39.614
8	2.105	3.508	51.882	2.105	3.508	51.882	2.854	4.757	44.371
9	1.750	2.916	54.799	1.750	2.916	54.799	2.812	4.686	49.058
10	1.612	2.686	57.485	1.612	2.686	57.485	2.737	4.561	53.619
11	1.512	2.519	60.004	1.512	2.519	60.004	2.389	3.982	57.600
12	1.279	2.132	62.136	1.279	2.132	62.136	2.070	3.450	61.050
13	1.231	2.052	64.188	1.231	2.052	64.188	1.822	3.037	64.087
14	1.009	1.682	65.870	1.009	1.682	65.870	1.070	1.783	65.870
15	.941	1.568	67.438						
16	.897	1.495	68.934						
17	.833	1.388	70.322						
18	.781	1.302	71.624						
19	.742	1.237	72.861						
20	.724	1.207	74.069						
21	.682	1.137	75.206						
22	.661	1.102	76.307						
23	.640	1.066	77.374						
24	.633	1.055	78.429						
25	.617	1.029	79.458						
26	.596	.993	80.450						
27	.579	.966	81.416						
28	.552	.919	82.336						

29	.529	.882	83.218						
30	.505	.841	84.059						
31	.500	.834	84.893						
32	.491	.818	85.711						
33	.473	.788	86.499						
34	.462	.771	87.270						
35	.440	.734	88.004						
36	.431	.718	88.722						
37	.426	.710	89.432						
38	.415	.692	90.124						
39	.408	.680	90.804						
40	.378	.630	91.434						
41	.362	.603	92.037						
42	.345	.574	92.611						
43	.340	.567	93.179						
44	.330	.549	93.728						
45	.317	.528	94.256						
46	.297	.495	94.751						
47	.286	.476	95.227						
48	.279	.465	95.692						
49	.268	.446	96.138						
50	.265	.442	96.580						
51	.257	.429	97.008						
52	.247	.412	97.421						
53	.235	.391	97.812						
54	.228	.380	98.192						
55	.209	.348	98.540						
56	.202	.336	98.876						
57	.195	.325	99.201						
58	.189	.315	99.516						
59	.158	.264	99.779						
60	.132	.221	100.000						

Extraction Method: Principal Component Analysis.

Table 4.11- Total variance explained for questionnaire items

Table 4.12 shows the rotated matrix for the 14 factors along with the value of each item loaded and sorted by size. None of the items loaded better on the 14th component. The PCA revealed

that 9 of the 12 sub-scales loaded on their intended component and the items did not load on any other component. That suggests that there is convergent and discriminant validity. Two of the items from the eighth sub-scale (motivation) loaded separately on their own component. The item "Technology has made language learning accessible to everyone" loaded with its intended component, but also loaded with the thirteenth sub-scale (technology and intercultural competence). The item "Communicating with people online has increased my cultural awareness of target language communities" loaded with its intended component as well as with the eleventh sub-scale (the use of social media).

Item	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Being a polyglot requires a special talent.	.02	.07	.02	-.02	.05	.83	-.03	.02	-.04	.12	-.01	.02	.01	-.03
Only gifted people can learn several languages.	-.03	.05	.04	-.06	.03	.83	-.04	-.04	-.01	.16	-.02	-.04	-.09	.02
The ability to learn languages is something you either have or don't have.	-.07	-.05	-.04	.03	.11	.77	-.08	-.05	.03	.11	.10	.06	.02	-.01
Successful language learners are born with an aptitude for language learning.	-.06	.07	.04	-.02	.05	.72	.01	.03	-.01	.07	-.10	-.02	.21	-.05
Not everyone can learn a second language.	.01	.00	-.05	-.04	.02	.58	-.07	-.10	.01	-.02	.05	-.02	-.09	.50
Schools teach languages the right way.	.02	-.02	-.04	-.03	.85	.05	.01	-.07	-.04	-.03	-.03	-.11	.06	-.05
Language learning in schools does not need reform.	-.11	-.11	-.04	-.04	.81	.03	-.03	.00	-.01	-.04	-.04	-.10	-.03	.07
Schools give students the tools to be successful language learners.	-.02	.10	-.06	.00	.74	.04	-.07	-.07	.02	-.01	-.03	-.00	.08	-.22
The way languages are taught in schools should not be changed.	-.04	-.15	-.00	.02	.73	.06	.03	.04	-.14	.02	-.10	-.00	-.03	.17
Language education in schools is adequate.	.05	-.01	-.11	-.06	.66	.07	-.02	-.01	.03	.07	.04	.00	.04	.02
The more languages someone learns the easier it becomes.	-.01	.05	.05	-.01	-.06	.03	.06	.84	.11	-.05	.05	.08	-.02	-.03
With every additional language, a polyglot's language	.05	.04	.14	.04	-.08	.02	.13	.80	.11	.11	.03	.08	.03	-.04

learning becomes more efficient.														
Language learning becomes easier with experience.	.07	.09	.11	-.08	.04	-.01	.09	.65	.15	.00	.02	.03	.16	-.07
Language learning is a skill which improves with time.	.09	.03	.23	.08	-.05	-.12	.14	.63	.12	.07	.08	-.01	.15	.08
The first time learning a foreign language is the most challenging.	-.07	.03	.05	.15	.07	-.10	-.06	.45	.27	.10	.17	.07	.00	.35
One should learn a language to reach native like proficiency.	-.04	.14	.04	.04	-.05	.07	-.02	-.01	.00	.82	-.02	.00	.06	.07
One should not be satisfied with their language learning until they reach native like proficiency.	-.11	.08	.01	-.02	-.03	.10	-.02	.01	.03	.77	-.01	-.05	.00	.01
The aim when learning a language should be perfection.	-.01	-.10	.07	.03	.09	.15	-.06	.10	.04	.77	-.03	-.01	-.05	.06
The goal for a language learner should be to communicate without mistakes.	.01	.03	-.03	-.04	.02	.08	-.01	.02	.02	.74	.09	.09	.04	-.08
Making mistakes means the language learning journey is not over.	.11	.17	.05	.06	-.02	.16	.10	.10	.13	.34	.12	-.03	.26	-.22
It is important to develop a strategy for language learning.	.00	.07	.76	.13	-.07	.07	.06	.17	.11	.01	.25	.05	.02	-.07
Aspiring language learners would benefit from being taught language learning strategies.	.07	.09	.76	.08	-.15	-.06	.10	.17	.11	-.04	-.03	.13	.00	-.11
Language learners need to be taught how to learn a language.	.05	.09	.73	.00	-.01	-.05	.03	.18	.01	-.01	.00	.17	-.10	-.07
A language learner's strategy is an important factor in his or her success.	.01	-.01	.72	.02	-.06	.02	.02	-.03	.08	.06	.21	-.01	.13	.20
Polyglots are successful because they have a good language learning strategy.	.10	.01	.65	.04	-.02	.08	.02	.09	.11	.04	.21	.00	.16	.16
It is important for a language learner to plan their learning.	.08	.06	.55	.18	-.01	.04	.07	-.02	.02	.10	.41	-.01	-.14	-.23
A successful language learner self-evaluates his or her progress.	.04	.12	.12	.10	-.08	.07	.07	.08	.06	-.04	.78	.16	.05	-.05
It is important for a language learner to set goals.	.08	.15	.23	.23	.09	-.03	.03	-.04	.16	.07	.67	-.03	-.02	-.11
A successful language learner takes control of the learning process.	.04	.04	.33	.04	-.14	-.07	.01	.18	.03	.02	.67	.06	.08	.15

A successful language learner makes an effort to find suitable material.	.11	.14	.27	-.07	-.08	-.04	.17	.12	.11	.05	.54	-.03	.28	.27
It is important to communicate with competent speakers of the target language.	.10	.82	.09	.04	-.07	.03	-.04	.03	-.05	.12	.10	.07	-.02	-.06
Successful language learners interact with people proficient in the target language.	.06	.82	.07	.04	-.04	-.03	.12	.07	-.08	.05	.11	.05	.02	.05
It is important to find native speakers with whom to practice with.	.08	.81	.07	.14	-.11	.03	.06	.02	.07	.09	.07	.02	-.03	.00
The best way to improve one's speaking is to find native speakers of the target language and practice with them.	.00	.74	-.09	.12	.06	.08	.03	.09	.12	.05	-.04	.08	.10	.07
A successful language learner finds opportunities to communicate in the target language.	.13	.74	.12	.05	-.03	.06	.11	.02	-.10	-.09	.11	.07	.12	-.09
Motivation is the most important factor determining acquisition success.	.07	.07	.05	.13	.08	.06	-.07	.08	.03	.06	.04	.12	.79	.09
A motivated learner will succeed in language learning.	.08	.08	.02	.20	.05	.00	.10	.18	.05	.03	.10	.14	.76	-.11
The value of speaking multiple languages should be explained to language learners.	.08	.15	.14	.14	-.06	.05	.06	.10	.00	.05	.08	.76	-.04	-.14
Many language learners do not succeed because they do not see the value in language learning.	.05	.05	.13	.04	-.01	.02	.09	.02	.05	-.04	.01	.76	.20	.18
The benefits of being multilingual are not understood by most language learners in schools.	.05	.05	.13	.04	-.01	.02	.09	.02	.05	-.04	.01	.76	.20	.18
I am a more efficient language learner now because of technology.	.18	-.05	.12	.03	-.10	-.06	.19	.13	.81	.08	.07	.01	.05	.11
Technology has made language learning much easier than in the past.	.11	.03	.16	.01	.01	.02	.18	.12	.75	-.01	.08	-.05	.13	.00
Technology has sped up the language learning process.	.13	.03	.04	.10	-.07	.05	.30	.19	.72	.05	.01	-.01	.06	.04
Technology-savvy learners have a distinct advantage over language learners that are less competent with technology.	.16	-.07	.09	.04	-.02	-.04	.03	.24	.66	.03	.12	.14	-.12	-.10

Technology has made language learning accessible to everyone.	-.08	.01	.05	.16	.07	.08	.41	.00	.33	-.01	.02	.08	.34	-.24
I use social media to interact with native speakers of the target language.	.87	.13	.00	.14	-.03	-.02	.08	.00	.01	.03	.07	.02	.06	-.04
Social media has increased my contact with native speakers of the target language.	.87	.11	.04	.10	.03	-.01	.09	.03	.06	.03	.10	.04	-.01	-.08
I use social media as part of my language learning activities.	.82	.01	.08	.14	-.05	-.02	.08	.06	.12	-.04	.02	.02	.04	.02
Social media is a good tool for a language learner.	.72	.04	.06	.19	-.06	-.02	.22	.03	.14	-.13	.02	.05	.07	-.02
Social media is good for authentic interaction in the target language.	.66	.09	.10	.13	.01	-.03	.30	-.01	.14	-.08	-.05	.09	.02	.16
It is beneficial to have online peers who are learning the same language.	.18	.07	.08	.81	-.05	-.01	.05	.04	.10	-.03	.03	.05	.04	-.03
A language learner should try to find online peers who are learning the same language.	.04	.17	.11	.80	-.03	-.01	.10	.02	.00	.00	.05	.13	.06	.10
Feedback from peers online is useful in the language learning process.	.19	.12	-.05	.76	-.04	-.03	.06	.02	.04	-.02	.10	.05	.11	-.02
Online peers aid my language learning.	.38	.08	.03	.73	-.02	-.07	-.09	.02	.11	.01	.09	-.01	.06	-.15
Online peers are helpful because they are in an environment away from the pressure of the classroom.	.09	-.04	.16	.68	.01	.01	.28	-.03	-.06	.09	.06	.07	.10	.06
The use of social media enables a learner to learn about a foreign culture as well as a foreign language.	.35	.06	.03	.06	-.02	-.09	.74	.08	.13	-.04	-.02	.05	.01	-.04
Technology has made foreign cultures accessible.	.01	.12	.09	.00	-.03	-.01	.73	.11	.23	-.03	.12	.05	-.02	-.12
Social media allows one to learn about a foreign culture without travelling.	.35	-.01	.06	.12	-.02	-.08	.72	.07	.09	-.03	-.01	.07	.02	.14
Interacting with native speakers online increases cultural awareness.	.29	.15	.05	.18	-.07	-.04	.62	.22	.15	-.06	.12	.12	.00	.03
Communicating with people online has increased my cultural awareness of target language communities.	.51	.11	.06	.20	.01	-.11	.50	.12	.19	.05	.09	.03	-.01	.03

Table 4.12- Rotated component matrix (Extraction method: Principal Component Analysis- Varimax rotation)

The items generally fit the components that they were devised to fit, with the four exceptions mentioned above. Overall, the factor analysis supports the structure of the questionnaire as the items loaded considerably higher on their intended components. The PCA suggests that the questionnaire is valid as there is clear convergent and discriminant validity. The two items from the motivation sub-scale that loaded on their own component did not load on any other component. Following the factor analysis it was necessary to put the two items about motivation in their own sub-scale and calculate Cronbach's Alpha for the new sub-scale, as well as the Alpha for the three remaining items left in the original scale. The new sub-scale was named "motivation" and the original sub-scale was named "value of language learning". The results displayed in Table 4.8 show that the two scales have good internal consistency, especially considering the low number of items in each scale.

The two items that loaded on the component for social media and intercultural competence also loaded on their intended component. The additional components that they loaded on are very closely related to their intended components. Having established the robustness of the dimensions in the questionnaire, each dimension will now be presented using descriptive statistics to highlight how the respondents responded to each item on the five-point Likert scale.

4.5 Descriptive Statistics

This section will report the descriptive statistics of the respondents' responses to the questionnaire. Descriptive statistics are "a useful way to summarise data and provide a description of the sample" (Marshall & Jonker, 2010, p.e4). The questionnaire used a five-point Likert scale as shown in Table 4.13. Each point on the scale was given an ordinal value.

Strongly agree (S.A)	1
Agree (A)	2
Neither agree nor disagree (N)	3
Disagree (D)	4
Strongly disagree (S.D.)	5

Table 4.13- The scale

Summary of responses (Dimension 1- Language learning as a unique talent)
The respondents were divided over whether successful language learners are born with an aptitude for language learning. However, they opined that everyone can learn a second language. The majority of the respondents held that being a polyglot does not require a special talent. Only a small minority of the respondents held that the ability to learn languages is something that a person either has or doesn't have.

Table 4.14- Summary of respondents' responses to Dimension 1 items

The first dimension contained five items which sought to ascertain the respondents' beliefs about language learning being a unique talent which is not necessarily accessible to all. The responses to the five items within the dimension are displayed in Table 4.15. The mode for the first item, "Successful language learners are born with an aptitude for language learning" was 2 (agree). 30.4% of the respondents agreed with the statement. However, a large percentage of respondents neither agreed nor disagreed (27%) or they disagreed (27.5%). Of the five questions in the first dimension, item 9 had the most conflicting opinions. Item number 10, "Not everyone can learn a second language" had a mode of 5 (strongly disagree). Cumulatively, 82.6% of the respondents either disagreed or strongly disagreed with the statement. Item number 11, "Only gifted people can learn several languages" had a mode of 4 (disagree). Only 4 respondents (0.8%) strongly agreed with this statement, while 199 (41.6%) disagreed with the statement. Cumulatively, 79.3% of the respondents either disagreed or strongly disagreed with the statement, while 9.2%

either agreed or strongly agreed. Item number 12, “Being a polyglot requires a special talent” had a mode of 4 (disagree), with 39.7% of the respondents disagreeing with the statement. Cumulatively, 62.9% of the respondents either disagreed or strongly disagreed with the statement. Item number 13, “The ability to learn languages is something you either have or don’t have” had a mode of 4 (disagree). Only 7 respondents strongly agreed with the statement, while 193 (40.4%) disagreed. Cumulatively, 77% of the respondents either disagreed or strongly disagreed with the statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
9.	Successful language learners are born with an aptitude for language learning.	F	28	145	129	131	44	2	1.08
		%	5.9	30.4	27	27.5	9.2		
10.	Not everyone can learn a second language.	F	11	45	27	161	233	5	1.04
		%	2.3	9.4	5.7	33.8	48.8		
11.	Only gifted people can learn several languages.	F	4	40	55	199	180	4	0.94
		%	0.8	8.4	11.5	41.6	37.7		
12.	Being a polyglot requires a special talent.	F	17	82	78	190	111	4	1.12
		%	3.6	17.2	16.3	39.7	23.2		
13.	The ability to learn languages is something you either have or don’t have.	F	7	46	57	193	175	4	1.00
		%	1.5	9.6	11.9	40.4	36.6		

Table 4.15- Dimension 1: Language learning as a unique talent

Summary of responses (Dimension 2- Language learning in schools)
The majority of the respondents held that language education in schools is inadequate and that the way languages in schools are taught should be changed. They opined that schools do not give students the tools to be successful language learners. A very small proportion of the respondents expressed that schools teach languages the right way.

Table 4.16- Summary of respondents' responses to Dimension 2 items

The second dimension contained five items which sought to understand the respondents' beliefs about language education in schools. The responses to the five items are displayed in Table 4.17. The first item in the dimension, "Language education in schools is adequate" had a mode of 4 (disagree), with 40.2% of the respondents disagreeing with the statement. Cumulatively, 75.1% of the respondents either disagreed or strongly disagreed with the statement, while 10.7% either agreed or strongly agreed. Item number 15, "The way languages are taught in schools should not be changed" had a mode of 4 (disagree). Cumulatively, 74.9% of the respondents either disagreed or strongly disagreed with the statement, while 4.8% either agreed or strongly agreed. Item number 16, "Schools give students the tools to be successful language learners" had a mode of 4 (disagree). Just under a quarter of the respondents (23.4%) neither agreed nor disagreed with the item statement. Cumulatively, 63.8% of the respondents either disagreed or strongly disagreed with the item statement, while 12.7% either agreed or strongly agreed. Item number 17, "Language learning in schools does not need reform" had a mode of 4 (disagree). Cumulatively, 83.7% of the respondents either disagreed or strongly disagreed with this statement, while only 3.7% agreed or strongly agreed. Item 18, "Schools teach languages the right way" had a mode of 4 (disagree). Only 3 respondents (0.6%) strongly agreed with the item statement, while 144 respondents (30.1%) strongly disagreed. Just under a quarter of the respondents (24.1%) neither agreed nor disagreed with the item statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
14.	Language education in schools is adequate.	F	17	34	68	192	167	4	1.04
		%	3.6	7.1	14.2	40.2	34.9		
15.	The way languages are taught in schools should not be changed.	F	11	12	76	191	167	4	0.92
		%	2.3	2.5	15.9	40	34.9		
16.	Schools give students the tools to be successful language learners.	F	13	48	112	187	118	4	1.02
		%	2.7	10	23.4	39.1	24.7		
17.	Language learning in schools does not need reform.	F	5	13	60	207	192	4	0.83
		%	1	2.7	12.6	43.4	40.3		
18.	Schools teach languages the right way.	F	3	15	115	201	144	4	0.85
		%	0.6	3.1	24.1	42.1	30.1		

Table 4.17- Dimension 2: Language learning in schools

Summary of responses (Dimension 3- Experience and language learning)
The majority of the respondents expressed that language learning becomes easier with experience, thus the more languages someone learns the easier and more efficient it becomes. A small minority of the respondents disagreed that language learning is a skill which improves with time. Just under a quarter of the participants were unsure of whether the first time learning a foreign language is the most challenging.

Table 4.18- Summary of respondents' responses to Dimension 3 items

The third dimension consisted of five items which sought to ascertain the respondents' beliefs about how experience affects language learning. The responses to the five items are displayed in Table 4.19. The first item in the dimension, "Language learning becomes easier with experience" had a mode of 1 (strongly agree), with 63.8% strongly agreeing with the item statement. Cumulatively, 96.6% of the respondents either strongly agreed or agreed with the statement,

while only 4 respondents (0.8%) disagreed or strongly disagreed. Item number 20, "The more languages someone learns the easier it becomes" had a mode of 1 (strongly agree), with 45.6% of the respondents strongly agreeing with the statement. Another 37.9% of the respondents agreed with the statement. Only 1 respondent strongly disagreed with the item statement. Cumulatively, 3.8% of the respondents either disagreed or strongly disagreed with the statement. Item number 21, "With every additional language, a polyglot's language learning becomes more efficient" had a mode of 2 (agree). Cumulatively, 78.6% of the respondents either agreed or strongly agreed with the item statement. Only 1 respondent strongly disagreed with the statement, while 88 respondents (18.4%) neither agreed nor disagreed. Item number 22, "Language learning is a skill which improves with time" had a mode of 2 (agree). A total of 178 respondents (37.3%) strongly agreed with the item statement, while only 2 respondents (0.4%) strongly disagreed. Cumulatively, 83.2% of the respondents either agreed or strongly agreed with the statement. Item number 23, "The first time learning a foreign language is the most challenging" had a mode of 2 (agree). Cumulatively, 63.5% of the respondents either agreed or strongly agreed with the item statement, while 13.2% either disagreed or strongly disagreed.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
19.	Language learning becomes easier with experience.	F	305	157	12	2	2	1	0.60
		%	63.8	32.8	2.5	0.4	0.4		
20.	The more languages someone learns the easier it becomes.	F	218	181	61	17	1	1	0.82
		%	45.6	37.9	12.8	3.6	0.2		

21.	With every additional language, a polyglot's language learning becomes more efficient.	F	160	215	88	13	1	2	0.80
		%	33.5	45.1	18.4	2.7	0.2		
22.	Language learning is a skill which improves with time.	F	178	219	58	20	2	2	0.82
		%	37.3	45.9	12.2	4.2	0.4		
23.	The first time learning a foreign language is the most challenging.	F	126	176	111	53	10	2	1.03
		%	26.5	37	23.3	11.1	2.1		

Table 4.19- Dimension 3: Experience and language learning

Summary of responses (Dimension 4- Language learning goals)
The majority of the respondents disagreed that the aim when learning a language should be perfection or to communicate without mistakes. They held that one does not need to reach native like proficiency to be satisfied with their learning. A small proportion of the participants agreed that one should not be satisfied with their language learning until they reach native like proficiency.

Table 4.20- Summary of respondents' responses to Dimension 4 items

The fourth dimension contained five items which sought to determine the respondents' views on a language learner's goals. The responses to the five items are displayed in Table 4.21. The first item in the dimension, "The aim when learning a language should be perfection" had a mode of 4 (disagree). Cumulatively, 78.7% of the respondents either disagreed or strongly disagreed with the item statement, in contrast 7.6% either agreed or strongly agreed. Item number 25, "The goal for a language learner should be to communicate without mistakes" had a mode of 4 (disagree), with 38.8% of the respondents disagreeing with the item statement. Cumulatively, 56% of respondents either disagreed or strongly disagreed with the item statement, while 28.3% either agreed or strongly agreed. Item number 26, "One should learn a language to reach native like proficiency" had a mode of 4 (disagree), with 37.3% of the respondents disagreeing with the item statement. Cumulatively, 53.4% of the respondents either disagreed or strongly disagreed

with the item statement, while 14.9% either agreed or strongly agreed. Just under a third of the respondents (31.7%) neither agreed nor disagreed with the statement. Item number 27, "One should not be satisfied with their language learning until they have reached native like proficiency" had a mode of 4 (disagree), with 38.7% of the respondents disagreeing with the item statement. Cumulatively, 70.3% of the respondents either disagreed or strongly disagreed with the item statement, while 9.9% either agreed or strongly agreed. The final item in the dimension, item 28, had a mode of 2 (agree). Cumulatively, 58% of the respondents either agreed or strongly agreed that "Making mistakes means the language learning journey is not over". Over a quarter of the respondents (26.1%) neither agreed nor disagreed with the item statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
24.	The aim when learning a language should be perfection.	F	6	30	65	223	152	4	0.90
		%	1.3	6.3	13.7	46.8	31.9		
25.	The goal for a language learner should be to communicate without mistakes.	F	23	112	75	185	82	4	1.16
		%	4.8	23.5	15.7	38.8	17.2		
26.	One should learn a language to reach native like proficiency.	F	11	60	151	178	77	4	0.98
		%	2.3	12.6	31.7	37.3	16.1		
27.	One should not be satisfied with their language learning until they reach native like proficiency.	F	8	39	94	184	150	4	0.99
		%	1.7	8.2	19.8	38.7	31.6		
28.	Making mistakes means the language learning journey is not over.	F	62	214	124	57	19	2	0.99
		%	13	45	26.1	12	4		

Table 4.21- Dimension 4: Language learning goals

Summary of responses (Dimension 5- Importance of language learning strategy)
The majority of the respondents held that a language learner's strategy is an important factor in his or her success, and that polyglots are successful because they have a good language learning strategy. They opined that is important to develop a strategy for language learning, and that aspiring language learners would benefit from being taught language learning strategies. Only a small minority of the respondents disagreed that language learners need to be taught how to learn a language.

Table 4.22- Summary of respondents' responses to Dimension 5 items

The fifth dimension consisted of five items which sought to elaborate on respondents' views on the importance of a language learning strategy. As previously mentioned, one item from the sixth dimension loaded better with these set of items. However, the data for that item will be displayed with its intended dimension. The responses to the five items are displayed in Table 4.23. The first item in the dimension had a mode of 2 (agree), with the largest percentage of respondents (56.6%) agreeing with the item statement. Cumulatively, 87.6% of the respondents either agreed or strongly agreed with the statement, while 4.7% either disagreed or strongly disagreed. Item number 30, "Polyglots are successful because they have a good language learning strategy" had a mode of 2 (agree). Only 3 respondents (0.7%) strongly disagreed with the item statement, while in contrast 219 respondents (48.8%) agreed and 72 respondents (16%) strongly agreed. Over a quarter of the respondents (26.1%) neither agreed nor disagreed with the item statement. Item number 31, "Aspiring language learners would benefit from being taught language learning strategies" had a mode of 2 (agree). Cumulatively, 85.9% of the respondents either agreed (55.8%) or strongly agreed (30.1%) with the item statement. Only 1 respondent (0.2%) strongly disagreed with the statement, and 11 respondents (2.5%) disagreed. Item number 32, "Language learners need to be taught how to learn a language" had a mode of 2 (agree). Cumulatively, 67% of the respondents either agreed (45.3%) or strongly agreed (21.7%) with the item statement.

Conversely, 8.5% either disagreed (7.6%) or strongly disagreed (0.9%). Just under a quarter of the respondents (24.4%) neither agreed nor disagreed with the item statement. The final item in the dimension, "It is important to develop a strategy for language learning" had a mode of 2 (agree). Cumulatively, 80.5% of the respondents either agreed (54.1%) or strongly agreed (26.4%) with the item statement. In contrast, 4% of the respondents either disagreed (3.6%) or strongly disagreed (0.4%).

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
29.	A language learner's strategy is an important factor in his or her success.	F	139	254	35	17	4	2	0.77
		%	31	56.6	7.8	3.8	0.9		
30.	Polyglots are successful because they have a good language learning strategy.	F	72	219	117	38	3	2	0.85
		%	16	48.8	26.1	8.5	0.7		
31.	Aspiring language learners would benefit from being taught language learning strategies.	F	135	250	51	11	1	2	0.71
		%	30.1	55.8	11.4	2.5	0.2		
32.	Language learners need to be taught how to learn a language.	F	97	202	109	34	4	2	0.89
		%	21.7	45.3	24.4	7.6	0.9		
33.	It is important to develop a strategy for language learning.	F	118	242	69	16	2	2	0.77
		%	26.4	54.1	15.4	3.6	0.4		

Table 4.23- Dimension 5: Importance of language learning strategy

Summary of responses (Dimension 6- Metacognition and language learning)
The respondents expressed that it is important for a language learner to plan their learning and set goals. Furthermore, they held that successful language learners self-evaluate their progress, take control of the learning process, and make an effort to find suitable material.

Table 4.24- Summary of respondents' responses to Dimension 6 items

The sixth dimension consisted of five items which sought to determine the respondents' beliefs about metacognition and language learning. The responses to the five items are displayed in Table 4.25. The first item in the dimension, "It is important for a language learner to plan their learning," had a mode of 2 (agree), with the highest percentage of respondents (43.4%) agreeing with the item statement, while over a quarter of the respondents (28.2%) neither agreed nor disagreed. Item number 35, "It is important for a language learner to set goals", had a mode of 2 (agree). Cumulatively, 70.4% of the respondents either agreed (46.6%) or strongly agreed (23.8%) with the item statement. In contrast, 7.1% of the respondents either disagreed (6.7%) or strongly disagreed (0.4%) with the statement. Item number 36, "A successful language learner self-evaluates his or her progress" had a mode of 2 (agree), with the highest percentage of the respondents (50.9%) agreeing with the item statement. Another 20.9% of the respondents strongly agreed with the statement. Conversely, 6.3% of the respondents disagreed with the item statement, while only 2 respondents (0.4%) strongly disagreed. Item number 37, "A successful language learner takes control of the learning process", had a mode of 2 (agree). Cumulatively, 78.2% of the respondents either agreed (46.4%) or strongly agreed (31.8%) with the item statement. In contrast, only 3.6% of the respondents either disagreed (3.4%) or strongly disagreed (0.2%). The final item in the dimension, "A successful language learner makes an effort to find suitable material", had a mode of 2 (agree). An overwhelming 90.8% of the respondents either agreed (48%) or strongly agreed (42.8%) with the item statement. In contrast, only 2% of the respondents either disagreed (1.6%) or strongly disagreed (0.4%) with the statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
34.	It is important for a language learner to plan their learning.	F	62	194	126	57	8	2	0.94
		%	13.9	43.4	28.2	12.8	1.8		
35.	It is important for a language learner to set goals.	F	106	208	100	30	2	2	0.86
		%	23.8	46.6	22.4	6.7	0.4		
36.	A successful language learner self-evaluates his or her progress.	F	93	227	96	28	2	2	0.83
		%	20.9	50.9	21.5	6.3	0.4		
37.	A successful language learner takes control of the learning process.	F	142	207	81	15	1	2	0.80
		%	31.8	46.4	18.2	3.4	0.2		
38.	A successful language learner makes an effort to find suitable material.	F	191	214	32	7	2	2	0.71
		%	42.8	48	7.2	1.6	0.4		

Table 4.25- Dimension 6: Metacognition and language learning

Summary of responses (Dimension 7- Interaction)
The majority of the respondents expressed it is important to communicate with competent speakers of the target language, and that a successful language learner finds opportunities to communicate in the target language. They also held that it is important to find native speakers with whom to practice with. A small proportion of the respondents disagreed that successful language learners interact with people proficient in the target language.

Table 4.26- Summary of respondents' responses to Dimension 7 items

The seventh dimension consisted of five items which sought to determine the respondents' beliefs about interaction. The responses to the five items are displayed in Table 4.27. The first item in the dimension, "A successful language learner finds opportunities to communicate in the target language", had a mode of 1 (strongly agree) with the highest percentage of respondents

(45.7%) strongly agreeing with the item statement. In contrast, only 1 respondent (0.2%) strongly disagreed with the statement. Cumulatively, 88.5% of the respondents either agreed (42.8%) or strongly agreed (45.7%) with the item statement. Item number 40, "Successful language learners interact with people proficient in the target language", had a mode of 2 (agree). Cumulatively, 79.2% of the respondents either agreed (45.9%) or strongly agreed (33.3%) with the item statement. In contrast, 2% either disagreed (1.8%) or strongly disagreed (0.2%). Item number 41, "It is important to communicate with competent speakers of the target language", had a mode of 2 (agree). Cumulatively, 83% of the respondents either agreed (42.4%) or strongly agreed (40.6%). Conversely, 2% either disagreed (1.8%) or strongly disagreed (0.2%). Item number 42, "The best way to improve one's speaking is to find native speakers of the target language and practice with them", had a mode of 2 (agree). Cumulatively, 72% of the respondents either agreed (37%) or strongly agreed (35%) with the item statement. In contrast, 8.5% either disagreed (7.8%) or strongly disagreed (0.7%). Just under a fifth of the respondents (19.5%) neither agreed nor disagreed. The final item in the dimension, "It is important to find native speakers with whom to practice with", had a mode of 2 (agree). Cumulatively, 74.4% of the respondents either agreed (43.2%) or strongly agreed (31.2%) with the item statement, while 5.8% disagreed and 0.7% strongly disagreed. Again, just under a fifth of the respondents (19.1%) neither agreed nor disagreed.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
39.	A successful language learner finds opportunities to communicate in the target language.	F	204	191	45	5	1	1	0.71
		%	45.7	42.8	10.1	1.1	0.2		
40.	Successful language learners interact with people proficient in the target language.	F	148	204	83	8	1	2	0.77
		%	33.3	45.9	18.7	1.8	0.2		
41.	It is important to communicate with competent speakers of the target language.	F	181	189	67	8	1	2	0.77
		%	40.6	42.4	15	1.8	0.2		
42.	The best way to improve one's speaking is to find native speakers of the target language and practice with them.	F	156	165	87	35	3	2	0.95
		%	35	37	19.5	7.8	0.7		
43.	It is important to find native speakers with whom to practice with.	F	139	192	85	26	3	2	0.89
		%	31.2	43.2	19.1	5.8	0.7		

Table 4.27- Dimension 7: Interaction

Summary of responses (Dimension 8- Motivation)
The majority of the respondents expressed that motivation is the most important factor determining acquisition success, and that a motivated learner will succeed in language learning. A noticeable minority of the respondents expressed that they were unsure of whether a motivated learner would succeed in language learning.

Table 4.28- Summary of respondents' responses to Dimension 8 items

The eighth dimension of the questionnaire was designed to determine respondents' perceptions about the role of motivation in language learning. As previously mentioned, the factor analysis determined that the first two items of the dimension load better together as a separate dimension.

Subsequently, a new sub-scale was created containing these two items and it is presented in Table 4.29. Item number 44, "Motivation is the most important factor determining acquisition success", had a mode of 1 (strongly agree). Almost half of the respondents (49.1%) strongly agreed with this statement. Cumulatively, 80.5% of the respondents either agreed (31.4%) or strongly agreed (49.1%), while 8.3% either disagreed (7%) or strongly disagreed (1.3%) with the item statement. Item number 45, "A motivated learner will succeed in language learning", had a mode of 2 (agree). Cumulatively, 76.5% of the respondents either agreed (41.7%) or strongly agreed (34.8%) with the statement, while 3.8% either disagreed (3.1%) or strongly disagreed (0.7%). Just under a fifth of the respondents (19.7%) neither agreed nor disagreed with the item statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
44.	Motivation is the most important factor determining acquisition success.	F	219	140	50	31	6	1	0.98
		%	49.1	31.4	11.2	7	1.3		
45.	A motivated learner will succeed in language learning.	F	155	186	88	14	3	2	0.85
		%	34.8	41.7	19.7	3.1	0.7		

Table 4.29- Dimension 8: Motivation

Summary of responses (Dimension 9- Value of language learning)
The majority of the respondents held that the value of speaking multiple languages should be explained to language learners, and that currently the benefits of being multilingual are not understood by most language learners in schools. A minority of the respondents disagreed that many language learners do not succeed because they do not see the value in language learning.

Table 4.30- Summary of respondents' responses to Dimension 9 items

The ninth dimension of the questionnaire consisted of the three items that remained from the original sub-scale once items 44 and 45 were removed due to the PCA. The descriptive statistics for the new dimension is in Table 4.31. Item number 46, "The value of speaking multiple languages should be explained to language learners", had a mode of 2 (agree), with the highest percentage of respondents (38.1%) agreeing with the item statement. Cumulatively, only 7% of the respondents either disagreed (6.3%) or strongly disagreed (0.7%) with the statement. Just under a third of the respondents (31.2%) neither agreed nor disagreed with the item statement. Item number 47, "Many language learners do not succeed because they do not see the value in language learning", had a mode of 2 (agree). Just over half of the respondents (53.3%) either agreed (32.6%) or strongly agreed (20.7%) with the item statement, while 20.6% either disagreed (16.6%) or strongly disagreed (4%). Over a quarter of the respondents (26.1%) neither agreed nor disagreed. The final item in the dimension, "The benefits of being multilingual are not understood by most language learners in schools", had a mode of 2 (agree). Cumulatively, 66.8% of the respondents either agreed (38%) or strongly agreed (28.8%) with the item statement, while 10.5% either disagreed (8.5%) or strongly disagreed (2%). Over a fifth of the respondents (22.7%) neither agreed nor disagreed.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
46.	The value of speaking multiple languages should be explained to language learners.	F	106	170	139	28	3	2	0.90
		%	23.8	38.1	31.2	6.3	0.7		
47.	Many language learners do not succeed because they do not see the value in language learning.	F	92	145	116	74	18	2	1.11
		%	20.7	32.6	26.1	16.6	4		

48.	The benefits of being multilingual are not understood by most language learners in schools.	F	128	169	101	38	9	2	1.00
		%	28.8	38	22.7	8.5	2		

Table 4.31- Dimension 9: Value of language learning

Summary of responses (Dimension 10- Technology aiding language learning)
The majority of the respondents expressed that technology has made language learning much easier than in the past and also accessible to everyone. Furthermore, they held that technology has sped up the language learning process, thus they are more efficient language learners now because of technology. A significant minority of the respondents expressed that they were unsure of whether technology-savvy learners have a distinct advantage over language learners that are less competent with technology.

Table 4.32- Summary of respondents' responses to Dimension 10 items

The tenth dimension of the questionnaire was designed to determine respondents' perceptions of how technology aids language learning. As previously mentioned, one of the items (no.50) loaded slightly better with the thirteenth dimension about technology and intercultural competence. However, the descriptive statistics of the five intended items of the dimension are presented together in Table 4.33. Item number 49, "Technology has made language learning much easier than in the past", had a mode of 1 (strongly agree). The vast majority of the respondents (91.3%) either agreed (31.3%) or strongly agreed (60%) with the item statement. In contrast, only 2.3% of the respondents disagreed (2.1%) or strongly disagreed (0.2%). Item number 50, "Technology has made language learning accessible to everyone", had a mode of 2 (agree). Cumulatively, 78.4% of the respondents either agreed (39.3%) or strongly agreed (39.1%) with the item statement, while 8% either disagreed (6.4%) or strongly disagreed (1.6%). Item number 51, "Technology-savvy learners have a distinct advantage over language learners that are less competent with technology" had a mode of 2 (agree), with 32.6% of the respondents agreeing with the item statement, while over a quarter of the respondents (25.5%) strongly

agreed and the same percentage (25.5%) neither agreed nor disagreed. Item number 52, "I am a more efficient language learner now because of technology", had a mode of 1 (strongly agree). Cumulatively, 77.4% of the respondents either agreed (35.6%) or strongly agreed (41.8%) with the item statement, while 8.5% either disagreed (6.7%) or strongly disagreed (1.8%). The final item of the dimension, "Technology has sped up the language learning process", had a mode of 2 (agree). Cumulatively, 69.1% of the respondents either agreed (34.8%) or strongly agreed (34.3%) with the item statement, while 10.8% either disagreed (9.2%) or strongly disagreed (1.6%). A fifth of the respondents neither agreed nor disagreed.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
49.	Technology has made language learning much easier than in the past.	F	261	136	28	9	1	1	0.72
		%	60	31.3	6.4	2.1	0.2		
50.	Technology has made language learning accessible to everyone.	F	170	171	59	28	7	2	0.96
		%	39.1	39.3	13.6	6.4	1.6		
51.	Technology-savvy learners have a distinct advantage over language learners that are less competent with technology.	F	111	142	111	64	7	2	1.06
		%	25.5	32.6	25.5	14.7	1.6		
52.	I am a more efficient language learner now because of technology.	F	182	155	61	29	8	1	0.99
		%	41.8	35.6	14	6.7	1.8		
53.	Technology has sped up the language learning process.	F	149	151	87	40	7	2	1.02
		%	34.3	34.8	20	9.2	1.6		

Table 4.33- Dimension 10: Technology aiding language learning

Summary of responses (Dimension 11- The use of social media)
The majority of the respondents acknowledged that they use social media as part of their language learning activities, and that it is good for authentic interaction in the target language. Furthermore, they expressed that social media has increased their contact with native speakers of the target language. A third of the respondents were undecided whether social media is a good tool for a language learner.

Table 4.34- Summary of respondents' responses to Dimension 11 items

The eleventh dimension of the questionnaire consisted of five items which sought to ascertain the respondents' thoughts about the role of social media in language learning. The responses to the five items are displayed in Table 4.35. Item number 54, "I use social media as part of my language learning activities", had a mode of 2 (agree). Cumulatively, 65% of the respondents either agreed (42.2%) or strongly agreed (22.8%) with the item statement, while 25.8% either disagreed (16.8%) or strongly disagreed (9%). Item number 55, "Social media is a good tool for a language learner", had a mode of 2 (agree). The highest percentage of the respondents (39.6%) agreed with the item statement, while a further 17.7% strongly agreed. Over a third of the respondents (33.6%) neither agreed nor disagreed. Item number 56, "Social media is good for authentic interaction in the target language", had a mode of 2 (agree). Cumulatively, 65.9% of the respondents either agreed (45.4%) or strongly agreed (20.5%) with the item statement, while 9.9% either disagreed (8.5%) or strongly disagreed (1.4%). Just under a quarter of the respondents (24.2%) neither agreed nor disagreed. Item number 57, "I use social media to interact with native speakers of the target language", had a mode of 2 (agree), with the highest percentage of the respondents (37.6%) agreeing with the item statement. A further 18.9% strongly agreed. Cumulatively, 28.6% of the respondents either disagreed (18.2%) or strongly disagreed (10.4%). Item number 58, "Social media has increased my contact with native speakers of the target language", had a mode of 2 (agree). Cumulatively, 63.7% of the

respondents either agreed (39%) or strongly agreed (24.7%) with the item statement, while 23.1% either disagreed (13.2%) or strongly disagreed (9.9%).

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
54.	I use social media as part of my language learning activities.	F	99	183	40	73	39	2	1.25
		%	22.8	42.2	9.2	16.8	9		
55.	Social media is a good tool for a language learner.	F	77	172	146	29	10	2	0.92
		%	17.7	39.6	33.6	6.7	2.3		
56.	Social media is good for authentic interaction in the target language.	F	89	197	105	37	6	2	0.92
		%	20.5	45.4	24.2	8.5	1.4		
57.	I use social media to interact with native speakers of the target language.	F	82	163	65	79	45	2	1.26
		%	18.9	37.6	15	18.2	10.4		
58.	Social media has increased my contact with native speakers of the target language.	F	107	169	57	57	43	2	1.26
		%	24.7	39	13.2	13.2	9.9		

Table 4.35- Dimension 11: The use of social media

Summary of responses (Dimension 12- Learning from online peers)
A slim majority of the respondents held that it is beneficial to have online peers who are learning the same language. They were undecided whether a language learner should try to find online peers who are learning the same language, or whether online peers are helpful because they are in an environment away from the pressure of the classroom. A small minority of the respondents disagreed that feedback from peers online is useful in the language learning process.

Table 4.36- Summary of respondents' responses to Dimension 12 items

The twelfth dimension of the questionnaire consisted of five items which assessed the respondents' views about learning from online peers. The responses to the five items are

displayed in table 4.37. Item 59, “It is beneficial to have online peers who are learning the same language”, had a mode of 2 (agree), with 42.9% of the respondents agreeing with the item statement. A high percentage of the respondents (34.6%) neither agreed nor disagreed, which is consistent throughout the dimension. Item 60, “Online peers aid my language learning”, had a mode of 2 (agree), with the highest percentage of respondents (33.9%) agreeing with the item statement. Just under a third of the respondents (30.3%) neither agreed nor disagreed. Item 61, “Feedback from peers online is useful in the language learning process”, had a mode of 2 (agree). Just under half of the respondents (47.6%) agreed with the item statement. Only 11.3% either disagreed (9.7%) or strongly disagreed (1.6%), while over a quarter of the respondents (28.4%) neither agreed nor disagreed. Item 62, “A language learner should try to find online peers who are learning the same language”, had a mode of 3 (neither agree nor disagree). Over a quarter of the respondents (26.5%) agreed with the item statement, while a sizeable 54.4% neither agreed nor disagreed. Cumulatively, 11.1% of the respondents either disagreed (9.7%) or strongly disagreed (1.4%) with the statement. Item 63, “Online peers are helpful because they are in an environment away from the pressure of the classroom”, also had a mode of 3 (neither agree nor disagree). Over a third of the respondents (34.9%) agreed with the item statement. A further 12.9% of the respondents strongly agreed with the statement. Cumulatively, 11.3% of the respondents either disagreed (9%) or strongly disagreed (2.3%). As was the pattern in this dimension, a high number of the respondents (40.9%) neither agreed nor disagreed with the item statement.

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
59.	It is beneficial to have online peers who are learning the same language.	F	63	186	150	29	6	2	0.86
		%	14.5	42.9	34.6	6.7	1.4		
60.	Online peers aid my language learning.	F	48	147	131	69	38	2	1.11
		%	11.1	33.9	30.3	15.9	8.8		
61.	Feedback from peers online is useful in the language learning process.	F	55	206	123	42	7	2	0.88
		%	12.7	47.6	28.4	9.7	1.6		
62.	A language learner should try to find online peers who are learning the same language.	F	35	115	236	42	6	3	0.80
		%	8.1	26.5	54.4	9.7	1.4		
63.	Online peers are helpful because they are in an environment away from the pressure of the classroom.	F	56	151	177	39	10	3	0.91
		%	12.9	34.9	40.9	9	2.3		

Table 4.37- Dimension 12: Learning from online peers

Summary of responses (Dimension 13- Technology and intercultural competence)
The majority of the respondents held that technology has made foreign cultures accessible, and that social media enables a learner to learn about a foreign culture as well as a foreign language. They held that interacting with native speakers online increases cultural awareness. A very small proportion of the respondents disagreed that interacting with native speakers online increases cultural awareness.

Table 4.38- Summary of respondents' responses to Dimension 13 items

The thirteenth and final dimension of the questionnaire sought to determine the respondents' technology and intercultural competence. As previously stated, item 66 loads slightly better with the eleventh dimension than it does with the thirteenth. However, the five items which were intended to measure this dimension are displayed together in Table 4.39. Item 64, "Technology

has made foreign cultures accessible", had a mode of 1 (strongly agree). Over half of the respondents (52.3%) strongly agreed with the item statement, and a further 41% agreed. In contrast, only 7 respondents (1.6%) either disagreed (1.4%) or strongly disagreed (0.2%). Item 65, "The use of social media enables a learner to learn about a foreign culture as well as a foreign language", had a mode of 2 (agree). Just under half of the respondents (47.6%) agreed with the item statement, while a further 36.5% strongly agreed. In contrast, 3.2% of the respondents either disagreed (2.3%) or strongly disagreed (0.9%). Item 66, "Communicating with people online has increased my cultural awareness of target language communities", had a mode of 2 (agree). Cumulatively, 72.4% of the respondents either agreed (42.4%) or strongly agreed (30%) with the item statement, while 6% either disagreed (4.4%) or strongly disagreed (1.6%). Over a fifth of the respondents (21.7%) neither agreed nor disagreed. Item 67, "Social media allows one to learn about a foreign culture without travelling", had a mode of 2 (agree). Just under half of the respondents (48.5%) agreed with the item statement, while a further 25.4% strongly agreed. In contrast, 6.9% either disagreed (5.1%) or strongly disagreed (1.8%). The final item of the questionnaire, "Interacting with native speakers online increases cultural awareness", also had a mode of 2 (agree). Just under half of the respondents (49.3%) agreed, while a further 31.3% strongly agreed. In contrast, only 3% of the respondents either disagreed (2.5%) or strongly disagreed (0.5%).

ITEM NO.	ITEM	FREQUENCY %	S.A.	A	N	D	S.D.	MODE	STANDARD DEVIATION
64.	Technology has made foreign cultures accessible.	F	227	178	22	6	1	1	0.67
		%	52.3	41	5.1	1.4	0.2		
65.	The use of social media enables a learner to learn about a foreign culture as well as a foreign language.	F	158	206	55	10	4	2	0.80
		%	36.5	47.6	12.7	2.3	0.9		
66.	Communicating with people online has increased my cultural awareness of target language communities.	F	130	184	94	19	7	2	0.91
		%	30	42.4	21.7	4.4	1.6		
67.	Social media allows one to learn about a foreign culture without travelling.	F	110	210	83	22	8	2	0.89
		%	25.4	48.5	19.2	5.1	1.8		
68.	Interacting with native speakers online increases cultural awareness.	F	136	214	71	11	2	2	0.78
		%	31.3	49.3	16.4	2.5	0.5		

Table 4.39- Dimension 13: Technology and intercultural competence

4.6 Conclusion

This chapter has detailed the quantitative findings of this research. In regard to the essential characteristics of a successful language learner, it emerged from the questionnaire that the respondents were divided over whether successful language learners are born with an aptitude for language learning. However, they expressed their belief that everyone can learn a second language and that being a polyglot does not require a special talent. The respondents expressed that it is important for a language learner to plan their learning and set goals. Furthermore, they held that successful language learners self-evaluate their progress and take control of the learning process. The majority of the respondents highlighted the importance of communicating with

competent speakers of the target language. They opined that a successful language learner finds opportunities to communicate in the target language. For the majority of the respondents, motivation is the most important factor determining acquisition success. Thus, a motivated learner will succeed in language learning.

In regard to important considerations for successful language acquisition, the responses to the questionnaire revealed that the majority of the polyglots believed that language education in schools is inadequate and that schools currently do not give students the tools to be successful learners. They opined that the way languages are taught in schools should be changed. The respondents held that the value of speaking multiple languages should be explained to language learners, and that the benefits of being multilingual are not understood by most language learners in schools. The vast majority of the respondents expressed that language learning becomes easier with experience. As a result, the more languages someone learns the easier and more efficient it becomes to learn. The majority of the respondents disagreed that the aim when learning a language should be perfection or to communicate without mistakes. Furthermore, they held that one does not need to aim to reach native like proficiency. The majority of the respondents held that polyglots are successful because they have a good language learning strategy. They expressed that a language learner's strategy is an important factor in his or her success. Moreover, they held that aspiring language learners would benefit from being taught language learning strategies.

In regard to the benefits of technology for language acquisition, the responses to the questionnaire revealed that the majority of the respondents believe that technology has made language learning much easier than in the past and also accessible to everyone. They also held that technology has sped up the language learning process and thus they are more efficient

language learners now because of technology. The majority of the respondents recognised that they use social media as part of their language learning activities, and that it has increased their contact with native speakers of the target language. The respondents were undecided whether a language learner should try to find online peers who are learning the same language. However, a slim majority of the respondents held that it is beneficial to have online peers who are learning the same language. The questionnaire responses revealed the polyglots' belief that technology has made foreign cultures accessible, and that communicating online has increased their cultural awareness of target language communities. They held that interacting with native speakers online increases cultural awareness.

In order to extract any meaningful interpretations from the data, it was important to establish the reliability and validity of the research tool. The Cronbach's Alpha scores indicate that the questionnaire has good internal consistency and is reliable. The PCA evidences the construct validity of the questionnaire, as the majority of the items load onto one dimension. The two items on motivation were separated to their own dimension following analysis of the PCA. The descriptive statistics allow for further discourse in the discussion chapter. Analysis of the correlation of variables[5] suggested that they had little effect on the respondents' responses. The following chapter is the first of three chapters that outline the qualitative findings of the document analysis which augment the findings reported in this chapter.

[5] The respondents' gender and whether they were raised in a monolingual household or not was analysed using a t test. Both variables appeared to have no effect on the questionnaire responses. The means for both variables were comparable across the questionnaire dimensions. A one-way analysis of variance (ANOVA) was used to analyse responses regarding age and number of languages spoken. A comparison of the F values and the critical values and an analysis of the p-values to determine whether there were any significant differences between the means across the dimensions also suggested that these variables had little to no bearing on the respondents' responses.

CHAPTER 5. DOCUMENT ANALYSIS RESULTS: 1ST SUBSIDIARY RESEARCH QUESTION

5.1 Introduction

The previous chapter outlined the results from the questionnaire which constituted the first phase of the mixed methods sequential explanatory design. In this chapter, attention shifts to the second phase of the study which is comprised of a document analysis. As explained in chapter 3, these documents were produced by a different set of polyglots to those who responded to the questionnaire. This signifies a change of focus geared towards elaborating on the findings of the questionnaire. The document analysis enables an in-depth analysis of the beliefs and perceptions of polyglots. The overarching research question for this study was addressed by focusing on three subsidiary research questions. This chapter concentrates on the first of the subsidiary research questions:

- What are essential characteristics of a successful language learner?

This chapter outlines the polyglots' beliefs regarding whether possessing language genes is an essential characteristic of a successful language learner. Secondly, the polyglots' beliefs regarding talent and language learning will be detailed. Their perceptions about the need to exert effort when learning languages will be explained, and the significance that the polyglots afford to passion in language learning will be outlined.

5.2 Rationale

As discussed in the methodology chapter (see section 3.4.2) the purpose of the second phase of a mixed methods sequential explanatory design is to "help explain, or elaborate on, the quantitative results obtained in the first phase" (Ivankova et al., 2006, p.5). The quantitative data

provided a general overview of the polyglots' beliefs and perceptions about a range of topics related to language learning. The qualitative data and its subsequent analysis elaborates on the statistical results by providing an in depth understanding of the beliefs and perceptions held by the participants (Creswell, 2003). The data collection in the second phase of a sequential explanatory design is guided and informed by the results of the data analysis in the quantitative phase of the study (Hanson et al., 2005). Thus, in this study the document analysis was conducted for sub-scales from the questionnaire that required further explanation.

Four of the sub-scales in the questionnaire were constructed in order to ascertain characteristics which the polyglots believed were pertinent for a successful language learner. The polyglots' responses for three of these sub-scales (metacognition and language learning, interaction, and motivation) were conclusive. Although there was not complete consensus on the items in these sub-scales, the vast majority of the participants expressed similar opinions. The beliefs and perceptions of the polyglots which emerged from these three sub-scales are outlined in the discussion chapter. The sub-scale on language learning as a unique talent required elaboration. For the ninth item of the questionnaire, "Successful language learners are born with an aptitude for language learning", 36.3% of the participants either agreed or strongly agreed, while 36.7% disagreed or strongly disagreed. The remaining 27% of the participants neither agreed nor disagreed. Thus, the polyglots were completely divided on this issue. The document analysis was conducted with the hope that analysis of the documents would shed more light on this area of contention and highlight why polyglots may find themselves on either side of the divide regarding successful language learners being born with an aptitude for language learning.

It is important to note that it was not a prerequisite, nor intended, for the 13 polyglots whose documents formed the basis of the document analysis to participate in the questionnaire survey.

However, with a snowball sample design, it is not possible to rule out that the questionnaire reached them. Despite this fact, examination of the polyglots' documents still offers insight to the mindset and beliefs of polyglots which could not be gathered in a questionnaire consisting of Likert scale items. Thus, although the document analysis cannot be said to offer the rationale behind the responses of the same 513 polyglots who completed the questionnaire, extracting themes from the documents does, nevertheless, provide deeper insight to the thought process of polyglots whether expressing the same beliefs or offering contrary ones.

Relevant sections of the polyglots' blogs, videos, talks, interviews and authored books were transcribed and coded. The codes which emerged were then grouped together to form categories. These categories corresponded to the dimensions of the questionnaire that they were expounding on. Table 5.1 highlights the codes which emerged for *language learning as a unique talent*.

Themes	**Codes**
Language learning as a unique talent	language genes, talent, effort, passion

Table 5.1- The codes for language learning as a unique talent

5.3 Language learning as a unique talent

This section outlines the codes which emerged from the document analysis concerning language learning as a unique talent. The polyglots discussed several aspects of language learning being a unique talent in their documents. They referred to the notion of a language learning gene that is used to symbolise the innate talents and characteristics in the genetic makeup that some laymen and academics alike believe successful language learners possess. Analysis of their documents also captured the extensive thoughts that the polyglots have about the role of talent in language learning. Codes also emerged for the role of effort and passion in one's language learning

journey. Delving into the polyglots' documents with regards to language learning as a unique talent was triggered by the results of the questionnaire.

The first dimension of the questionnaire provided some interesting data. While the majority of the participants rejected the notion that not everyone can learn a second language or that only gifted people can learn several languages, they were divided on whether successful language learners are born with an aptitude for language learning. The responses to the items of the questionnaire for the first dimension (language learning as a unique talent) suggests that respondents believe that being a polyglot does not require a special talent, but that nevertheless, successful language learners may themselves be born with an aptitude for language learning. A characteristic may be prevalent in a certain group of people, but that does not necessitate that it is a prerequisite of belonging to the group. This nuance which emerges from the participants' responses will be expounded on when outlining the codes which emerged following analysis of the polyglots' documents regarding language learning as a unique talent.

5.3.1 The issue of language genes

Many of the polyglots discussed the notion of there being language learning genes which accomplished polyglots are born with. Ostensibly, the polyglots use the term *language gene* to refer to an innate ability or aptitude for language learning. Benny Lewis declares that "there is no language gene" (TEDx Talks, 2013). He further opines on his website that "I'm not gifted with languages. I don't have the 'language gene' (if such a thing exists). How do I know? I struggled with languages for years" (Lewis, n.d.-a). Furthermore, he states that "When you understand 'language genes' to be something that some people have and you don't, then you're being ridiculous" (Lewis, n.d.-b). Lewis stresses that we are all born with the ability to learn languages. Jonty Yamisha also negates the idea of polyglots possessing a language learning gene:

> Polyglots have been known to be fluent in up to twenty or more languages. How can this be? Are they gifted? Is there a language gene? The truth is that this talent comes from enthusiasm for languages and being an independent learner. (Yamisha, n.d.-a)

Steve Kaufmann also rejects the idea of some people being disposed to learning languages as opposed to others. For Kaufmann, "it's not a matter of the gene for language learning, an ear for language learning...it's all about attitude and your time you spend on the task with the language, your interest in it" (Steve Kaufmann, 2016). Moreover, in a conversation with polyglot Richard Simcott, Steve Kaufmann states:

> And I often use the argument that there are countries like Sweden where people all seem to be very good at languages, and I don't think that the Swedes have some gene that's unique to the Swedes that makes them better at languages than the Spanish for example. (Steve Kaufmann, 2012)

Kerstin Cable in her blog post reiterates that "there is no gene, there is no magical talent, there is a benefit to practice" (Cable, 2013).

The literature surrounding the potential presence of language genes is rooted in the research on foreign language aptitude. As mentioned in Chapter 2, early researchers such as Ramsay (1978, 1989) and Gardner (1979) included aptitude as one of the several variables which influence the success of language learning. Modern day research has continued to examine the individual differences between language learners (Kidd et al., 2018; Yu & Zellou, 2019). Neuroscientists have reported evidence that increasing grey matter density in the left inferior parietal lobe predicts foreign language learning success (Della Rosa et al., 2013) and that differences in the gyrification of the left Heschl's gyrus impacts upon learners' phonetics. However, the participants of this study were fifteen children in Italy who were being raised multilingual. The majority of the polyglots whose documents were analysed were raised as monolinguals. Subsequently, the structural adaptations in the brain that the researchers attributed to multilingualism in childhood are not likely to have been attained by the polyglots. This lends

credence to their beliefs that their feats are not due to structural adaptations received from childhood.

Jouravlev et al. (2021) reported greater or optimised cortical processing efficiency among polyglots. However, the authors conceded that they "cannot conclusively determine the causal direction of the observed group difference" (p.71). The differences between the polyglots and the monolinguals could be due to extensive linguistic experience, or "it is also possible that individuals who eventually become polyglots represent and process language more efficiently from the start, even as they acquire their first (native) language" (p.71). The polyglots stance witnessed in the documents supports the notion of extensive linguistic experience causing the differences reported by Jouravlev et al. (2021). Deng et al. (2016) found that the left superior temporal gyrus is linked to language speaking success, and a study conducted by Mamiya et al. (2016) suggested that language learning is influenced by an interaction between brain white matter and genetic factors. Furthermore, Chandrasekaran et al. (2015) concluded that a mutation of the forkhead box protein P2 gene is linked to the ability to learn a foreign language in adulthood. The findings of the aforementioned studies, in light of Steve Kaufmann's statement above about Sweden being a nation of successful language learners, suggests that there is more to language learning than innate cognitive abilities.

Increasing evidence reported in the literature suggests that there are individual differences amongst language learners. However, the reason why 36.7% of the participants in the questionnaire disagreed or strongly disagreed with the notion of successful language learners being born with an aptitude for language learning may be due to the other codes with emerged from the analysis of the polyglots' documents, namely that whether one was born with an

aptitude or ‘gene’ for language learning or not, does not definitively determine whether one can successfully learn several languages. The code that emerged on talent illustrates this point.

5.3.2 Talent

An analysis of the polyglots’ documents revealed that they believed that other qualities were more important than any notion of talent in determining language acquisition success, thus the lack of any special talent (if one concedes that it exists) can be overcome, rendering it not a necessary requirement. This echoed the sentiment expressed in the questionnaire where 62.9% of the participants either disagreed or strongly disagreed with the notion that being a polyglot requires a special talent (item 12), despite only 36.7% of the participants disagreeing or strongly disagreeing that successful language learners are born with an aptitude for language learning (item 9). These two items may appear contradictory at a glance. However, as mentioned above, it is possible to reconcile between these two opinions. What can be extrapolated from these two items is that while many polyglots concede that successful language learners may be born with an aptitude for language learning, it is not a necessary requirement to becoming a successful language learner.

It is important to note that in the literature talent is sometimes used interchangeably with aptitude. As Doughty (2019) states, “Aptitude is conceptualized as a special talent for learning languages and a ceiling on success” (p.101). It is also categorised as a component of language aptitude. According to Doughty, “Some researchers consider aptitude to be readiness to learn, which encompasses a range of factors that contribute to learning success including talent, motivation, personality facets, prior learning experience, and current learning context (Snow, 1992, 1994)” (p.102). Due to the way the word talent is at times used interchangeably in the literature with the word aptitude, a lot of research cited to highlight talented learners is the same

or similar research which is cited to demonstrate learner aptitude. For example, Golestani et al., (2011) conclude that an increase in white matter in the brain of *talented* learners leads to faster and more efficient neural processing which aids in learning phonetics, whereas Novén et al. (2021) link white matter to language learning *aptitude.*

The notion of talent was oft-repeated by the polyglots who contributed to the document analysis. While they tended to negate the idea that language learning requires a special talent, there were several utterances which suggested that they believed that talent may also play some part. This may also explain the difference of opinion shown in item 9. Luca Lampariello addresses the belief (amongst other beliefs) that only people with talent for languages can learn them:

> You may believe some of these myths, including the ones I've posted above. However, if you want to be a successful language learner, you will need to dispel these myths, and discover for yourself what really is possible. (Lampariello, n.d.-a)

Although Luca dispels the idea that only people with talent for languages can learn them in the above blog posting, he is less dismissive of the notion in other postings:

> Now, in my experience as a polyglot, people have told me countless times that I have an innate talent for language—one that I was born with. Some have even theorized that my brain is somehow more suited to language learning that that of an average person. This could be true, but I truly doubt it. I honestly think that my success in acquiring multiple languages does not simply boil down to my innate cognitive abilities. In fact, my cognitive abilities are just one of six main factors that make up success in language learning. (Lampariello, n.d.-b)

In a more recent interview, Luca affirms that people's cognitive abilities may differ, but he also reiterates that that does stop anyone from learning a foreign language. He states, "It is certainly true that every person has different inclinations and abilities, but every one of us can learn a foreign language fluently" (Fabiani, 2021). For Lampariello, success is more determined by one's attitude than one's innate cognitive abilities. He states:

> Learning a language is a skill that is acquired with time and effort. Once you realise that there is no magic to language learning, but that it is a long-term undertaking that requires time and effective methods, things change and take on a different perspective. (Fabiani, 2021)

Lýdia Machová also tussles with the idea of talent being a factor in language learning. In one talk she states that "I really think it's not about talent, it's about the approach that we have to language learning. And to be quite honest, I think that for many people not being talented is actually just an excuse" (Machová, 2018). Yet, in the same talk Machová concedes that:

> I personally think that if I have some talent for languages that it helps me…maybe…15% more than other people who are not talented. That means I need to work just 15% less than those who are not talented, and that's not really very much is it? (Machová, 2018)

Emily Liedel also addresses the belief that polyglots are successful due to an innate talent. Like many of the other polyglots whose documents were analysed, she initially dismisses the notion of her successes being attributable to a special talent, but also concedes that people are not equal in their abilities. She states that:

> I do think that I tend to learn languages faster than some others, but that's not really because I am talented. I am 29, and I've been studying languages for 16 years. I have learned how to learn, or at least how I learn best. (Liedel, n.d.-a)

Liedel acknowledges that "There is undoubtedly some variation in 'talent', but I think the most important variation is in motivation. If you are really motivated to learn a language, you can...regardless of what you think your inborn ability is" (Liedel, n.d.-a). Olly Richards holds that "Talent plays only a small role in learning" (Richards, n.d.-a). Gabriel Silva does not believe that talent is the most important factor which determines whether someone can successfully learn a language. He holds that "talent in terms of learning languages is actually somewhat irrelevant. There are many other things that are a lot more important" (Silva, 2016). However, he accepts that some people may possess certain attributes which make them good language learners. He states:

> And you know of course maybe there are people who have a lot of talent in terms of mimicking sounds and they develop better pronunciation more quickly than others. There are many people who can memorise things faster and these people become you know essentially they're going to be able to develop or have a better vocabulary more quickly. But that doesn't really matter. (Silva, 2016)

Amber Gonzalez does not believe that her language learning feats are simply due to a special talent. However, she still recognises that she may have a talent for language learning. She states:

> …a lot of people seem to really really believe that I have this gift of learning languages and that I'm so talented at learning languages and you know God has blessed me with this talent…and umm… not to say that they're necessarily wrong but if you're watching this video and you are a language learner or you are a linguist or you are a polyglot you can pretty much agree with me when I say language learning is not a talent. (Linguist Girl Ambie, 2017)

Steve Kaufmann also recognises that people may have varying degrees of ability in regards to language learning. However, he feels success is far more attributable to other factors. He states:

> But is there a talent for language learning? I think it's possible that there are varying degrees of ability to learn another language and a number of things influence that. (Steve Kaufmann, 2021a).

Nevertheless, he concludes that, "…ultimately the ability to learn a language, it still comes down to the three keys that I refer to so often. The attitude of the learner, time spent with the language, and the ability to notice" (Steve Kaufmann, 2021a).

The beliefs and perceptions of polyglots regarding the notion of talent being a prerequisite to becoming a polyglot are insightful. With growing evidence for certain differences between language learners in the research literature, there may be a proclivity for aspiring language learners to conclude that they do not possess the predisposition to succeed. However, the polyglots' documents reveal that some of the polyglots (e.g. Benny Lewis and Olly Richards) report that they were not always successful language learners. They did not display talent for language learning at an early age. However, they were able to become successful language learners, and they ascribe this success to other than a natural talent for language learning. This

suggests that talent is considered only one dimension for successful language learning, and it is something that can be overcome with other characteristics. One may link the polyglots' comments to human valuing of modesty and the dislike of self-promoting superiority. However, from what is apparent, rather than being reticent about their accomplishments, the polyglots are keen to stress the characteristics which they believe contributed to their success. One important characteristic that was emphasised in the polyglots' documents was the requirement of exerting effort in language learning.

5.3.3 Effort

One of the main reasons why the polyglots were averse to attributing their feats in language learning to a special gene or talent, was because of the belief that this diminishes from all the hard work they have exerted in learning their languages. This was a constant point raised by the polyglots. The examples below illustrate this point. Gonzalez states:

> …now surely yes there are some people that are just a natural at singing a natural at playing soccer and natural at playing basketball but that's not to say that they didn't practice, like…you have to practice. (Linguist Girl Ambie, 2017)

She continues:

> …don't find comfort in telling yourself that oh well she's learning these languages because she's talented, no! I'm learning these languages because I practice, okay, practice is the key, that's what you should focus on, practice, practice, practice, just like with any skill. (Linguist Girl Ambie, 2017)

Richard Simcott argues that "...by labelling people as talented or as a genius or as good at something naturally, you actually diminish what that talent or a genius is. You take away from what that person has achieved" (Polyglot gathering, 2019). Moreover, "...using the word talent doesn't really do justice to the effort that goes into the preparation and to the learning of these languages" (Polyglot gathering, 2019). This sentiment is echoed by Emily Liedel. She states:

> I don't think it is a good idea to call me a language genius, just as most people shouldn't be called geniuses, either. Labeling someone a genius doesn't acknowledge all the hard work that he or she has put into mastering a skill. Even worse, it implies that he or she mastered the skill only because of some innate ability, which means that others without that ability already can't learn. In most cases, and certainly when it comes to languages, that is not true. Anyone who puts in the time can become a language genius. It takes hard work and time, not special inborn ability. (Liedel, n.d.-a)

Liedel is adamant that her language success should be attributed to the effort that she has exerted:

> When people express amazement at my language abilities, I am the first to remind them that I have worked very hard to learn the languages that I know. I have spent countless hours in language classes, doing language exchanges, listening to podcasts and radio shows in foreign languages and just talking to people... (Liedel, n.d.-a)

Shannon Kennedy was also keen to demonstrate the effort which makes polyglots successful language learners:

> There's a good chance that you'll feel like you're missing something. That they (polyglots) have something that you don't. But when it comes down to it, you can't ignore all the work that someone puts in to achieving a decent level in another language. They (often) aren't geniuses, or exceptions to the rule, and their ability often doesn't come as naturally to them as we'd like to think. 99.9% of the time it isn't natural talent or luck. It's hard work. (Kennedy, n.d.-a)

Kerstin Cable refers to be Malcom Gladwell's 10,000 hour rule which he detailed in his book, Outliers (2008), to emphasise the importance of putting effort and practising. Gladwell proposed that 10,000 hours were needed to become a specialist at anything, and Cable concurs:

> One of the most common misconceptions about language learning that I encounter is this persistent idea that learning another language is a skill that is open to an exclusive group of people… If you want to make real progress and become one of those people that other people consider talented, the secret is to practice. Gladwell says that there is even a number of hours you can put on that practice: It is 10,000. The hours add up with every second we spend deliberately practicing - and that means focus, repetition and engagement. (Cable, 2014)

Lýdia Machová is also keen to stress the effort that is required for language learning. She states:

> I like a saying which says hard work beats talent if talent doesn't work hard, and this is so true because you can be the most talented person in the world, if you don't really do

> something about it, if you don't spend time learning the language, you will never speak it. It doesn't just come upon you, you will not just speak the language suddenly, miraculously one day. You really need to work hard and that's exactly what I've done with all my languages. (Machová, 2018).

According to Lampariello, "…there are no shortcuts to this process (language learning). You only get better with time, effort, and deliberate practice" (Lampariello, n.d.-c). Kaufmann also recognises that effort is a key competent of language learning despite being an advocate of effortless language learning. He acknowledges that language learning "is of course, not effortless" (Steve Kaufmann, 2019), and that learning a language "is going to take months and months of continuous studying" (Steve Kaufmann, 2011). However, he believes that if the language learner enjoys the process and avoids arduous rote learning tasks, then it can feel effortless. For Olly Richards "there's a general unrealistic expectation about just how much work it is to learn a language" and "it's important to sort of talk up the idea of hard work" (Fotheringham, 2020). Jonty Yamisha also highlights the effort required to learn a language. He states that a language learner "...can pick up some essential phrases of a new language in less than an hour" (Yamisha, n.d.-b). However, for them to carry on a conversation of any depth "it's going to take more effort and commitment" (Yamisha, n.d.-b). He opines that many language learners "dramatically ***under***estimate the amount of time and effort necessary to learn a new language" (Yamisha, n.d.-b).

The connection between language learning and effort is well established in the literature, and is often described as a facet of learner motivation (Al Shaye et al., 2014; Dornyei, 2005). Indeed, Gardner's Socio Educational Model (1979) defines motivation as "the combination of effort plus desire to achieve the goal of learning the language plus favourable attitudes toward learning the language" (1985, p. 10). Other researchers have posited definitions of learner effort (Agbuga & Xiang, 2008; Bozick & Dempsey, 2010; Carbonaro, 2005; Karabiyik & Mirici, 2018;

Zimmerman & Risenberg, 1997). Empirical research has established a connection between learner effort and learning outcomes. Yeung and McInerney (2005), purported that effort exerted was one of the most significant factors in learner achievement. Furthermore, Özer (2020) concluded her study by stating that, "Students with high achievement exerted more procedural, substantive, focal and overall language learning effort and less non-compliant behaviors than those with lower achievement" (p.1364). The polyglots' emphasis on effort as an important factor in language learning is notable. It highlights their belief that regardless of the perceived innate abilities of a learner, or lack thereof, his or her success requires the exertion of effort. Another essential characteristic for a successful language learner which emerged from the polyglots' documents was the need to possess passion.

5.3.4 Passion

Analysis of the polyglots' documents conjured up another attribute which they held to be relevant for a successful language learner: being passionate. The Dualistic Model of Passion defines passion as "a strong inclination toward a specific object, activity, concept or person that one loves (or at least strongly likes) and highly values, that is part of identity, and that leads one to invest time and energy in the activity on a regular basis" (Vallerand, 2015, p.14). There were several instances where the polyglots mentioned the importance of a language learner being passionate about the task they are undertaking. The following examples illustrate the significance that was given to this characteristic. Olly Richards likens the early stages of learning a language to staring up at a mountain that looks insanely high. He understands that some people believe they will never be able to reach the top and subsequently their motivation slips away. However, Richards stresses:

> If you can foster a passion for the language you're learning, if you can make it so important to you that it becomes your single defining purpose, if you can get clear on what it will mean to you to one day wake up and know that you're fluent in the language…let me tell you – there is nothing that will stop you reaching that goal. But it starts with motivation. And motivation starts with passion. (Richards, n.d.-b)

Silva echoes this sentiment when he states that "anyone can become good at learning languages. But of course, there's got to be the will, there's got to be the desire to learn and eventually hopefully this desire will become a passion for the language that you're trying to learn" (Gabriel Silva, 2016). For Lampariello, a passionate language learner will fare better in specific tasks such as memorising vocabulary. He states that, "In order to improve your ability to recognize and memorize new words and expressions you need to be interested in and passionate about what you are doing" (Lampariello, 2012). Indeed for Benny Lewis, passion is the one single characteristic which separates successful language learners from unsuccessful ones. He states:

> After years of investigating what separates successful language learners from unsuccessful ones, I believe I have found the *one* thing that those who ultimately succeed and speak the language fluently, all have in common. It's not the course materials they use, or their ability to travel, it's not a particular aspect of their "method", it's not their wealth, and it isn't even their natural born intelligence. It's PASSION. (Lewis, n.d.-c)

Steve Kaufmann also remarks on the importance of a language learner cultivating a passion for the target language. He states:

> The "objective" reasons that induce people to try to learn...are usually not strong enough to enable someone to overcome the inevitable difficulties presented by a new language. If the learner doesn't cultivate a passion for one of those languages, an interest in some aspect of their culture, or some other personal emotional, sentimental, or intellectual connection, it will be a long ungrateful road with few successes and lots of frustration. (Kaufmann, 2020)

Kaufmann adds that "It is up to each learner to find his or her own path to fluency in the language of their choice, which means searching for things that attract them, and then pursuing them with passion" (Kaufmann, 2020). Lýdia Machová recollects occasions where learners she

mentors developed passion for their target language which she believes “is so important” (Steve Kaufmann, 2017).

The polyglots’ sentiments about passion is supported in the literature. Northwood (2014) has posited that passion is associated with learner motivation. This complements the statement of Kaufmann above that passion can be a motivating force that aids the language learner when objective reasons which induced him or her to learn the language no longer suffice to keep them going. In an empirical study, Lake (2016) reported a positive correlation between harmonious passion and L2 proficiency. This affirms the belief of Lewis that passion can lead one to succeed in language acquisition. Chen et al. (2021) state that, “the findings of this study underscore the fundamental importance of passion in the L2 realm and how it may contribute to both L2 learning and general life outcomes” (p.2774). This supports the statements of the polyglots quoted above about the significance of passion as a characteristic of a successful language learner. The polyglots’ beliefs cited above suggest that a passionate learner will be able to overcome other obstacles. This has implications for educators who may neglect the importance of igniting passion in their learners. Chen et al. (2021) note that, “Future research is necessary to extend our understanding of the role of passion in L2 and to more firmly anchor L2 in the field of positive psychology” (p.2774). Furthermore, research is required to better understand how such passion can be developed through teaching.

5.4 Conclusion

This chapter has detailed the beliefs and perceptions of the polyglots who contributed to the document analysis regarding essential characteristics of a successful language learner. The polyglots expressed the belief that there aren’t language genes that successful language learners need to possess. Empirical research reported in the literature increasingly hints towards intrinsic

differences between language learners. The polyglots' statements can be interpreted as hinting towards the importance of other factors determining language acquisition success. While conceding that some language learners may indeed be more talented than others, they were keen to express that a so-called lack of talent would not unequivocally bar one from successfully learning languages as long as they possessed other key characteristics. The first of these was being willing to exert effort, and the second was a passion for the target language. The notion of effort contributing to learning outcomes is supported by academic research. Their views on the role of passion in language acquisition is also giving credence in the research literature. The questionnaire and the document analysis have highlighted characteristics which the polyglots believe are essential for a successful language learner. These characteristics will be brought together and examined further in the discussion chapter. The following chapter reports the findings of the document analysis which relate to the second subsidiary research question. It highlights the polyglots' beliefs and perceptions about important considerations for successful language acquisition.

CHAPTER 6. DOCUMENT ANALYSIS RESULTS: 2ND SUBSIDIARY RESEARCH QUESTION

6.1 Introduction

The results of the document analysis in this chapter will concentrate on the second subsidiary research question:

- What are important considerations for successful language acquisition?

This chapter details the polyglots' beliefs and perceptions regarding important considerations for successful language acquisition. Initial focus is on considerations for successful learning in schools. The chapter outlines the polyglots' belief that languages in schools need to be treated as tools to be used rather than theoretical subjects. Secondly, the polyglots' belief that language classes need to be interesting is put forth. Furthermore, their aversion to the way tests are currently used in language classes is detailed. Attention then switches to important considerations regarding language learning goals for successful language acquisition. The code which emerged explaining the importance of setting goals is outlined, and the need to avoid perfection as a goal is explained. In addition, the chapter lays out the polyglots' belief that language goals need to have certain characteristics. The final considerations which emerged from the document analysis regarding important considerations for successful language acquisition are concerned with language learning strategies. The chapter details the polyglots' belief that there is no single best strategy, but that an effective strategy should be enjoyable, applied consistently and not be overly focused on grammar.

6.2 Rationale

Five of the sub-scales in the questionnaire were constructed in order to determine important considerations for successful language acquisition. The third sub-scale which addressed

experience and language learning was very conclusive and therefore further elaboration was not needed from the document analysis. Moreover, the ninth sub-scale on the value of language learning had a small minority of the respondents disagree with the item statements. Subsequently, this chapter elaborates on the second sub-scale (language learning in schools), the fourth sub-scale (language learning goals), and the fifth sub-scale (importance of language learning strategy). Table 6.1 contains the codes which emerged in relation to each theme which corresponded to the three sub-scales under investigation.

Themes	**Codes**
Language learning in schools	language as a tool, interesting classes, tests
Language learning goals	importance of setting goals, perfection, S.M.A.R.T. goals
Language learning strategy	no best strategy, enjoyment, grammar focus, consistency

Table 6.1- The themes and codes for language acquisition

6.3 Language learning in schools

The first theme to be elaborated on by way of the document analysis is the way languages are learnt in schools. The polyglots' documents contained a lot of commentary on the present state of language education in schools. Of course, most of the polyglots only have first-hand experience of language learning in their countries. Nevertheless, they were keen to state their belief that the problems they've observed are evidently systemic and not restricted to language education in their countries. The polyglots' documents echoed what was garnered from the questionnaire. The participants' responses to the second dimension of the questionnaire highlighted their belief that a change is needed in the way languages are taught in schools. Indeed, 83.7 % of the participants

either disagreed or strongly disagreed that language learning in schools is not in need of reform. The cause of their disgruntlement and the changes they would like to see could not be ascertained from the questionnaire. However, analysis of the polyglots' documents shed some light on this matter. The polyglots who contributed to the qualitative data were equally critical of the language learning situation in schools. Steve Kaufmann holds that "Public school systems everywhere have been widely unsuccessful in teaching second languages. This has had a negative influence on language learning" (Kaufmann, 2015). For Kaufmann, this failure can be attributed to the way languages are taught in schools. He states:

> If what we do, in other words, insisting on certain grammatical niceties of the language or a certain set of words that have to be learned, and this will be the proof of whether the student has achieved that level...if we are building in frustration and disappointment and, uh, you know resistance to the language, um, we're not helping the situation. And the proof is in the pudding because at least in the case of Canada, the vast majority of students in the English language stream graduate after eight or ten years of French, and can't speak French, don't understand French, can't speak French. (Steve Kaufmann, 2021b)

Jonty Yamisha, in a blog post lamenting the state of education in general in the United States, is particularly critical of language education. Yamisha believes that "Foreign language learning is on the decline in the U.S. because people fail to see its relevance" (Yamisha, n.d.-c). For Yamisha, "Students often view language learning as an obstacle to overcome, something to 'get through', not an experience they should embrace" (Yamisha, n.d.-c). Yamisha highlights some of the problems with the way languages are taught in his country. He notes that, "Former students often remember spending years in language classes studying grammar, conjugating verbs, and taking tests, only to [sic] struggle with having simple conversations with native speakers. That's after spending years 'learning' the language!" (Yamisha, n.d.-c)

Gabriel Silva laments the fact that most people relate language learning to the experience they had at school. He states:

> A lot of people associate learning a language with their experience in high school or college, which normally or very often wasn't that great and that's... that's an issue because learning a language can be exciting it can be fun it doesn't have to be boring like a lot of courses out there. (Gabriel Silva, 2015)

Lampariello wrote a whole article about why learning a foreign language in school doesn't work. He points out that "Hundreds of thousands of people across the globe study one or more languages at school. However, after years of study, most of these same people cannot string together even the simplest of sentences" (Lampariello, n.d.-d). Lewis points to his own personal experience and recalls that "...ten years learning Irish gave me nothing more than a splattering of words..." (Lewis, n.d.-d) and five years of learning German at school "didn't even help me to buy a train ticket in Munich" (Lewis, n.d.-d). Richards recounts his negative experience learning languages at school by stating, "I did French at secondary school so that's eleven for me, or was it even thirteen? I can't even remember. It didn't make that much of an impression on me" (Richards, n.d.-c).

The failure of language education in schools worldwide is acknowledged in the literature (e.g. Griffith & Coussins, 2019; Hamid, 2011; Mostofi, 2018). The polyglots provided suggestions on how language education can be improved in schools. Analysis of their material provided the following codes: language as a tool, interesting classes, and tests.

6.3.1 Language as a tool

One of the criticisms that appeared often in the polyglots' documents is the incorrect way they believe language education is perceived. Several of the polyglots mentioned that languages should not be treated in the same way that other school subjects are because language education is intrinsically different. Yamisha holds that, "As long as teachers treat language as a subject to study and not a tool to use, people will continue to struggle to reach fluency in a foreign

language classroom" (Yamisha, n.d.-d). He criticises the focus on assessment and analysis of the language, rather than usage. As he notes in another blog posting, "Languages are tools to be used, not subjects to be studied. And yet, teachers still assess students using mainly tests. This results in a heavy focus analyzing a language as a subject rather than a tool to use" (Yamisha, n.d.-c).

Kaufmann is also critical of the way languages are taught in the classroom. He states:

> The language classroom is too often an artificial environment where the emphasis is on teaching the language according to a timetable imposed by the curriculum. The expectation is that the teacher will impart language knowledge or skills in a certain order. As long as the textbook is covered in the prescribed time period and test scores are positive, the assumption is that the language has been learned. Unfortunately, the results in terms of fluency are mostly disappointing. (Kaufmann, 2015)

Kaufmann recalls his personal aversion to his language classes focusing on the theoretical aspects of the language. He admits that, "In my own case, I found studying theoretical explanations of grammar uninteresting and not an effective way to learn languages. I resisted doing exercises and answering questions that tested my knowledge of grammar" (Kaufmann, 2015). For Kaufmann, it is also a lot more effective if a language is treated as a tool rather than a subject to study. He states:

> In the most effective classrooms it is not the language that is studied, but some other subject of interest to the students. In studying another subject the learners absorb the language, and are less self-conscious about their own language difficulties in their enthusiasm to communicate about something of interest to them. (Kaufmann, 2015)

Luca Lampariello echoes the belief that one of the reasons language education in schools doesn't work is because languages are treated as a subject to study, and not a skill to acquire. He states:

> In school, knowledge-based topics like history, economics, math, and science are all studied in the same way: as a collection of facts that need to be absorbed. Since languages are taught within the same academic structure as these other courses, students fall into the trap of believing that they should be treated the same way. (Lampariello, n.d.-d)

Lampariello is very clear about the gravity of such an approach:

> …languages are not like these other subjects, which can mostly be studied and memorized from books. To know a language is to have developed a skill. If a student remains unaware that a language is a skill, and instead treats it like all of his other school subjects, this will have a profoundly negative impact on the decisions he makes, material he uses, and actions he takes along his learning path. (Lampariello, n.d.-d)

Lampariello advocates for language learners instead to have the autonomy to use the target language to read texts that they are interested in. He believes that current methods produce students that know *about* a particular language, rather than competent users *of* a language. Kirsten Cable praises the way that languages were introduced to her in her native Germany. She compares her experience to how language learning is perceived in the United Kingdom where the British Academy's State of the Nation report concluded that teaching is too driven by exams and motivation and fun are an afterthought. Furthermore, the classes in the UK are concentrated heavily on theory rather than practice. In contrast, Cable recalls that "In Kindergarten and primary school, there were no formal foreign language lessons. We sang "Sur le pont d'Avignon" and "If you're happy and you know it", that's about it" (Cable, 2013). Thus, languages were not introduced to her with an academic structure like other subjects. Cable mentions when recalling her English classes, "We were reading plays and books about halfway in. We had school exchanges and the language was relevant to other subjects" (Cable, 2013).

The notion of learners absorbing the target language via another subject of interest, as mentioned above by Steve Kaufmann, has been merited in the literature. Content-based instruction (CBI) is a pedagogical approach where both language and content learning objectives are addressed. Thus, the language is used as a tool in the classroom to meet other content learning objectives. As Bellés-Calvera notes (2018), "not only do students have the opportunity to acquire meaningful knowledge related to subject areas like mathematics or science, but they can also

improve their skills in the target language" (p.111). Previous research has reported positive outcomes from the implementation of CBI (Lyster, 2007; Köller et al., 2012; Sato et al., 2017). According to Cumming and Lyster (2016), CBI has "the added benefits of enhancing students' content knowledge while increasing their confidence in using the target language, without jeopardizing linguistic accuracy" (p.95). This is because they absorb the language and are not self-conscious about their language difficulties as stated by Kaufmann above. There are challenges of implementing CBI programs in schools (Ruiz de Zarobe et al., 2011; Lasagabaster & Ruiz de Zarobe, 2010). In order to overcome these challenges, "...teacher training courses as well as team teaching should be promoted" (Bellés-Calvera, 2018, p.113). The polyglots expressed in their documents that not only should the target language be used as a tool in the classroom, but that it is also imperative that language classes are interesting.

6.3.2 Interesting classes

Another code which emerged from the documents was the notion that language classes and the material used in schools need to be interesting. Gabriel Silva stresses the importance of making language classes fun. He firmly believes that "learning a language can be exciting, it can be fun, it doesn't have to be boring like a lot of courses out there" (Gabriel Silva, 2015). He holds that a learner's failure in a language is not attributable to their ability, but rather it is "more of a measure of, essentially, how efficient and how exciting the material is, which normally, you know, it's often not that exciting in high school and in university they can be using boring material" (Gabriel Silva, 2015). Silva states:

> Often in high school or in college French they're gonna have boring stuff that is gonna be basically irrelevant for conversations and then, you know, the student will be falling asleep... The content is not that exciting! So what's the solution to this? I think that language learning should be fun it should be exciting you should actually be trying to use

> materials, you should be trying to use content that's exciting to you... (Gabriel Silva, 2015)

Luca Lampariello is also keen to emphasise the significance of using interesting material in language classes. He states:

> The material you use to learn, at least in the first initial phases of language learning, plays a very important role in your eventual success. If the material is boring and inefficient, it risks impacting negatively even the most well-intentioned and eager learner. (Lampariello, n.d.-d)

Lampariello posits that materials used in schools are often boring. He suggests that teachers, with the participation of students, should endeavour to create and select interesting material which would impact greatly on the progress of the learners. He states:

> Unfortunately, many students are given textbooks they find boring at best and unpleasant at worst. To solve this problem, I believe that teachers should create material that is adapted to their unique classroom of learners, be open to suggestions, and above all, encourage students to participate in the resource-selection process and create or find interesting learning material on their own. (Lampariello, n.d.-d)

Yamisha lists boring materials as one of the reasons foreign language education fails in the classroom. He states that, "If students find the materials they use to learn a language are boring, they won't focus. This results in them shutting down, learning very little despite their efforts" (Yamisha, n.d.-c). Kaufmann maintains that students will learn if they are engaged with interesting material. He states, "After the learners are exposed to a sufficient amount of interesting content by listening and reading in the language, they gradually become aware of the need for correct structure and word use. Then they are motivated to work on these aspects of the language" (Kaufmann, 2015). Kaufmann recalls how impactful this was when he was studying French:

> ...it all happened once I got turned on to the language...uh and that's the way, what they should do in schools. You know the first thing they should do is say imagine you know an imaginary trip in Quebec or France or Belgium or Switzerland, and let them go out and find out what is in those countries and the cities and the people and the customs and

> the history and whatever...so that at least you begin by being interested in everything that surrounds the language. Then you might have a chance to put the effort in, as I did, into letting that language wash over you and every so often a teacher can point out certain things in the language... (Steve Kaufmann, 2021c)

Benny Lewis believes that the lack of stimulation is the biggest problem that many language classes in schools face. He remarks:

> It has to be interesting! This is by far the worst problem with many classrooms and why I think some non-traditional teachers do it better. Make it seem less like a classroom – sit down with your students, turn the tables around into circles, play games and chat to them about how their weekend was in the target language. Make it interactive and get them to participate as much as, or more than you would be speaking. (Lewis, n.d.-d)

Lindsay Williams believes that it is the tendency in schools to focus on grammar which students find particularly boring. She states that, "One thing that we do a lot more of in school than I do on my own is grammar. Although I don't have an issue with it, a lot of people think that grammar is really boring" (Williams, n.d.-a).

There is a scarcity of research which tackles boredom in the language classroom and its effects on learning (Chapman, 2013; Kruk & Zawodniak, 2020). Most of the research on the need for language classes to be interesting has been framed around learner motivation. Oga-Baldwin et al. (2017) conclude their study in support of the polyglots' perception by stating that "...creating a clear, interesting, and well-paced learning environment is centrally important for foreign language learners" (p. 149). Saito et al. (2018) support Lampariello's call for autonomy in the classroom and Lewis's plea to make classes more interesting by breaking away from a mundane routine. They report that teachers in classrooms can stimulate learner enjoyment by "devising a range of interesting challenges involving risk taking, autonomy, and unpredictability beyond regular routine" (p.736). Furthermore, Abdur Rehman et al. (2014) substantiate the statement of Silva that interesting classes are needed in order to maintain the attention of the students. They posit that, "Instructors need to plan and create interesting lessons in which students become fully

attentive" (p.257). The link between interesting classes and learner motivation is well established and intuitive. The overwhelming majority of polyglots (80.5%) who participated in the questionnaire considered motivation to be the most important factor determining acquisition success. Therefore, the emphasis on the need for interesting classes which emerged from the polyglots' documents shows a synergy of thought between the two groups of polyglots. A possible threat to learner motivation which emerged from the document analysis is the way that tests are used in schools.

6.3.3 Tests

Another code which emerged from the document analysis is the aversion to testing in language classes at school and the negative impact it has on language acquisition. Benny Lewis questions the value of language tests in schools. He opines that, "the way that many (luckily not all) classrooms operate involves too many flaws to produce any useful results other than impressive scores on sometimes worthless tests" (Lewis, n.d.-d). Lewis states that the goal of most educational establishments is to get students to pass tests, whereas he believes a focus on getting students to communicate in the language would produce better results. Lewis acknowledges that the way he studies languages is completely different to systems used in official language learning organizations. Primarily, the reason for this is the different goals that educational establishments have. Lewis states:

> Usually, I'm not trying to pass a specific test. In my view, language learning is not an academic pursuit; it's a practical one. I aim to be able to use the language effectively in everyday conversation. (Lewis, n.d.-e)

Jonty Yamisha concurs that the focus on passing an exam can detract from the progress that a language learner makes. He remarks:

> ...many people who sit in a language classroom with teacher guidance still regularly fail to learn the language. This is because it can be too easy to rely on the teacher and jump through the hoops to pass tests rather than learn the language. (Yamisha, n.d.-a)

Furthermore, Yamisha holds that making passing a test the main focus in a language class results in "a heavy focus analyzing a language as a subject rather than a tool to use" (Yamisha, n.d.-c).

Steve Kaufmann is very critical of the way tests are used in language classes in school. Kaufmann states:

> I've sort of come to the conclusion that the biggest problem, the biggest reason why, if we had to find one reason why kids have a tough time with language learning at school, I would say it's because of the tests. (Steve Kaufmann, 2010)

Kaufmann holds that the present system is not successful and that the emphasis should be on trying to get the students turned on to the language by allowing them to read material that is of interest to them. As Kaufmann states, "...there's one thing that is for sure, and that is that the present system with the emphasis on testing, and testing trying to prove that they've learned what we taught them and doing that year after year, when we see that in the end the result is that very few of them can speak the language" (Steve Kaufmann, 2010). He goes further by stating that, "I think we should get rid of tests in the school system in so far as language instruction is concerned, gone, none, period. I think we'd get better results" (Steve Kaufmann, 2010). In a later blog post Kaufmann acknowledges that standardized tests such as the Test of English as a Foreign Language (TOEFL) may be a necessary evil for university entrance or job interviews. However, he warns that "They should not become an obsession, and must never become the goal of language learning" (Kaufmann, 2015). For Kaufmann, "If you focus on test results without really learning the language, you are only fooling yourself. In the end you will not be able to use the language effectively" (Kaufmann, 2015).

Olly Richards also advocates getting rid of tests in language classes in schools. He states:

> ...what is the point of as test other than to have some kind of centralized way of testing kids and understanding whether the system is working or not, but we all know that languages don't work like that, there's no such thing as learning...the fact that you learn memorise a bunch of words for a test or memorise a bunch of phrases...for a speaking test and then you get graded on it and you get a result...it's totally and utterly meaningless beyond the need for ministries of educations and for school systems to kind of judge like kind some kind of measure of progress and judge kids. (Olly Richards, 2020)

Richards acknowledges that schools do need some way to measure the success of their teaching. It is this dichotomy that leads Richards to declare that "Assessment is the most difficult, problematic area of language teaching" (Richards, n.d.- c). However, he maintains that the main aim of the school should be to foster an interest and a love for the target language in the children. For Richards, "if you remove the need for those tests altogether and you trust in the teachers, then you're able to actually do creative things in class, things that can inspire and motivate kids" (Olly Richards, 2020).

Luca Lampariello does not go as far as saying that we should get rid of tests in language classes in schools. However, he stresses that "tests should be seen as a way to further improve and refine the student's skill, rather than a way to punish them" (Lampariello, n.d.-d). Lýdia Machová expresses her belief that the use of tests can be detrimental to the language learner. Indeed for Machová one of the fatal mistakes that language learners make is that "we try to memorize lots of words (so that we pass a test or a certificate)" (Machová, n.d.-a). Lindsay Williams draws on her experience as both a student and a teaching assistant in schools to question the effectiveness of language learning that takes place within classrooms worldwide each day. For Williams, one of the problems with language education in schools is the way tests are used. She states:

> Children are taught to write answers for speaking exams and learn them parrot-fashion. They enter the exam and answer each question with their perfectly memorised answers

> and, hopefully, pass the exam. Said children then go to France/Spain/Germany on holiday and have no idea what to say to the waiter. (Williams, n.d.-b)

Kerstin Cable is also critical of the way test are used in language classes in schools:

> There is a problem when schools focus too much on achieving the best possible test results, because the thing we can easily test is formal grammar. I have found that this tends to encourage boredom and anxiety more than passion and joy. (Cable, n.d.-a)

Researchers have long been interested in the effect that testing has on both a micro level, with individual learners, and a macro level with educational systems and policymakers. The term 'washback' has been coined to refer to the effects of language testing on teaching and learning (Alderson & Wall, 1993). Early researchers have reported the negative impact that testing can have on both teaching and learning (Corbett & Wilson, 1991; Dorr-Bremme & Herman, 1986; Kellaghan & Madaus, 1991). More recent studies have continued to corroborate the perceptions of the polyglots by highlighting the adverse effects that testing can have on language learners (Al Hinai & Al Jardani, 2020; Barnes, 2016; Kılıçkaya, 2016). Many researchers have affirmed the criticisms raised by the polyglots that testing alters the focus in the classroom, limits the curriculum and affects teacher and learner attitudes and motivation (Al Hinai & Al Jardani, 2020; Hazaea and Tayeb, 2018; Spratt, 2005; Syafrizal & Pahamzah, 2020). Furthermore, as suggested by Cable above, it has been reported that testing can increase anxiety in the classroom which accordingly negatively affects the learning process (Aydin, 2009). The stance of the polyglots is supported in the literature and adds another voice to those calling for reform in the way testing is used in language classrooms. Codes also emerged from the data which highlighted positive steps that learners could take to enhance their language acquisition. The first of these codes addressed the theme of language learning goals.

6.4 Language learning goals

The polyglots' documents were not analysed extensively for codes relating to experience and language learning which formed the subject of the third sub-scale in the questionnaire. It is very clear from the questionnaire data collected that the participants firmly believe that language learning is a skill which improves with experience. This sentiment is emphatically stated by Kerstin Cable when asked whether language learning becomes easier with time. She states, "The short answer is yes. It definitely does" (Cable, 2017). She lists several factors why this is the case including knowing which language learning strategy works for the individual and having the confidence that they can achieve their goals. As Cable remarks, "I no longer ask myself if I can do this. I know that, given time and dedication, I can learn any language to a very high level" (Cable, 2017). Luca Lampariello opines that, "In language learning, experience plays a large part in how fast you will acquire a new language" (Lampariello, n.d.-d). He holds that "If you've never learned a new language before, then your first foreign language will take you longer to learn than nearly any subsequent language..." (Lampariello, n.d.-d). However, "Once you have that first foreign language behind you...each new language will come to you more easily than the last" (Lampariello, n.d.-d).

Given this commonly held belief, there is no need to examine the issue further in this chapter. Instead, attention turns to the fourth dimension of the questionnaire regarding language learning goals. Prior to any discussion about the nature of language learning goals, it is apt to first highlight the significance that the polyglots give to setting language learning goals. Analysis of their documents revealed that setting language goals is an important step for a language learner, subsequently this will be the first code outlined related to language learning goals.

6.4.1 Importance of setting goals

An area that was mentioned often when discussing language learning goals was the importance of setting them. Jonty Yamisha laments language learners who start their language learning journey without setting any goals. He states:

> Often, when people start learning a new language, they jump right into it. They'll download an app and start swiping and typing away to fluency. Or so they think. But jumping into language-learning with this mindset can not only lead to wasted time, but it can also prevent you from actually learning a new language. If you're going to learn a new language, then you need goals. Without them, you'll get lost in the forest, looking for the trees. (Yamisha, 2019)

Gabriel Silva holds that having language learning goals is important because they keep the learner motivated. He states:

> ... I would like to talk about something that I find very important when we're learning any language. And that is to have specific goals. So it's goal oriented language learning. And I think that if we always have clear goals, what that's gonna do is that we're gonna stay engaged, stay motivated and keep progressing as we learn a new language. If we don't have these goals, chances are that we are gonna hit plateaus and lose motivation, lose momentum as we learn a new language. (Gabriel Silva, 2017)

Lindsay Williams also believes that "goals are incredibly important" (Williams, 2017) to avoid fizzling out when learning a language. Richard Simcott concurs that "setting goals is really important" (Fotheringham, 2020). Steve Kaufmann states that setting language learning goals is important, but stipulates that these goals should be meaningful (Steve Kaufmann, 2015). For Olly Richards, goal setting is where the language learning journey begins and it gives clarity to the learner. He states, "Whatever stage you're at in learning a language, without clearly defined goals you're denying yourself clarity in the road ahead" (Richards, n.d.-d). He continues:

> As with everything else in life, a good plan is the foundation for language learning. By defining your aims clearly at the start you can develop a plan to suit and avoid wasting time on things that won't bring you closer to your goal. (Richards, n.d.-d)

In a later blog post, Richards states that it is more productive for a language learner to focus on the language learning process rather than the product. He claims that "Traditional goal-setting in

language learning simply isn't going to work for 99% of people" (Richards, n.d.-e). He prefers to focus on what he calls sprints. A sprint is when a learner devotes a set period of time to doing one thing to its completion. The focus is on the process rather than the product. Thus, a sprint may be to spend ten minutes a day memorising vocabulary rather than a traditional goal of learning ten new words a day. For Richards, the advantage of this is that "with process you can't fail, but with product you can always fail to meet your goals" (Richards, n.d.-e). While Richards coined a new term for this approach, other polyglots also recommended a focus on small achievable goals which focus on the process, but preferred to continue to label these as goals.

According to Luca Lampariello it's imperative to set clear goals when language learning. He states:

> I think that setting goals plays a huge role in language learning because if your goals are vague then you don't know where you're going, while if you know where you're going, if you have an objective, you know exactly where you're going. (Luca Lampariello, 2013)

The relevance of setting language learning goals has long been recognised in the literature. According to Rubin (1987), goal setting is an important metacognitive strategy for learners to develop. Stern (1992) reiterates the claim of the polyglots about the necessity to plan one's learning. For Stern, establishing reasonable goals is an important management and planning strategy which is derived from the learner's intent to control his or her learning. The importance of learners' goal setting has been emphasised in the research of self-regulated learning. Wolters et al. defined self-regulated learning as "an active constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour..." (2003, p.2). Hardwin et al. report that "Goals are fundamental for regulatory proficiency and success" (2011, p.66). According to Zimmerman and Schunk (2011),

"Students who are proactive self-regulators...set learning goals... [and] monitor and access their goal progress" (p.1).

The polyglots emphasised the importance of setting language learning goals. However, they were also very keen to stress that the nature of these goals can be a contributing factor to the success of the language learner. There were certain oft-recurring characteristics that the polyglots stated should describe one's language learning goals. One of the codes which emerged (perfection) was a feature that the polyglots believed should be avoided when setting language goals.

6.4.2 Perfection

One of the codes that emerged related to language learning goals and which was also addressed in the questionnaire is whether perfection should be the ultimate aim of a language learner. Should a language learner continue to be unsatisfied until they no longer make mistakes in the target language? The majority of the participants in the questionnaire (78.7%) disagreed or strongly disagreed that the aim when learning a language should be perfection. Many of the polyglots whose documents were analysed echoed this sentiment and expressed that the road to perfection is a very long one, and so it is more important to enjoy the journey. As Olly Richards states:

> It's very very hard to reach perfection in a language, and it takes a very long time. But perfection also doesn't matter because the thing that will bring you joy in your languages, and bring joy into the lives of the people who you touch with your languages, is much more about *you*, and the extent to which you can convey *your personality* when you speak, than whether you've memorised every single word in the dictionary. (Richards, n.d.-f)

Richard Simcott opines that perfection is an unrealistic goal for a language learner. He believes that "the sooner we all accept that we're never going to speak a language to a hundred percent perfection a hundred percent of the time the better" (Fotheringham, 2020). For Simcott, there is

nothing wrong with a language learner striving for perfection. However, this is an unachievable goal. He continues:

> It doesn't matter who you are. If you're listening to this and you're one of those perfectionists and you love to learn the language as best as you can, that's fantastic. If you're somebody who just likes to learn the basics, again fantastic, carry on doing what you're doing. Neither one of you is going to actually speak the language perfectly all the time. (Fotheringham, 2020)

Benny Lewis holds that striving for perfection can lead to what he deems perfectionist paralysis. Lewis states that, "I come across so many language learners, and I honestly believe that the worst ones by far are those who refuse to let it be anything but perfect" (Lewis, n.d.-f). Lewis acknowledges that long-term perfectionism is great, especially if someone chooses to dedicate themselves to one language. However, he feels that in the short term "right now perfect is impossible, so why waste your time having that fact hold you back from getting a start on 'pretty good'?" (Lewis, n.d.-f). Shannon Kennedy shares this opinion that "perfectionism can stop your learning in its tracks. It can hold you back, paralyze you and keep you from moving forward with not only your speaking, but in your progress with the language as a whole" (Kennedy, n.d.-b). Kennedy points out that even native speakers make mistakes. For her, making mistakes is inevitable and should not deter the language learner from making progress. She states:

> No matter how much preparation you do, you're going to make mistakes. It's bound to happen. And it's okay. If you let perfectionism get in the way, it will be years before you ever work up the courage to get out there and use the language. If you ever work up the courage to speak at all. (Kennedy, n.d.-b)

For Kaufmann, how perfect one needs to be depends on the learner's specific goals. Kaufmann distinguishes between learning a language for a professional need and learning a language for a more recreational purpose. He states:

> I guess my conclusion is that how perfect we need to be depends on your goals. If you are working in a language where you need the language professionally, you have to devote

> yourself to becoming as good as you can be. You have to become very attentive. (Kaufmann, 2018)

Kaufmann agrees with Richards and Lewis that perfection need not be the goal for language learners whose ultimate desire is to communicate with other people:

> ...if your desire is to know a number of languages because you like to travel, you like to read in different languages, watch movies in different languages, be able to communicate with people that you come across in your travels, then don't get upset because you don't achieve perfection in three or four different languages. (Kaufmann, 2018)

Kaufmann cautions that even those who strive for perfection in their languages should have realistic expectations and realise that mistakes are inevitable. Furthermore, he holds that they shouldn't place too much emphasis on perfecting their accent. He states:

> So how perfect do we need to be? It's entirely up to us. It depends on what our goals are, but if we need to be very good in a language we can do it, as long as we don't have unrealistic expectations when it comes to accents and we accept the fact that we will make the odd mistake. (Kaufmann, 2018)

Kaufmann also touches on the notion of perfectionism preventing the learner from progress. He states that, "The perfect can be the enemy of the good. So, if you try to be perfect, you may end up not being very good" (Steve Kaufmann, 2022).

Emily Liedel concurs with Kaufmann that different language goals require different levels of fluency. She states that if your language goal is to communicate in a social setting "you probably don't need to worry too much about understanding cultural nuances and avoiding glaring grammatical mistakes – as long as your pronunciation is passable, you'll be fine" (Liedel, n.d.-b). In contrast, if your language goal is to be a foreign journalist, conduct international business or attend a foreign university you need "to have a much higher level of fluency – because a lot is at stake if you make a mistake" (Liedel, n.d.-b). In such settings "you'll start encountering more complicated and nuanced vocabulary and grammatical structures. You need to be able to both understand them and use them yourself to function appropriately in professional situations"

(Liedel, n.d.-b). Kaufmann agrees that, "the standard required for written communication is usually higher than the standard required for oral communication" (Steve Kaufmann, 2022).

Empirical research has been conducted which supports the beliefs of the polyglots about the negative impact of a language learner only accepting perfection (Barabadi and Khajavy, 2020; Flett et al., 2016). Empirical research related to perfection and language learning is outlined in the discussion chapter. It is revealing that only 36 (7.6%) out of 476 polyglots who answered item 24 of the questionnaire agreed or strongly agreed that the aim when learning a language should be perfection. The document analysis provided insight to why setting perfection as a goal is seen as detrimental. A code which emerged from the document analysis detailed key attributes that the polyglots believed *should* be present in language learning goals. This was the need to set S.M.A.R.T. goals.

6.4.3 S.M.A.R.T. Goals

The acronym S.M.A.R.T. stands for specific, measurable, attainable, relevant and time-related. The term originated from a 1981 issue of Management Review by George Doran. It proposed that corporations should establish S.M.A.R.T. goals in order to prosper. This notion has since been adopted by different domains and is advocated for in language learning literature (Rubin, 2015). The polyglots concur that language learners would benefit from setting S.M.A.R.T. goals. Shannon Kennedy advocates for this method of goal setting in a blog post about how to set good language learning goals (Kennedy, n.d.-c). For Kennedy, it is important that the goals are specific, and that there is an associated time limit. She contrasts S.M.A.R.T. goals with vague goals such as 'learning to speak Chinese fluently'. For Kennedy, such a goal lacks clarity as fluency is a vague term, and the lack of a time limit does not give the learner something to aim for. Richard Simcott holds that "setting S.M.A.R.T. goals is supper applicable in language

learning because if you can't agree on the goal that you want to reach in a certain timeframe to be able to look back and check on it" you can't feel that sense of achievement and move forward (Fotheringham, 2020).

Olly Richards advocated for S.M.A.R.T. goals before he moved on to his system of setting sprints. In his blog post advising language learners to set S.M.A.R.T. goals he stated that, "As with everything else in life, a good plan is the foundation for language learning. By defining your aims clearly at the start you can develop a plan to suit and avoid wasting time on things that won't bring you close to your goal" (Richards, n.d.-d). Lindsay Williams also wrote a blog posting where she advised language learners to set S.M.A.R.T. goals. She states that when setting goals it is important to be "as specific as you can" (Williams, n.d.-c). Furthermore, she holds that "Good goals for language learning are measurable" (Williams, n.d.-c). For Lindsay, the letter A in the acronym stands for achievable. She believes that "Our language goals need to be achievable" (Williams, n.d.-c). She states that language learning goals should be relevant because "we learn stuff better when that stuff matters to us" (Williams, n.d.-c). Finally, Williams believes that it is important to give language learning goals a timeframe. She states, "give it a deadline or it doesn't happen" (Williams, n.d.-c).

Jonty Yamisha holds that many language learners are unsuccessful because they do not know how to set language goals for themselves. He states, "A lot of people underestimate what goes into creating effective goals. And that's probably why so many people fail to achieve their goals, especially when learning a new language" (Yamisha, 2019). For Yamisha it is important to set S.M.A.R.T. goals. He states:

> If you're going to stay on track with your language learning progress, then you need S.M.A.R.T. goals. S.M.A.R.T. goals provide structure and clarity, so you can better plan out how to achieve them. They're not static, like standard goals. They also take a bit

> more work to set up in the beginning. But once they're in place, they'll help keep you on track to reach fluency fast. (Yamisha, 2019)

Other polyglots refer to certain elements of the S.M.A.R.T. acronym and stress their importance. Benny Lewis holds that it is very important to set a time limit for language learning goals. He states, "If your goal is to speak language X fluently "some day", then you may never even achieve that goal, very simply because "some day" does not actually exist, and will always be some blurry point in the distance" (Lewis, n.d.-g). According to Lewis, it is also important to set "very specific goals in short periods of time" (Lewis, n.d.-g). Luca Lampariello also mentions the importance of having specific goals. He comments that "With a vague end goal like fluency, it's hard to keep up the motivation to actually reach that point. You never know when you're done learning, so actual success always feels an eternity away" (Lampariello, n.d.-f). For Steve Kaufmann, "The goal of fluency in a foreign language can often seem vague and elusive. It is not always clear what fluency means" (Kaufmann, 2018). Kaufmann notes the importance of having specific measurable tasks:

> When we are faced with the vague sense that we're not sure how proficient we can become in a new language nor if we are improving, it becomes important to carry out short-term and measurable tasks. It is easier to force ourselves to perform these specific tasks, than to just "study the language". (Kaufmann, 2018)

Gabriel Silva concurs that it is useful to set specific goals. He discourages learners from setting vague goals like achieving fluency. He states, "I find it better to just establish you know goals that are going to be more concrete like I want to learn however many words this month" (Gabriel Silva, 2016). For Amber Gonzalez it's important to set small goals which are attainable. She maintains that "One of the things that really sets people back is you all are not setting goals correctly, you're not setting small goals and celebrating yourself when you achieve them" (Linguist Girl Ambie, 2018). Kerstin Cable holds that goal setting in language learning is very important. For Cable, it is good to set two kinds of goals. A vision goal is the imagined vivid

image of the future learner competent in the target language. She states, “If you are motivated and driven by a vision of your future self speaking a foreign language without hesitating, then that is an amazing image to hold on to” (Cable, 2017). She concedes that such goals, although inspiring, won’t help a language learner when it gets down to actually doing the language learning work. This is why she recommends setting what she calls path goals. These goals help guide the learner when they’re in study mode and they mark the milestones along the path. Cable holds that these path goals should have the characteristics that the other polyglots raised in their blogs and videos. She states:

> Path goals are not big visions, they are the structured next steps that will help you when it's time to work on studying. Your path goals should be specific, measurable, achievable, realistic and time-bound. They should be anchored in what you can do now, and what you want to do next. (Cable, 2017)

As well as setting language learning goals, analysis of the polyglots’ documents also revealed the importance of aspiring language learners adopting a language learning strategy. The fifth sub-scale of the questionnaire addressed the importance of language learning strategies. Although the majority of the polyglots who contributed to the questionnaire ostensibly had a similar outlook, the document analysis raised some important considerations.

6.5 Importance of language learning strategy

The polyglots whose documents were analysed articulated the importance of having a language learning strategy. As Jonty Yamisha states, “When you learn a language, you need a strategy” (Yamisha, n.d.-e). Moreover, he states that “Creating a good strategy is crucial to your language learning success” (Yamisha, n.d.-f). Lýdia Machová states that “If you want to achieve fluency in a foreign language...you’ll need effective methods” (TED, 2019). The fifth sub-scale of the questionnaire was concerned with language learning strategies. The majority of the participants

also expressed that a learner's strategy is important, and that this contributes to the success of polyglots. Furthermore, 85.9% of the participants either agreed or strongly agreed that aspiring language learners would benefit from being taught language learning strategies. The document analysis and the results of the questionnaire are supported in the literature by researchers that have long stressed the importance of language learning strategies (Cohen, 1998; O'Malley & Chamot, 1990; Oxford, 1990) and who have advocated for them to be taught to language learners (Cohen, 2000; Psaltou-Joycey, 2020). The connection between language learning strategies and language proficiency has been reported (Charoento, 2017; Platsidou & Kantaridou, 2014; Rao, 2016). The polyglots' documents were analysed for further details about language learning strategies. One of the codes which emerged from the analysis was the belief that there is no single best strategy which all learners should implement.

6.5.1 No best strategy

What is notable about the polyglots' language learning strategies is that they differ from each other. Each polyglot has their own preferred method or strategy for learning languages. As Richard Simcott notes, "I think many people have very different approaches, but the one thing that they really have in common is I guess motivation" (Fotheringham, 2020). Benny Lewis prefers to speak from day one. He believes one can build fluency by speaking regularly and learning from mistakes. Luca Lampariello prefers to translate from the target language into his native language, and then later translate from his native language back into the target language. He encourages talking to native speakers and extensive reading in the target language. Steve Kaufmann adheres to an input based method. He prefers to do extensive reading and listening, and only starts to speak once he has built a strong foundation from his input activities. Lýdia Machová states that she learns through application. She enjoys reading novels in the target

language. She stresses the importance of having fun, using intensive content, using effective methods and establishing a daily routine. She uses a back-translation method where she translates texts into her mother tongue and then translates them back out loud until she can say the whole text fluently. Richard Simcott likes to attend language classes. His emphasis is also on reading and listening in the target language. Kerstin Cable focuses on setting small goals for the four core skills. She stresses the importance of not only consuming language, but also producing it. The other polyglots whose documents formed the basis of the qualitative part of this study also have their own individual strategies.

The polyglots were keen to stress that there is no single *correct* strategy, and that it is important for a language learner to find a strategy that works for them and that will keep them motivated and engaged. Luca Lampariello states:

> The problem with using the magic word "best" when it comes to methods, strategies, and resources is that "best" is subjective. What is best for *you* might not be best for me. (Lampariello, n.d.-g)

He continues:

> If that's what *you're* looking for (the best method), then I hate to break it to you: after 30 years of learning languages and 10 years of coaching people to do the same, I am 100% positive when I tell you that there is no absolute best and fastest way to learn a language. (Lampariello, n.d.-g)

Benny Lewis also acknowledges that many different methods can be effective if done the right way. He states:

> …any approach can work, if given the right "language hacker's" nudge. The biggest mistake I see language learners make isn't a specific approach, but in not being flexible in their approach. Constantly evaluate your language learning strategy and think outside the box to adapt them to your best advantage. (Lewis, n.d.-h)

For Lewis, "there is no one-size-fits-all solution. I have my method, and someone else will tell you the exact opposite. Ultimately any method could work due to a combination of aspects of it

that may indeed be efficient or simply the placebo effect of it motivating you to do something else useful" (Lewis, n.d.-i). Steve Kaufmann holds that many language learning strategies can work, but the key element is that the language learner enjoys doing them. He states:

> Everything can work if you enjoy doing it, but there's no point in telling someone who doesn't like to do flashcards that he should do flashcards because it works. Any evaluation of how well things work is necessarily subjective. We think it works because we do it and we're improving, so it must work. Does it work better than something else? Well, somebody else is doing something else, so how do you evaluate? (Kaufmann, 2019)

Richard Simcott agrees that the ideal learning language method really depends on the individual. He urges, "Find the method that works for you and stick with it...If audio works for you, do audio. If it's classes, do classes. But find whatever it is and be consistent" (Simcott, 2010). Olly Richards concurs that there is no single best method for learning a language. He states:

> There is no best method. There is no perfect method. Everybody is different and the best method for learning a language is always going to be the one that works best for you. (Richards, n.d.-g, 2:54)

According to Richards, "There is no single best way to learn any language for everyone in every context" (Richards, n.d.-h). Kerstin Cable concurs that "There are lots of ways to learn a language successfully" (Cable, n.d.-a). When asked about whether the best way to learn a language is through language and travel, language lessons or independent study she states:

> Rule one should be to follow your heart and do what you enjoy the most. All three methods are efficient, and there is no reason why you can't do a bit of each. You are not doing it wrong. (Cable, n.d.-a)

Jonty Yamisha states, "While I personally believe that some (methods) are better (or more time-efficient) than others, there are very few methods that absolutely won't work" (Yamisha, n.d.-b). Yamisha is keen to stress that there is more than one way to successfully learn a language:

> Most people new to language learning fail to realize how many different methods, approaches, or activities are available. They are tempted to believe that there is ***one*** method or ***one*** book or ***one*** app that will "get them fluent." (Yamisha, n.d.-b)

The notion of there not being a single best language learning strategy has been present in the literature for several years. As Prabhu (1990) notes, "It is uncommon these days to have a sustained discussion on language teaching without someone at some point declaring that there is no best method, or words to that effect" (p.161). Researchers have listed many factors which affect the suitability of a certain language learning strategy. These are outlined in further detail in the discussion chapter. Although the polyglots opined that there was no single best language learning strategy for all learners in all contexts, codes did emerge from the analysis which denoted characteristics that should be present in an effective language learning strategy. The first of these was the need for enjoyment.

6.5.2 Enjoyment

Although the polyglots in the qualitative part of this study stressed that there was more than one way to learn a language, they considered enjoyment to be a pertinent element of a successful language learning strategy. For Luca Lampariello, it is important that any language learning strategy is fun. He opines, "I've always felt strongly that enjoyment is an essential part of any effective language routine..." (Lampariello, n.d.-h). He holds that a boring strategy can be demotivating and eventually lead to someone halting their learning. For this reason he states, "If you find a particular format or method boring, don't use it!" (Lampariello, n.d.-i). Lýdia Machová also notes the importance of enjoyment in language learning. Having discussed language learning strategies with other polyglots, she concluded that "it is really crucial to find enjoyment in the process of learning languages" (TED, 2019). Gabriel Silva believes that part of one's learning strategy should be to find enjoyable material to study. He states, "...if you do have

the quality material that you're feeling a bit more excited about, that can really help you reach great progress" (Gabriel Silva, 2017).

Olly Richards recalls his language learning journey stating, "...it was so much fun you know and that really kind of when I look I didn't realise it at the time but when I look back on it I think that's a hugely important element in the success that I had with learning languages" (Olly Richards, 2018). Steve Kaufmann agrees that enjoyment is an essential element of a successful language learning strategy. He states:

> ...enjoying language learning is a big part of success. People who don't enjoy learning languages are less likely to be successful. You can't force yourself to do something that involves your emotions, involves a commitment to sort of imitating another language and culture and getting outside of the comfort of your language, one that you're used to or you're so able to express yourself and you're forcing yourself out of that and you have to enjoy the process or you won't do it. (Steve Kaufmann, 2019)

Jonty Yamisha advises that one incorporates fun into their language learning strategy. He states:

> Learning a language is hard work. It takes a lot of time. That's why it's important to make it fun. Whatever method works for you, make sure you enjoy yourself. You'll see results much faster. Not to mention that you'll reap the benefits of being bilingual more efficiently. (Yamisha, n.d.-g)

Shannon Kennedy recommends that a language learner does things that they find enjoyable in the target language. She states, "You learn language best when you're having fun...So drop the grammar book and start combining your language practice and your hobbies" (Kennedy, n.d.-d). Richard Simcott, when recounting his approach to learning Estonian, states that he would play with the grammar and with the words "to see what works and what doesn't work, just to enjoy the language and have fun with it like a kid" (Richard Simcott, 2021). He concludes that this is "probably one of the best ways to learn" (Richard Simcott, 2021).

Oxford (1990) believed that enjoyment was such a significant component of a language learning strategy that she included it in her definition. Empirical research continues to link enjoyment to

language learning outcomes (Dewaele and Alfawzan, 2018; Jin & Jun Zhang, 2021; MacIntyre & Mercer, 2014; Wong and Nunan, 2011). Thus, the belief of the polyglots regarding enjoyment and language learning strategies is in harmony with what has been reported in the literature. Another code which emerged related to language learning strategies was the polyglots' perceptions of the role of grammar in a language learning strategy.

6.5.3 Grammar focus

Although the polyglots were keen to stress that eventually having correct grammar is desirable, they didn't believe that it should be the overwhelming focus of the language learning strategy. Shannon Kennedy holds that this is especially the case for a beginner language learner. She states:

> One *don't* would definitely be don't focus on grammar at the beginning. It's one of the more intensive parts of learning a language and you can really easily get yourself buried in that and wanting to be right and wanting it to be perfect before you start speaking and doing all of these other things with languages which are far more rewarding. (Spanish Obsessed, 2019, 9.28)

Kennedy believes that it is more beneficial to focus on vocabulary. She opines, "If I ever really get stuck in a language, it's not because of some grammar thing or something else, it's because I don't understand a word or I'm not able to come up with a word that I need to keep going" (Spanish Obsessed, 2019, 11.28). Gabriel Silva acknowledges the value of studying grammar. He states, "I personally think that grammar drills can be and grammar exercises can be helpful" (Gabriel Silva, 2017). However, he believes that it's important for the learner to not worry too much about the grammar initially. He states, "...do not stress about grammar. Initially, as you're learning your target language you know you will be making mistakes" (Gabriel Silva, 2017). For Silva, it is important that this does not hinder a learner from exposing themselves to the language which will help them acquire some of the grammar rules naturally. He states, "...it should really

not be a source of stress. Now, the more quality exposure you get to the language the better because that way you will be absorbing some of the grammar" (Gabriel Silva, 2017).

Benny Lewis holds that the attention afforded to grammar is dependent on the stage that the language learner has reached. He agrees with Kennedy that it should not be the focus of a beginner:

> My general advice for beginner second-language-learners when it comes to grammar is simple: Don't make it a priority, or better yet, skip it and come back to it later, after you have already gained the confidence to speak using set phrases and gotten a feeling for the language in a real context. (Lewis, n.d.-i)

Lewis believes that grammar becomes more important as the language learner progresses:

> The problem is of course, that you can't speak a language *well* without doing it correctly, so in the intermediate to upper level stages in your progress in a language, grammar starts to become much more important. (Lewis, n.d.-i)

For Lewis, traditional academic courses fail to make this distinction which hinders the language learner's potential progress. He states:

> My beef with the traditional academic approach is in how it *drowns* people in grammar from the start, and does it in such a way as to make it as inhuman and robotic as possible. When the language **is** a means of communication in your mind already, *then* applying grammar to that could be a good idea and you may even like it! (Lewis, n.d.-i)

For Luca Lampariello, "You don't need to know grammar. You need to absorb it" (Lampariello, n.d.-j). Lampariello recalls his successes in German stating:

> The reason I learned German so well without ever opening a grammar book was because I exposed myself to lots of interesting, progressive and comprehensible content. I was focusing on the language instead of focusing on the grammar, and learning grammar was a consequence of that. (Lampariello, n.d.-j)

Lampariello believes that grammar notes should only be used as a reference after a lot of exposure to the language. In a later video, Lampariello explains that learners need both implicit and explicit grammar instruction, and the amount of explicit instruction needed is determined by

the similarity of the target language to a grammar system already known by the learner. He states:

> Some people think that you don't need to learn grammar at all. Throw the books away, stay away from any grammar explanation, just rely on comprehensible input. I don't believe this is the best way to go about things. I think that as an adult, you need a certain amount of explicit grammar explanations. An amount that depends primarily on the language distance between your native language and your native language. (Lampariello, 2020)

For Lampariello the emphasis should remain on implicit instruction. He advises that 80% of the time should be spent learning grammar implicitly while the other 20% should be spent learning explicitly which he bases on the Pareto Principle. Steve Kaufmann agrees with Lampariello's statement that grammar should be learnt through exposure. He states:

> So the focus in language learning should be on input, comprehensible input which will provide you with ever increasing database of words and phrases, genuine experience in a new language. Once you have this experience and lexical base in the language, grammar can provide a useful point of reference to enable you to gradually address some lingering influence from your own language or other difficulties. But don't expect to master the grammar before you have absorbed a lot of the language. (Kaufmann, 2018)

Kaufmann is critical of the focus that traditional language instruction places on grammar. His remarks are similar to those made by Lewis. He states:

> I think traditional language instruction places far too much emphasis on grammar as a means of learning a language, and it does it the wrong way. It introduces complicated explanations early on, complicated rules and then exercises where you're forced to try to practice what you've just, presumably, learned. But all of these rules and exercises deal with patterns that are still new to us and will in any case become familiar over time, if we continue reading and listening in the language. (Kaufmann, 2018)

Kaufmann also agrees with Lewis that beginner language learning material should not overwhelm the learner with grammatical explanations. For Kaufmann, "Starter books in foreign languages should minimize the explanations, which are often hard to understand and harder to remember, since they refer to an as yet unfamiliar language" (Kaufmann, 2018).

Richard Simcott believes that grammar and vocabulary are both important to a language learner. For Simcott:

> ...the grammar is the skeleton of the language. Without any grammar, the language body can't stand up. The vocabulary is the meat, is the flesh of the language. Without the vocabulary, your grammar can't really do very much except explain the grammar. (Simcott, 2015)

However, Simcott is also keen to stress that a learner should not dwell on their grammatical mistakes, and that with time and exposure their grammar will improve.

> ...just sticking to grammar and worrying about grammar non-stop is probably also the wrong way to go because like when you learn your native tongue you make lots of mistakes but you still get your point across....Yeah it's important but not the end of the world if you get it wrong. (Dr Popkins' how to get fluent, 2019)

Olly Richards holds that vocabulary is more important than grammar for the beginner. He states:

> I don't make any particular effort to learn grammar because I don't think it's that important. I think there are other things, I guess I'm referring to the early stages of language learning up to a kind of pre-intermediate, intermediate level. Grammar is useful but other things, mainly vocabulary, are much more important than grammar. So I don't make a lot of explicit effort to learn grammar at that stage. (Olly Richards, 2014)

Kerstin Cable also holds that a beginner should not start language learning with a grammar book. She recounts when she was handed a Welsh grammar book at the beginning of her studies. She states, "The worst thing I could possibly do with it is to read it from start to finish, because it would quickly become overwhelming, dull and complicated" (Cable, 2016). For Cable, "Grammar books and courses are designed to solve problems by answering your questions as they come up" (Cable, 2016). Amber Gonzalez believes that language learners should not spend a lot of time focusing on grammar. She states:

> Some people spend hours writing and reading textbooks in foreign languages. Studying the same grammar over and over again. Sometimes people are even learning too much grammar at once. The bottom line is reading and writing is definitely important in the process of language learning but speaking is the most important. (Gonzalez, 2018)

For Gonzalez, it is important that learners spend time using the language rather than learning about it:

> When you are constantly focusing your time on textbooks and "studying grammar" you will eventually be great at "studying grammar" ... Get it? Not yet? ... okay. Well, no one is going to tell you that you are a great Korean speaker, instead they'll tell you that you are a great "Korean Studier." (Gonzalez, 2018)

Jonty Yamisha declares that focusing on grammar is not crucial, and can actually "slow you down, or even take you off course" (Yamisha, n.d.-h). For Yamisha, this is one of the problems with the way languages are traditionally taught. He states:

> Many people are unwilling to accept that grammar isn't necessary at first. They fight against it. Traditional language teachers are probably the worst culprits. Most believe you can't learn a language without studying grammar first. Reality disagrees. (Yamisha, n.d.-h)

Yamisha shares the view of some of the aforementioned polyglots that grammar can be acquired over time by a lot of exposure to the target language. Thus, he states "When I am learning a language, I typically don't worry much about grammar" (Yamisha, n.d.-h).

Emily Liedel stresses the importance of mastering the grammar of the target language for someone wanting to write well. She states:

> Writing well means having impeccable grammar. When you speak, it's easy to slur declensions (in many languages, native speakers do just that) and generally hide a less-than-ideal grasp of grammar. There's no way to hide poor grammar when you write—everything is black and white on the page. So becoming a better writer means a complete grasp of grammar rules. (Liedel, n.d.-c)

It must be noted that the polyglots who hold that one should not focus heavily on grammar, still do aspire to master the grammar of the target language. However, they hold that the path to mastery is not by focusing on grammar instruction. The polyglots' views on grammar instruction is a matter of contention in the literature. Researchers have reported benefits of using explicit grammar instruction over implicit instruction (Nazari, 2013; Rizwan & Akhtar, 2016). Other

studies have been inconclusive (Soleimani et al., 2015). This recommendation by the polyglots is discussed further in the discussion chapter. The final code which emerged from the document analysis in relation to language learning strategies was the need for consistency.

6.5.4 Consistency

The polyglots mentioned that consistency was a key element of a successful language learning strategy. Lampariello comments about his learning strategy:

> I spend relatively little time deliberately studying a language, 30 minutes, maybe 1 hour a day when I am inspired, but the key factor is consistency: I do it every day. Learning something every day, even at small doses, leads to success in every activity. (Lampariello, 2014)

Machová expresses how consistency plays an important role in her language learning success:

> For me personally it's totally enough if I spend one hour a day learning a language and that's when I learn a new language every two years. I hardly ever learned for more than one hour a day. But you need to make sure it's regular. It should be every day. Even if it's ten, fifteen, twenty minutes, it should be every day. (Michelle Kaplan, 2020, 11.49)

Liedel stresses that "...language learning, like any other major goal or commitment, requires long-term, consistent follow-through" (Liedel, n.d.-d). Shannon Kennedy concurs that "There is no fast or easy way" (Kennedy, n.d.-a) to learn, but rather "it's all about putting in the time on a consistent basis" (Kennedy, n.d.-a). Olly Richards opines that "consistency is the key to learning...staying consistent and practising day after day, week after week, is the most important thing you can do" (Richards, n.d.-i). Richard Simcott also recognises the importance of consistency in relation to language learning. He states that "Setting realistic goals to avoid disappointment along with consistent studying and/or making revisions are key" (Simcott, n.d.). Furthermore, he holds that:

> The main thing is to do a bit every day and to not get discouraged if you miss a day. If audio works for you, do audio. If it's classes, do classes. But find whatever it is and be consistent. (Simcott, 2010)

According to Jonty Yamisha, “When you combine time with consistency, you end up with something that is sustainable – and sustainability is the last critical variable in language learning success” (Yamisha, n.d.-b). Steve Kaufmann’s advice to language learners is “don’t let too many days go by where you don’t spend time with the language” (Steve Kaufmann, 2011). Lindsay Williams remarks that:

> ...it’s crucial that language learning becomes a habit. How regular that habit is up to you, but it makes things easier once you are bringing language learning into your life a little each day and it becomes as normal as brushing your teeth. (Williams, 2017)

6.6 Conclusion

This chapter has outlined the beliefs and perceptions of the polyglots who contributed to the document analysis regarding important considerations for successful language acquisition. The first finding was related to the unsatisfactory state of language learning in schools, and echoed the criticisms about the current situation voiced in several countries. The polyglots opined that in order to rectify the situation languages should be treated as tools that are used instead of theoretical subjects. Furthermore, they stressed the importance of language classes being interesting. They also lamented the way tests are used in school and the negative impact it has on language acquisition. The chapter then detailed the polyglots’ beliefs, which support the research literature, regarding the importance of setting goals for successful language acquisition. They warned that these goals should have certain characteristics, but that setting perfection as a goal could be detrimental. The chapter then outlined the polyglots’ belief regarding the importance of a language learning strategy for successful language acquisition. They emphasised that there was no single best strategy, but that it was imperative for any strategy to be enjoyable and applied consistently. Furthermore, the polyglots opined that any language learning strategy should not be overly focused on grammar, especially in the initial stages of learning. The next chapter is the

final chapter to outline findings from the document analysis. It details the polyglots' beliefs about the role of technology in language acquisition.

CHAPTER 7. DOCUMENT ANALYSIS RESULTS: 3RD SUBSIDIARY RESEARCH QUESTION

7.1 Introduction

The results of the document analysis in this chapter will concentrate on the third subsidiary research question:

- What are the benefits of technology for language acquisition?

This chapter outlines the polyglots' beliefs and perceptions about the benefits of technology for the language learning process. Firstly, it details their belief that modern technology has led to an expansion in the number of resources available to language learners. Secondly, the polyglots' opinions on how SRS has facilitated vocabulary acquisition will be outlined. Furthermore, the code which emerged from the analysis regarding the benefits of applications for language acquisition is stated. The chapter then proceeds to lay out the polyglots' beliefs about the benefits of online peers to the language acquisition process. In particular, the support and motivation that online peers provide are outlined.

7.2 Rationale

Four of the sub-scales in the questionnaire addressed the use of technology to aid language acquisition. The tenth sub-scale addressed technology aiding language learning, the eleventh sub-scale addressed the use of social media, the twelfth sub-scale was concerned with learning from online peers and the thirteenth sub-scale contained items focused on the use of technology and intercultural competence. Only a small percentage of the polyglots who participated in the questionnaire negated the benefit of using social media for language learning, while the vast majority of the participants recognised the value of technology for enhancing intercultural

competence. Subsequently, the document analysis did not focus on these sub-scales. The participants' responses to the items in the tenth and twelfth sub-scale required elaboration and therefore the polyglots whose documents were analysed addressed these two sub-scales.

Items in the tenth sub-scale queried the general benefit of using technology for language acquisition. Over 90% of the polyglots who participated in the questionnaire expressed that technology has made language learning much easier than in the past. Furthermore, the majority of the polyglots held that they were more efficient language learners now because of technology. They also opined that technology has made language learning accessible to everyone. The 13 polyglots' documents were analysed to gain more understanding of how technology can aid language learning. Table 7.1 contains the themes and codes which emerged in relation to this subsidiary research question.

Themes	**Codes**
Technology aiding language learning	resources, SRS, applications
Learning from online peers	support, motivation

Table 7.1- The themes and codes for technology in language acquisition

7.3 Technology aiding language learning

The purpose of the document analysis was to obtain a deeper understanding of how technology aids language learning. The tenth dimension of the questionnaire concerned the general use of technology to aid language learning. The participants responded quite emphatically that technology has made language learning easier than in the past. The majority also held that technology has made language learning accessible to everyone and that it has sped up the language learning process. Despite the one-sided nature of the responses in the questionnaire,

analysis of the 13 polyglots' documents offers insight to the mindset of successful language learners that could not be expressed on Likert scale items in the questionnaire. Three codes emerged from the analysis: resources, SRS and applications.

7.3.1 Resources

One code that emerged was the way that technology has made it easier to find resources. Luca Lampariello, after discussing the difficulties he had finding material in Dutch before the advent of the Internet, states that now, "the possibilities are you know limitless for a lot of languages, you can do whatever you want. You can spend the whole day watching, reading and speaking, even writing in Dutch" (Olly Richards, 2015). He does, however, warn against a learner becoming distracted and not actually progressing due to the plethora of resources. Jonty Yamisha also warns against a learner becoming over reliant on technology. He opines that, "Technology can only go so far. It's another awesome tool to have in your toolbox. But if you want to communicate effortlessly while avoiding misunderstandings, then you need to speak the language" (Yamisha, n.d.-i). Nevertheless, Yamisha recognises how technology has facilitated finding learning resources. He remarks that "We often overlook how an everyday tool like the Internet has made it much easier to find and use language learning resources" (Yamisha, n.d.-i). Olly Richards also acknowledges how technology has made language learning resources more accessible. He states that "the big shift with the Internet on the whole is just the availability of content. You know, the fact that you can just access the daily newspaper from any given country from anywhere in the world" (Richards, 2020). Richards is also keen to stress that the availability of resources does not guarantee success. He states:

> At the end of the day, you've got the resources that are available and it's down to how you use them. It's the extent to which you're able to use these resources in a smart way that's going to determine your success. (Richards, 2020)

Steve Kaufmann contrasts his language learning experience of today with that of fifty years ago when he was studying Chinese. He mentions the accessibility of resources as one of the biggest differences that the advancement of technology has brought. He notes that, "the range of things that are available to us is like never before and that is why I feel that we are in the beginning of a golden age of polyglots" (Polyglot Conference, 2020). Lýdia Machová believes that advancements in technology and the availability of resources has diminished the need to go abroad to study languages. She states:

> Today you can create your own country if you're online, because you can listen to so many audio books and videos etc. and you can download books, text books, whatever you want really. It's all out there so I can kind of create the environment, the foreign environment here in Slovakia without living abroad. (MosaLingua, 2017)

Shannon Kennedy recognises the access to resources that technology has afforded. She states that "With so many incredible and varied resources immediately available to us, it is so much easier to learn a language now than it was in the past" (Kennedy, n.d.-e). However, she also warns against becoming over reliant on technology. She laments that "technology also makes us lazy" (Kennedy, n.d.-e), and advises that learners "stop relying on passive language learning routines and to get more active" (Kennedy, n.d.-e) with their studies. Benny Lewis praises the opportunities that have been created by the advent of the Internet. He states:

> You can speak with people, you can read articles on the internet. You can listen to the language being spoken through live streaming radio and podcasts. There's so many opportunities. (Lewis, 2015)

The unprecedented access to resources that new technology provides has been acknowledged in the literature (Martin et al., 2011; Warschauer, 1999; Zhao, 2013) and supports the perceptions of the polyglots. One of the myriad of tools that is now available is Spaced Repetition Systems (SRS) technology. The use of SRS to aid language acquisition is the second code which emerged revealing how the polyglots take advantage of technology to aid their language learning.

7.3.2 Spaced Repetition System (SRS)

The polyglots use a variety of methods to learn vocabulary, and advocated varying language acquisition methods. Nevertheless, they recognised the benefits of using SRS. For Steve Kaufmann, SRS is not the most efficient way one could spend their language learning time. However, he acknowledges that SRS is very popular amongst language learners. He believes that its usefulness is predicated on whether the language learner enjoys using it or not, as this will determine whether they spend time utilising such technology. Kaufmann states that, "if you enjoy doing spaced repetition systems, then you should do them" (Steve Kaufmann, 2021d). Benny Lewis holds that "The Space Repetition System (SRS) is a great method to make sure you remember vocabulary so it sticks in your mind" (Lewis, n.d.-j). This is supported by empirical research on vocabulary retention (Bloom & Shuell, 1981; Ellis, 1995; Fitzpatrick et al., 2008; Goossens et al., 2012). However, Benny believes that "The best way by far (to acquire new vocabulary) is to hear and apply it in context with native speakers" (Lewis, n.d.-j). Thus, Lewis states that SRS should be utilised in conjunction with other methods. He states, "SRS by itself is far from perfect. However, if you use it while thinking independently too, it has a much greater potential" (Lewis, n.d.-j).

Olly Richards recognises the benefits of using SRS. He states, "My main aim with technology is always to make my life as easy as possible, and SRS helps me do that because I don't have to make any decisions about when I see a particular piece of language again" (Richards, n.d.-j). Shannon Kennedy declares that she has been "a huge supporter of SRS and it is what works for me" (Kennedy, n.d.-f) and Kerstin Cable holds that "good systems work on the spaced repetition system" (Cable, 2017). Jonty Yamisha also praises the use of SRS. He states, "Strangely enough, you learn better when you start to forget your lessons. Spaced repetition uses that to your

advantage, prompting you to review your lessons right before you forget" (Yamisha, n.d.-j). Lýdia Machová advocates for the Goldlist Method for learning vocabulary which is a variation of the spaced repetition method. She states that the Goldlist Method "basically follows the SRS, the forgetting curve, because after about two weeks the curve is more or less the same, it doesn't really go down that much" (Benny Lewis and Shannon Kennedy, 2021, 22:53). Thus, the method is built on the premise that "if you learn something and it stayed in your memory for two weeks, it is in your long term memory" (Benny Lewis and Shannon Kennedy, 2021, 22:42). Machová was keen to state that she uses SRS in conjunction with other methods in order to not get bored during her studies. Lindsay Williams also utilises a SRS application. She states, "I am a huge Memrise fan and normally use Memrise most days to up my vocabulary in various languages. This has always proved successful for me and I enjoy doing it, which is so ridiculously important" (Willaims, n.d.-d). Other polyglots also stated that they used applications for language learning and this was the final code to emerge regarding using technology for language learning.

7.3.3 Applications

The polyglots recognised the value of applications. For Steve Kaufmann, "never has it been easier to learn languages, and part of the reason is because of the variety of call them language apps, uh, language tools, uh, language services that are available to us today" (Steve Kaufmann, 2021e). Olly Richards holds that there are four kinds of application that benefit language learners: content apps, language exchange apps, flashcard apps and language script apps. Richards declares that "these four apps actually work and can help you become fluent faster" (Olly Richards, 2021). Jonty Yamisha believes that "Language learning apps are extremely useful tools" (Yamisha, n.d.-k), but not for actually teaching you a language. In fact, he holds

that “these apps suck at teaching you a language” (Yamisha, n.d.-k). Despite this, he still encourages language learners to use them because they are useful tools for reinforcing already existing knowledge. Richard Simcott acknowledges the role of applications in modern language learning, but stresses that they should be used to supplement other material. He states, “I got a number of comments (stating)...apps don’t tend to be something we just use to learn a language on their own, we do need to have other things, and I think, um, pretty much I would agree with a lot of that, uh, thought” (Richard Simcott, 2021). The limitations of applications and the need for them to be supplemented is recognised in the literature (Burston, 2014; Kim and Kwon, 2012; Pareja-Lora et al., 2013; Rosell-Aguilar, 2018).

Shannon Kennedy wrote a blog post about the twenty one apps and web based language learning tools that she uses and loves. However, she states that she only likes to use three or four resources at any given time for each language she’s studying. Subsequently, she reveals that these apps “all rotate in and out of use depending on where I’m at with each of the languages I’m studying” (Kennedy, n.d.-g). Kerstin Cable recognises the benefits of language learning apps. She states, “When you don’t have a lot of time and want to fit in some language study on the go, there are hundreds of language learning apps that can help you succeed” (Cable, 2018). However, she stipulates certain characteristics that a good language app should have. For Cable, the app should have a clear purpose, it should be suitable to one’s language goals, it should teach relevant language, it should maximise one’s language study time, and language learning using the app should be fun. Lindsay Williams is a self-proclaimed “appaholic” who has also written blogs outlining useful language learning apps (Williams, n.d.-e). Gabriel Silva also advocates for the use of language learning apps. However, he warns that “we’re not going to become fluent using any one single program or tool, that’s just a fact” (Silva, 2017). For Silva, it is important

for language learning apps to be one method amongst an array of methods utilised. Lýdia Machová states that "she's not such a big fan of apps" (Fotheringham, 2019). However, she notes that they can be beneficial if they are used to supplement other material. She states that "I don't think that anyone can learn a language with just one app" (Fotheringham, 2019). With the influx of language learning apps, there is a growing interest by researchers to assess their potential benefit and this is reflected in the research literature. The findings of such research is detailed in the Discussion Chapter, and the reservations that the polyglots stated about solely relying on such applications is addressed. The final codes which emerged from the document analysis regarding the role of technology in language acquisition concerned learning from online peers.

7.4 Learning from online peers

Analysis of the polyglots' documents offered some insight to how they perceive learning from online peers and its associated benefits. The twelfth sub-scale of the questionnaire related to learning from online peers needed further elaboration following analysis of the participants' responses. For each item of this sub-scale a significant number of the participants responded with neither agree nor disagree. In section 2.5.1 of the literature review, various studies were highlighted which suggested benefits of online peer reviewing and feedback. These benefits include developing skills of critical reflection (Liu and Carless, 2006), developing critical reading skills (Min, 2006 and Rollinson, 2005), and improving writing skills (Lundstrom and Baker, 2009). The document analysis revealed that online reviewing and feedback was framed as something beneficial given by an online tutor or language partner as opposed to from a fellow peer. Setting up language exchanges was encouraged by many of the polyglots. Luca Lampariello declares that "A language exchange is a fantastic way to improve your language

skills" (Lampariello, n.d.-k). Olly Richards states that, "Language exchanges have been the cornerstone of my learning methodology ever since I began learning foreign languages at 19" (Richards, n.d.-k). Kerstin Cable remarks, "Everyone and their dog knows that language learning is easier, faster, and more fun when you have found a great language partner" (Cable, 2018). With regards to utilising an online peer who is also learning the same language, two codes emerged: support and motivation.

7.4.1 Support

The first code which emerged from the document analysis was related to the support that having an online peer provides. Jonty Yamisha stressed that language learning should not be a solo effort. He recognises the benefit of finding other people to communicate with. He states, "Communication generally requires at least two people (unless you frequently talk to yourself). So learning a language should not be an effort you make on your own" (Yamisha, n.d.-l). Subsequently he opines, "Whether you seek out a tutor or teacher, or a community of people who are learning the language, or even a language partner, make sure there is someone there to help you learn. You will find that your chance of success is significantly improved" (Yamisha, n.d.-l). Benny Lewis advocates for the use of exchange partners. He mentions receiving feedback as one of the many benefits of using exchange partners. He states, "I've found their feedback to be invaluable" (Lewis, n.d.-k). He also acknowledges that online peers, which he calls study buddies, can also be used to practice talking the target language. He states, "You could do *conversation practice* with a study buddy. If you're both learning Spanish, you could hold a conversation in Spanish" (Lewis, n.d.-k).

Lýdia Machová also believes that online peers can be a source of support and provide an opportunity to practice the target language. She states, "I am a big fan of two people practising

together, even if they are both students of the language, even if they are both on let's say lower levels and they can't give each other a lot of feedback or correct each other's mistakes, but they still get to practice a lot" (Olly Richards, 2019). She praises the ease at which such speaking sessions can be arranged, and the opportunity that they provide to practise the target language. She states, "...this is so easy because you can easily find students who are learning the same languages as you are and if you just agree that you will meet systematically, online or offline, and practice speaking, and that makes it super easy" (Olly Richards, 2019). Machová highlights some of the general support that a language learner can feel by interacting with online peers who are going through the same process. She states:

> ...and maybe you're a little less stressed because you know the other person is not judging you or anything. They make some mistakes and you make some mistakes and maybe you can help them with something and they can help you with something so I think it's more relaxed. (Olly Richards, 2019)

Interacting with online peers has been referenced in research literature (Cheon, 2003) as providing an environment which is less intimidating and which causes less anxiety as alluded to by Machová. Olly Richards opines that he prefers to practice with native speakers whenever possible, yet he recognises that online peers who are learning the same language can have some value. He states, "Given the choice between speaking...practicing speaking with a native speaker or another student, I would probably choose the native speaker...if your aim is to practice speaking, to practice output, then anyone is great because the process is going on inside your brain, right? You're challenging yourself and your brain to actually get stuff out there" (Olly Richards, 2019).

Two of the polyglots whose documents were analysed, Shannon Kennedy and Lindsay Williams, made a video where they discussed the benefits of having study buddies. Kennedy states, "I think that there are advantages maybe of working with someone who's at a higher level than you and

there are advantages of working with someone who's at a similar level" (Lindsay Williams, 2016). For Kennedy, working with someone at a similar level provides the opportunity to compare notes and can be a source of accountability, while working with someone at a higher level allows you to benefit from their experience. She believes that having an online peer who is at a lower level can also be beneficial because helping them with the language will reinforce your language skills. Another code which emerged from the document analysis was the notion that online peers can be a source of motivation.

7.4.2 Motivation

Shannon Kennedy stated that working with a study buddy can be a source of motivation, especially if that person's language is at a higher level (Lindsay Williams, 2016). Lindsay Williams also mentioned how having an online peer can be a source of motivation. She recalls her experience of being an online peer with Kennedy, stating, "Shannon is going to be amazing at this so I have to like up my game to like be on par and so that really helped me" (Lindsay Williams, 2016).

Lýdia Machová recognises that online peers can feed off each other's desire to learn the target language, and this can help to maintain motivation. She states "both of you are motivated, so it's not just you asking someone to spend time with you, the other person is practising at the same time so you're both gaining from the experience" (Olly Richards, 2019). Richard Simcott also notes the motivational role that fellow learners can fulfil. In a blog post about motivation he states, "...interact with me and other language learners. We can always motivate each other!" (Simcott, 2012). The motivating quality of online peer interaction has been recognised in the research literature (Webb et al., 2006). The code which emerged from the document analysis of online peers being a potential source of motivation is linked to the eighth sub-scale of the

questionnaire and the importance that the participants afforded to motivation in language learning. Over 80% of the participants agreed or strongly agreed that motivation is the most important factor determining acquisition success. Thus, if interacting with fellow students online is motivating it is highly recommended to do. Learners who are highly self-motivated, may not have the desire to seek such interactions.

Few of the participants in the questionnaire expressed that they were against the idea of learning from online peers. A sizeable proportion of the participants in the questionnaire indicated that they saw some value in interacting with online peers. A large proportion also expressed their uncertainty and were noncommittal about the value of online peers. Review of the polyglots' documents suggests that this uncertainty may stem from the fact that many polyglots are independent learners and do not seek such interactions, while some do interact with fellow learners and look favourably upon such an endeavour.

7.5 Conclusion

This chapter has outlined the beliefs and perceptions of the polyglots who contributed to the document analysis regarding the benefits of technology for language acquisition. One of the findings which emerged from the analysis was the polyglots' perception that technology has aided language learning by providing a vast amount of material to language learners. Secondly, it was revealed that the polyglots believe SRS is a useful tool for vocabulary acquisition, but that it is best used in conjunction with other methods. Furthermore, it was discovered that the polyglots believe that applications are another product of modern technology which aid language acquisition. Analysis of the polyglots' documents revealed that online peers can be a valuable source of support and motivation. However, language exchanges with native speakers of the target language appear to be utilised with greater frequency. From what is apparent, the

independent nature of many of the polyglots means that interaction with online peers is not an integral part of their language learning methods and strategies. The results of the questionnaire and document analysis have been outlined over the preceding four chapters. In the following chapter, the quantitative and qualitative data gathered for this research will be expounded upon, and it will be placed in the wider context of the literature surrounding language learning.

CHAPTER 8. DISCUSSION

8.1 Introduction

The purpose of this chapter is to critically examine the findings which emerged from both stages of the mixed methods research design. The quantitative and qualitative data will be used to answer the research questions which guided this study, and the findings will be placed in the larger context of previous research literature. The overarching research question is stated below along with the three subsidiary research questions which helped guide the study.

Primary Research Question

- What are the beliefs and perceptions of polyglots with regards to language learning/acquisition?

Subsidiary Research Questions

- What are essential characteristics of a successful language learner?
- What are important considerations for successful language acquisition?
- What are the benefits of technology for language acquisition?

8.2 Essential characteristics of a successful language learner

The field of language acquisition is so vast and connected to various branches of linguistics, sociology, cognitive psychology and neurology. As Mickan et al. remark, "The field of second language acquisition (SLA) is by nature of its subject a highly interdisciplinary area of research" (2019, p.1). Subsequently, it is pertinent for any researcher of language acquisition to be succinct in deciding their areas of focus. The first subsidiary research question focused on the characteristics of a successful language learner. The characteristics which emerged from this

study are not intended as an exhaustive list. Furthermore, no claims are made about the generalisability of the study's findings. However, the empirical findings from the questionnaire along with the codes which emerged from the document analysis provide valuable insight to the beliefs and perceptions of people who have successfully learnt multiple languages. There is a paucity of research on polyglots, and their reflections, whether they complement or challenge the research literature are worthy of consideration.

8.2.1 Innate Abilities

Researchers tackling the innate abilities of language learners use different terms to refer to these innate abilities. They are referred to as an aptitude, a gift, a talent, a gene, amongst other terms. In fact, researchers assessing the aptitude of language learners often use these terms interchangeably. Subsequently the findings related to these terms will be presented together. The findings from this study suggest that the polyglots are divided as to whether successful language learners are born with an aptitude for language learning. However, there is also the suggestion that regardless of their innate abilities, language learners can overcome shortcomings if they possess other key characteristics. This is reflected by the sizeable number of participants in the questionnaire who rejected the notion that not everyone can learn a second language. Foreign language aptitude research continues to address the central claim that "there is a specific talent for learning languages which exhibits considerable variation between learners" (Dörnyei & Skehan, 2003, p.590). Several models have been developed to ascertain language learner aptitude ((e.g. the Linguistic Coding Differences Hypothesis (LCDH) model (Sparks & Ganschow, 1993), the Cognitive Ability for Novelty in Language Acquisition-Foreign (CANAL-F) theory (Grigorenko, Sternberg & Ehrman, 2000) and the Aptitude Complexes/Ability Differential framework (Robinson, 2012)).

There is a growing amount of empirical research which reports differences in language learning aptitude attributable to an advantageous neurocognitive profile. These findings have been outlined in Chapter 2. For example, Turker et al. (2018) report a link between the auditory cortex and linguistic ability. They found that participants who scored higher in a speech imitation task and musicality test had more complete posterior duplications in their right Heschl's gyrus. These findings were replicated in a subsequent study (2019) where they report that a higher number of Heschl's gyrus in the right auditory cortex were linked to higher scores in the LLAMA Language Aptitude Test. Flöel et al. (2009) posit a connection between the left inferior frontal gyrus and grammar learning. Furthermore, Jouravlev et al. (2021) examined polyglots and concluded that they possess optimized or at least greater cortical processing efficiency. There are a myriad of other studies which report innate differences between language learners (e.g. Assaneo et al., 2019; Chandrasekaran et al., 2015; Mamiya et al., 2016; Qi et al., 2019; Wong et al., 2007; Yang et al., 2015).

The document analysis highlighted two key reasons why polyglots may be hesitant to attribute their language learning feats to innate abilities. Ostensibly, the first reason is that attributing their language learning achievements to an aptitude that they were born with negates or diminishes the effort they exerted, and the time they invested in learning their languages. However, it is feasible that the polyglots possess the individual differences which are highlighted in the research literature, and that they nevertheless still exert themselves. While some of the polyglots conceded that they may be more talented than other language learners (see chapter 5.3), they were keen to stress their belief that there are other factors which are more significant in determining one's language learning success. This mindset was also reflected in the questionnaire where the overwhelming majority of the participants expressed that anyone can

learn a second language, and that one does not need to be gifted to learn several languages. It can be inferred from these responses that regardless of whether one is born with an aptitude for language learning, they can still learn a foreign language. This point is encapsulated by the polyglot Lindsay Williams. She states:

> Research has found that there is such a thing as 'language aptitude'. In other words 'how well suited you are to language learning'. So, that's basically "language talent", right? I don't see it that way. And besides, simply having good language aptitude isn't a sign of being able to effortlessly learn a language. There's still going to need to be some active learning that takes place. And sure, someone without as much 'language aptitude' may take a little longer, but that doesn't mean they can't learn too. (Williams, n.d.-f)

The second reason why the polyglots appeared hesitant to attribute their language learning feats to a special gift or talent is their past struggles with language learning (see chapter 5.3.2). Several of the polyglots whose documents were analysed expressed that they struggled with language learning when they were at school. The logical conclusion would either be that they were not born with an aptitude for language learning, but rather started to excel when other factors were actualised. Alternatively, the past failings of the polyglots suggest that an aptitude for language learning reported in the research literature is not enough to guarantee success. Language learning is a multifaceted undertaking and requires a number of elements for success. One of these elements that the polyglots highlighted is the need to exert effort.

8.2.2 Effort

Findings from this study suggest that an essential characteristic of a successful language learner is the willingness to exert effort. This does not mean spending copious amounts of time doing arduous tasks which the language learner does not find enjoyable, but rather spending time with the language on a consistent basis using effective strategies. This finding which emerged from the document analysis complements what has been reported in the research literature.

Researchers have long connected the construct of effort to that of motivation. For Gardner (1985), effort is a key component of motivation in language learning. Dörnyei (2005) also describes effort as a facet of learner motivation. Özer's study (2020) of 385 students of English for Specific Purposes found that high achieving students made more procedural, substantive, focal and overall effort. Other researchers have reported positive correlations between effort and achievement in language learning (Aratibel & Bueno-Alastuey, 2015; Inagaki, 2014; Twum Ampofo and Osei-Owusu, 2015). The emphasis that the polyglots placed on effort and working hard is significant because it negates any idea that talent alone can lead to success. Furthermore, it gives encouragement to those who feel they are not gifted or do not have an aptitude for language learning, that they can be successful language learners if they exert themselves. Another finding of this study was the importance of a language learner being passionate.

8.2.3 Passion

Findings from the qualitative phase of this study suggest that passion is an essential characteristic of a successful language learner. There is a scarcity of research on the effects of passion in language learning as research has tended to focus on the inhibitors of success. As Chen et al. state, "Psychological research in second language learning has primarily focused on negative outcomes, such as anxiety stress and depression" (2021, p.2761). Passion has been defined as "a strong inclination toward a specific object, activity, concept or person that one loves (or at least strongly likes) and highly values, that is part of identity, and that leads one to invest time and energy in the activity on a regular basis" (Vallerand, 2015, p.33). This definition contains elements (e.g. the investment of time and energy, consistency) which connects to other features of a successful language learner that the polyglots have highlighted. The Dualistic Model of Passion (Vallerand, 2015) posits that there are two types of passion: harmonious passion and

obsessive passion. Harmonious passion "refers to one's strong liking (or loving) towards an activity and engaging in it merely out of pleasure" while obsessive passion "refers to one's participation in the beloved activity due to internal or external pressure" (Chen et al., 2021, p.2763). The Dualistic Model of Passion predicts that harmonious passion leads to better outcomes. This prediction is supported by a meta-analytical review conducted by Curran et al. (2015) which reported that harmonious passion leads to more adaptive outcomes. Northwood (2014) posited that passion and L2 motivation could be theoretically linked. However, there is a need for more research to be conducted. This study enhances the call for research in this area as the participants highlighted the significance of motivation and passion in language learning.

The scant research that has been conducted regarding passion and language acquisition provides evidence of a positive correlation between passion and L2 proficiency. Lake's study (2016) on 212 first-year Japanese female students of English adapted items from the Harmonious Passion subscale of the Passion scale (Vallerand et al., 2003). He reported a positive correlation between L2 harmonious passion and L2 proficiency and well-being. Chen et al. (2021) used both sub-scales of the Passion Scale to assess passion for L2 learning amongst 260 high school students in Taiwan. They reported that "the results demonstrated that the two types of passion positively predicted mastery goals and flow in L2 learning..." (2021, p.2772), thus the findings of their study "underscore the fundamental importance of passion in the L2 realm and how it may contribute to both L2 learning and general life outcomes" (p. 2774). Chen et al. conclude that "Future research is necessary to extend our understanding of the role of passion in L2 and to more firmly anchor L2 in the field of positive psychology" (2021, p.2774). This present study increases the call for further research related to passion and language learning. Another essential characteristic that emerged from this study was the need for learners to engage in metacognition.

8.2.4 Metacognition

An essential characteristic of a successful language learner recognised by the majority of the participants in the questionnaire was the engagement in metacognition. They expressed that it is important for a language learner to plan their learning and set goals. Furthermore, they should self-evaluate their progress and take control of the learning process including by making an effort to find suitable material.

Metacognition has been praised in the literature for the positive effects it has on language learners. Anderson (2009) holds that "Strong metacognitive skills empower language learners: when learners reflect upon their learning, they become better prepared to make conscious decisions about what they can do to improve their learning" (p. 99). O'Malley and Chamot declare that "students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress, or review their accomplishments and future learning directions" (1990, p.8).

One aspect which the majority of polyglots in the questionnaire agreed with was the importance of language learners planning their learning. This belief held by the polyglots is supported by previous research which has been outlined in Chapter 2. The polyglots also expressed the belief that a successful language learner should self-evaluate his or her progress. A number of studies have been conducted which report the positive effects of students using meta-cognitive strategies for self-evaluation of learning (Abolfazli & Sadeghi, 2012; Butler & Lee, 2010; Mican & Cuesta Medina, 2017). As Jessner states, "students who are able to accurately self-assess their skills are more likely to develop strategies for their learning process and therefore perform better than those who are unaware of their strengths and shortcomings" (2018, p.41).

The participants in the questionnaire hinted at the importance of language learners becoming autonomous learners. They held that successful language learners take control of the learning process, and make an effort to find suitable material. Studies have been cited in chapter 2 which lend credence to the beliefs expressed by the polyglots. For example, Myartawan at al. (2013) reported a significant correlation between learner autonomy and language proficiency. Ways of incorporating LLS instruction into the classroom have been discussed in this chapter. There are also other considerations which have to be made when incorporating metacognitive knowledge to LLS instruction. As reported in the literature (Cotterall & Murray, 2009; Wenden, 2001; Zhang, 2016), it is essential to develop a learner's metacognitive knowledge about learning. Furthermore, LLS instruction needs to address pre-existing metacognitive knowledge that learners have about language learning or about themselves as learners that may impede them from developing as autonomous learners (Victori & Lockhart, 1995). Another characteristic of a successful language learner which emerged from this study was the ability to implement communication strategies.

8.2.5 Interaction

Findings from this study suggest that it is important for language learners to seek opportunities to communicate and interact with proficient speakers of the target language. The importance of exposure to the target language is well documented in the literature (Kasper, 1997; Larsari, 2011; Lubega, 1979; Morford, 2003). Indeed, a lack of access to the target language has been cited as a hindrance to language proficiency (MacLeod, & Larsson, 2011). In several contexts, language learners are not surrounded by the target language and the tendency is to revert to using the mother tongue once they leave the classroom (Campbell, 2004). With modern technology there are ample opportunities for learners to create their own means of interaction with native or

proficient speakers of the target language. Although in a classroom setting the instructor can provide opportunities for students to communicate with native speakers, the polyglots hinted that the onus is on the leaner to find such opportunities.

Numerous empirical research studies have been carried out which assess the effects, variables and effectiveness of interaction on language acquisition (e.g. Brown, 2016; Goo & Mackey, 2013; Keck et al., 2006; Kim, 2017; Lyster & Ranta, 2013; Lyster, Saito & Sato, 2013; Mackey, Abbuhl & Gass, 2012; Mackey & Goo, 2007; Plonsky & Brown, 2015). The researchers report the positive effect of interaction on L2 acquisition. As Gass and Mackey (2015) conclude, "there is a robust connection between interaction and learning" (p. 181). Keck et al. (2006) conducted a meta-analysis of fourteen quasi-experimental studies. They reported that interaction had a noticeable effect on immediate post-tests. Likewise, Mackey and Goo (2007) conducted a meta-analysis of twenty eight studies and found that interaction noticeably impacted effect sizes. Different constructs of interaction, such as input, negotiation, output and noticing, have developed in the research literature. However, in this study the polyglots were merely reflecting on the initiative of a language learner seeking opportunities to communicate with competent speakers of the target language. They placed value on a learner finding native speakers and interacting with them in order to practice their language skills. The importance of interaction in the target language that the polyglots suggested is well established in the literature (Gass, 2018; Larsen-Freeman, 1985). The polyglots' stance again suggests that successful language learners are not passive learners. They seek opportunities to practice the target language, and do not wait for them to be presented to them. The final characteristic of a good language leaner that emerged from this study is that they are motivated.

8.2.6 Motivation

The majority of the participants in the questionnaire deemed motivation to be the most important factor determining acquisition success. This offers insight into their mindset as learners and suggests that they view themselves as motivated learners. The significance of motivation in language learning has long been acknowledged. In 1959, Gardner and Lambert concluded their study by asserting that language achievement was not merely predicated on language aptitude, but also motivation. From that time until the present day, researchers have provided empirical evidence highlighting the impact of motivation on language learner proficiency. According to Dörnyei and Csizér (1998), learners with remarkable abilities, appropriate curricula and good teaching will not be assured of achievement in their language learning if they are not sufficiently motivated. Reece and Walker (1997) posit that a less able, but highly motivated student, can achieve more than a more able student who lacks motivation. This supports the belief expressed by the majority of the polyglots that a motivated learner will succeed in language learning.

Early research on motivation in language learning led to the development of different models of motivation. Gardner, considered one of the pioneers of motivation in second language acquisition, proposed a model of motivation which emerged from the field of socio-educational research. Subsequent models developed Gardner's theory further, recognising that leaners' motivation is influenced by the learning context and environment (Dörnyei & Ottó, 1998). The integral role that motivation plays in language acquisition is reflected by its ubiquity in theories of language acquisition (see chapter 2.3.2). The fact that the polyglots placed motivation as the most important factor determining acquisition success is consistent with their belief that successful language learners do not have a special gift or ability for language learning.

The majority of the polyglots in the questionnaire agreed with the view that many language learners do not succeed because they do not see the value in language learning. This notion is supported in the literature. Tremblay and Gardner (1995) stated that learners experience higher levels of motivation when learning is valued. In motivation parlance, valence refers to the value that an individual places on a particular outcome (Lee, Locke, & Latham, 1989). According to Oxford and Shearin (1994), learners' motivation will be lowered if they don't perceive value in the performance. Indeed, expectancy-value theories in motivational psychology denote that motivation to perform a task is predicated by the individual's expectancy of success and the value that the individual attaches to a particular task. The majority of the participants in the questionnaire agreed with the sentiment that the benefits of being multilingual are not understood by most language learners in school. According to the expectancy-value framework, this would inevitably lead to poorer outcomes.

The majority of the participants in the questionnaire opined that the value of speaking multiple languages should be explained to language learners. In a school setting the onus of conveying the value of speaking a foreign language would fall on the teacher. The notion of teachers relaying the value of language learning is established in the literature. Oxford and Shearin (1994) state that "teachers can help students heighten their motivation by demonstrating that L2 learning can be an exciting mental challenge, a career enhancer, a vehicle to cultural awareness and friendship, and a key to world peace" (p.24). Furthermore, Dörnyei (2001) posits that "the most far-reaching consequences in motivating L2 learners can be achieved by promoting positive language-related values and attitudes" (p.51). He posits that one way that this can be attained is by explaining the instrumental value of learning the target language. He describes instrumental values as those related to the perceived practical, pragmatic values that proficiency in the L2

might bring. Dörnyei (2001) suggests some strategies to "create lasting mental associations between L2 proficiency and desirable outcomes" (p.56) such as discussions about the value to one's life of knowing a foreign language, or inviting former students who established a successful career using a foreign language. The polyglots in this study believe that not enough is currently being done to motivate language learners and facilitate their learning.

8.2.7 Conclusion

This section has outlined the findings of this research related to the first subsidiary research question about the characteristics of a successful language learner. The findings complement existing literature about the importance of language learners exerting effort and being passionate learners. Furthermore, the findings support existing literature about the importance of learners' metacognition, as well as their interaction in the target language. The pertinent role of learner motivation has also been highlighted by this study. The findings reveal that the polyglots are divided on the innate abilities of successful language learners, despite increasing evidence emerging from empirical research. This could be explained by their previous struggles with language acquisition and by their mindset that other factors determine language acquisition success. The discussion will now move on to focus on the second subsidiary research question about important considerations for language acquisition.

8.3 Important considerations for successful language acquisition

The second subsidiary research question addressed considerations which the polyglots believed were important for successful language acquisition. As previously mentioned, language acquisition is a vast field. This study centred on language learning in schools, the impact of

experience on language learning, language learning goals and language learning strategies. The findings for these four areas are outlined below.

8.3.1 Language Learning in Schools

Findings from this study suggest that language education in schools is in need of reform in order to facilitate the successful acquisition of languages. This belief is well supported in the literature. In the United States, Reagan and Case (1996) state, "there can be little doubt that for the vast majority of students in the United States foreign language education has been a failure" (p.97). In the UK, an all-party parliamentary group published a framework proposal in 2019 to address the current situation regarding modern language education. The Chair of the group, Nia Griffith MP, and the Co-Chair, Baroness Coussins, opined that "the UK is in a language crisis" (Griffith & Coussins, 2019). Furthermore, they stated that "The UK's languages deficit is holding us back economically, socially and culturally" (Griffith & Coussins, 2019). This problem is not limited to the United Kingdom, but has been reported around the world. The shared sentiment is one of failed expectations, with students unable to use languages effectively that they have studied for a sustained period of time. In the Bangladeshi context, Hamid (2011) asks, "What are the reasons for poor English achievement among Bangladeshi learners within the national curriculum? Why does the study of English for twelve years fail to produce substantial positive outcomes?" (p.197). In Iran, "the authorities and researchers have tried to investigate the reasons why, despite all the money and time spent and efforts taken, Iranian students are not as successful in learning English as they are expected" (Mostofi, 2018, p.155-156). Lehmann (2002) criticises the Japanese educational system for producing students unable to order a cup of coffee in English after years of studying minute details of grammar. There is an apparent drive to improve language education in several countries. Aspinall (2006) notes that in Japan "among the vast

majority of academics, policy-makers, teachers, parents and business groups it is hard to find anything other than the whole-hearted approval of efforts to improve international education in general and English language education in particular" (p.257). Findings from this research offer some suggestions of how to improve language learning outcomes in schools.

8.3.1.1 Language as a tool

One of the suggestions for improving language education which emerged from the analysis is the idea of treating language as a tool to be used, rather than a subject to be studied. As previously mentioned in the review of the literature, research into school curricula where content is taught through the medium of a second language has reflected positively on such an approach (Genesee, 1987; Hoffmann, 1998). This is the stated goal of content-based language instruction defined as "an approach to second language teaching in which teaching is organized around the content or information that students will acquire, rather than around a linguistic or other type of syllabus" (Richards & Rodgers, 2001, p.204). For Brinton, content-based instruction is "the teaching of language through exposure to content that is interesting and relevant to learners" (2003, p.201). There is support for content-based instruction in SLA research. Firstly, researchers have posited that an environment where there is an emphasis on relevant and meaningful content is conducive to learning. This is in contrast to a language class where the focus is on the language itself (Met, 1991). Krashen has long argued that comprehensible input is vital for SLA (1982, 1985). This is an important pedagogical component of content-based instruction. Genesee (1994) posits that integrating language and content makes language learning more concrete rather than abstract for students. Content-based instruction has also been recommended for advancing translingual and transcultural competence (Sato et al., 2017). In Europe, content based instruction has also been referred to as content and language integrated learning.

There are certain challenges of content-based instruction which researchers have highlighted. Donato (2016) notes the challenge for instructors, who usually have a language instruction background, to integrate content into their language lessons. Troyan et. al. (2017) highlight the need for teachers to have integrated pedagogical content knowledge. They opine that teachers may need training in order to "cultivate a nuanced understanding of how to focus on content and form simultaneously" (Troyan et al., 2017, p. 472). Other researchers (e.g. Lyster, 2007) have highlighted the challenge for teachers to find a suitable balance between language and content. Finally, language teachers who aim to use the language as a means to teach other academic disciplines may not feel suitably qualified to teach the content competently (Richards & Rodgers, 2014). Findings from this research suggest that language teachers need not necessarily teach other subject matter in the target language to achieve content-based instruction. Rather, it can be applied in the broader sense as defined by Brinton above, where the focus is on material that the language learners find interesting regardless of whether it is connected to another part of the curriculum. Thus, language learners are given greater autonomy to select materials of interest. Besides language being used as a tool, the polyglots also expressed the importance of language classes in schools being interesting.

8.3.1.2 Interesting classes

Findings from this research suggest that another important consideration for successful language acquisition is language classes being interesting. The polyglots opined that boredom in the classroom is a great hindrance to language acquisition. There is a paucity of research related to boredom in the language classroom and its impact upon learning. As Kruk and Zawodniak (2020) state, "boredom is an area that has received very little attention in the L2 classroom; hence, there are only a few studies that address this issue, either in an indirect or direct manner"

(p.420). Moreover, Chapman (2013) states that boredom in the context of SLA is inadequately researched and thus poorly understood. This is despite the fact that boredom has been reported to be one of the most common felt emotions in school settings (Mercer & Dörnyei, 2020; Pekrun et al., 2010). Jean and Simard's study (2011) provided evidence that students find grammar instruction boring, however, they recognise the importance of it and find it useful. This echoes what polyglot Lindsay Williams mentioned about the tendency of language classes in schools focusing on grammar which students find boring.

Kruk and Zawodniak's study (2018), although focused on Polish university students, produced some recommendations which could be applied in schools. These recommendations reiterated the beliefs of the polyglots that emerged from the document analysis. Kruk and Zawodniak state:

> ...it should be recommended that teachers create conditions favorable to self-directed learning and feedback provision as well as to the development of metacognitive knowledge and strategic competence. Encouraging students to take control over their own learning, including their individual choices, decisions and needs, may be a good opportunity for them to cope with boredom in the L2 classroom in a searching and thus constructive way. (Kruk & Zawodniak, 2018, p.189)

Other recommendations for making classes interesting have been posited by educational researchers. The importance of students being actively involved in classrooms, as suggested by the polyglots, has long been touted in the research literature. As Chickering and Gamson (1987) state, "Learning is not a spectator sport. Students do not learn much just by sitting in class listening to teachers, memorizing pre-packaged assignments, and spitting out answers" (p.3). For Astin, "Students learn by becoming involved" (1985, p133). Prioritising communication rather than rote learning of grammar rules in language classes, which was also a suggestion which emerged from this study, has long been advocated in the literature. The Communicative Language Teaching (CLT) method is rooted in the belief that language classes should move away from rote memorisation to a more engaging and communicative model. According to

Richards et al. (1992), CLT is "an approach to foreign or second language teaching which emphasizes that the goal of language learning is communicative competence" (p. 65). This method has been reported to be motivating for students and give them more autonomy in the learning process (Brown, 2001). Researchers have also advocated for games to be used during language lessons as was suggested by polyglot Benny Lewis. Games are reported to help students learn the target language while having fun in the classroom. This is even the case for shy and reluctant students (Mei & Yu-Jing, 2000). According to Constantinescu (2012), games increase motivation, develop critical thinking, and build confidence. Using games has also been praised for creating a meaningful context for language use (Bush, 2015; Cam & Tran, 2017) and reducing learning anxiety (Cicchino, 2015; Peters, 2015; Derakhshan & Khatir, 2015).

8.3.1.3 Testing

Findings from this research highlight the negative impact of testing in schools on language acquisition. In fact, Steve Kaufmann named testing as the biggest reason for children struggling with language learning at school. Kerstin Cable is quoted in section 6.3.3 as saying that tests encourage boredom and anxiety rather than passion and joy. There is an abundance of research on language testing in schools. Its multifaceted nature has led to researchers assessing it from different standpoints. Before summarising the literature on the use of language tests in the classroom, it is important to acknowledge that there are different kinds of language tests which serve different purposes (placement tests, diagnostic tests, achievement tests, proficiency tests). The polyglots did not specify which kinds of tests they objected to, but they appeared to be describing achievement, diagnostic, and proficiency tests. A brief summary of the literature on the merits of language testing will help contextualise the polyglots' criticisms.

One of the stated benefits of testing in the classroom upon its introduction was its motivating role. As Latham states towards the end of the nineteenth century, “The efficacy of examinations as a means of calling out the interest of a pupil and directing it into the desired channels was soon recognised by teachers” (1877, p.146). This sentiment was echoed by Ruch, “Educators seem to be agreed that pupils tend to accomplish more when confronted with the realization that a day of reckoning is surely at hand” (1924, p.3). Another perceived benefit of testing is that it gives an equal opportunity to all students, and thus is a just way for subsequent decisions to be made. According to Fulcher (2010, p.4), "Testing is primarily about establishing ways of making decisions that are (hopefully) not random, and seen as ‘fair’ by the population”. Popham (1990) holds that tests can have a positive effect on the curriculum when curriculum changes are linked to testing innovation.

The polyglots whose documents contributed to the qualitative part of the study opined that testing has a negative effect, and leads to students studying for the test and not actually learning the language. The washback effect is described as “the influence of testing on teaching and learning” (Gates, 1995, p.101). Researchers have acknowledged that “this washback effect can be either beneficial of harmful” (Buck, 1998, p.17). This was also incorporated in Messick’s definition:

> Washback, a concept prominent in applied linguistics, refers to the extent to which the introduction and use of a test influences language teachers and learners to do things they would not otherwise do that promote or inhibit language learning. (Messick, 1996, p.241).

The washback effect is witnessed at both a micro level (individual students and teachers) and a macro level (the society and educational systems). Researchers have noted several negative aspects of washback which give further credence to the concerns raised by the polyglots in their documents. Alderson and Hamp-Lyons (1996) remarked that testing can lead to teachers

narrowing the curriculum to focus on test preparation. Furthermore, test preparation classes often replace regular language classes. They also noted that focusing on tests can lead to a reduced emphasis on skills that require higher order thinking or problem solving. Shohamy et al. (1996) reported that testing can lead to teachers reviewing material rather than teaching new material. Bailey (1996) commented that testing in the language classroom leads to students focusing on test-taking strategies. In addition, it results in students studying vocabulary and grammar rules to the exclusion of other features of language. Other researchers noted that teaching methods were negatively influenced by testing. Teachers often ignored parts of the curriculum that they deemed less likely to appear on the test, and resorted to teaching to the test (Dong, 2020; Qi, 2005).

Educators have posited means to achieving beneficial washback. For instance, by making the tests reflect the full curriculum (Kellaghan & Greaney, 1992) and by using authentic tasks and texts for the tests (Bailey, 1996). Alternative assessment has been posited as a way of monitoring student progression without the stress and anxiety caused by tests (Daniels et al., 2001). Alternative assessment has been touted as appreciative of the learning process instead of merely focusing on the learning outcome (Culberston & Jalongo, 1999; Hargreaves et al., 2002). The use of portfolios is an alternative assessment which is used widely in school contexts. It is a form of continuous assessment where students' work is collected and their performance and progress is monitored. The use of portfolios has been praised for affording students more time to study, for teaching them to be independent and responsible, and developing their problem solving and higher order thinking skills (Hamayan, 1995; Bachman & Palmer, 1996; Zhu, 1997). Researchers have reported that students describe the use of portfolios as motivating and teaching them self-responsibility (Lam & Lee, 2010). Furthermore, stress was reduced since work was produced

without time pressure (Dutt-Doner & Gilman, 1998). These alternative forms provide a way to assess students without falling into the pitfalls described the polyglots.

Collaborative assessment is another form of assessment which has gained praise by some researchers. Chau (2005) asserts that involving students in the evaluative process can aid their language learning. Moreover, Yuretich (2004) states that students reflecting on questions in groups and explaining and rationalising their answers with their classmates encourages the use of higher order thinking skills. Formative assessment, as opposed to high stakes summative assessments, are also viewed as a way of measuring student performance and progress without causing anxiety and stress. Formative assessments provide the opportunity for teachers to amend their teaching practices based on the results (William, 2011; Lee & Norbaizura, 2016). The main rationale for formative assessment is to provide feedback to learners and thereby aid the learning process (Hamp-Lyons, 2016; Siyanova-Chanturia & Webb, 2016). Black and Wiliam (1998) conclude that, "...formative assessment does improve learning. The gains in achievement appear to be quite considerable, and as noted earlier, among the largest ever reported for educational interventions" (p.61). Although assessment can be a contentious subject, and agreement about the best way of conducting it can be difficult to achieve, there is enough evidence in the literature to support alternative methods of assessment which address polyglots' concerns.

8.3.2 Experience

Another finding of this research regarding an important consideration for successful language acquisition is the belief that it is a skill which improves with time. Thus, language learning becomes easier with experience. The notion of language learning being a skill has been discussed in section 8.2.1. According to both the Monitor Theory (see 2.3.2.2) and the socio-educational model (see 2.3.2.4) motivation and quelling anxiety are variables which affect the development

of language proficiency. A language learner who has successfully gone through the process of learning a language is likely to be motivated by their previous experience. Furthermore, they are bound to be less anxious than a first time learner because they know they can achieve their goal of learning a language. This sentiment was echoed by polyglot Steve Kaufmann. He states:

> Well, I think one major issue is that people who haven't learned a second language, who have never become fluent in a second language don't believe they can do it. They've never done it before. They've never experienced it before. It's a bit like trying to climb a mountain if you don't believe you're going to reach the top of the mountain. (Steve Kaufmann, n.d.)

A lot of research has been conducted in order to determine whether bilinguals, trilinguals and multilinguals find it easier to learn subsequent languages. Intuitively, one may believe that to be so. “Anecdotally, one expects that people who speak multiple languages will have an easier time learning a new one” (Cox et al., 2019, p. 478). Paradis (2008) supported this notion when she posited that bilinguals and multilinguals depend on more tools and strategies due to their more creative and divergent thinking. Witney and Dewaele (2018) held that experienced language learners are more efficient and ordered in their acquisition process. Other researchers have pointed to the greater linguistic repertoire that bilinguals and multilinguals possess as a cause for future success. Antoniou et al. (2015) suggest that “closely related languages might be easier to learn than others” (p.684). If this is the case, a polyglot who speaks Italian will be aided when learning Spanish compared to a monolingual learner of Spanish whose mother tongue is not closely associated. This belief is supported by a study of multilinguals conducted by Berthele (2011). The possibility of the linguistic transfer of vocabulary items, grammatical structures and sound patterns is ostensibly advantageous to multilinguals. As Jarvis and Pavlenko note (2008), “the more languages they know, the more likely they are to exhibit transfer from one or more of those languages” (p. 205). Research on negative interference has been outlined in chapter 2.2.1.

The belief expressed by the polyglots, which is ostensibly based on their personal experiences is supported by the research literature. Researchers have suggested that, "Multilinguals can experience a catalytic effect when learning new languages" (Festman, 2021, p.127). Papagno and Vallar (1995) concluded, after studying ten multilingual Italians, that multilinguals "are likely to learn vocabulary in foreign languages more efficiently" (p. 105). Other research has pointed to enhanced performance by multilinguals compared to monolinguals (Kaushanskaya & Marian, 2009; Tremblay and Sabourin; 2012). A longitudinal study by Allgäuer-Hackl and Jessner (2013) found that multilinguals had increased metalinguistic awareness and a wider array of language learning strategies. This is consistent with the findings of Kemp (2007) who concluded that "multilinguals' experience of different grammatical systems enables them to internalise grammatical form in a new language more quickly than learners with less diverse experience" (p.256).

8.3.3 Language Learning Goals

Findings from this research suggest that language learners setting goals is an important consideration for successful language acquisition. This finding complements what is found in existing research literature. A review of the taxonomies of language learning strategies (chapter 2.4.3) highlights that researchers have historically reported goal setting as an important component of a language learner's strategy. Rubin (1987) lists goal setting as an example of a metacognitive strategy which learners deploy to oversee, regulate or self-direct their language learning. For Stern (1992), learners use management and planning strategies in order to establish reasonable goals. Researchers have also assessed the importance of goal setting with regards to motivation. Dörnyei (1994) posits that "Attainable subgoals can also serve as an important vehicle in the development of the students' self-confidence and efficacy…" (p.276). According

to Locke and Latham (1990), goal-setting leads to increased focus and effort from language learners, and the achievement of goals gives satisfaction and increases motivation further. Tremblay and Gardner (1995) reported that goal salience (goal specificity and goal frequency) increased student motivation and predicted students' French grades. Yang and Kim (2011) also reported positive effects of goal setting for Korean students of English. Goal-setting has also been stated to increase learner autonomy which is a key element of a learner-centred classroom (Numan, 1988). Wentzel (1991) purports that goal-setting is a key strategy to develop learner autonomy. Orzechowska and Polok (2019) note the importance of autonomy in language learning:

> Autonomy makes individuals prepared for life-long studying, improves the quality of the language acquisition and allows learners to make use of their learning opportunities not only in the classroom but also outside of it. (p.3)

An important detail to emerge from this study was that a language learner merely setting goals was not sufficient to aid the language acquisition process. In order to be beneficial, these goals needed to have certain qualities. Five of these qualities are incorporated in the acronym S.M.A.R.T. (specific, measurable, attainable, relevant and time-related).

8.3.3.1 S.M.A.R.T. Goals

The polyglots stressed that it was important to set S.M.A.R.T. goals. Yamisha points to a deficiency in goal setting as a cause of subsequent failure (see chapter 5.2.3.3). The belief that goals need to possess certain characteristics is supported in the literature. Orzechowska and Polok (2019) emphasise that "goal-setting alone does not necessarily improve students' achievements. Numerous important factors, together with effective goal properties, need to be taken into consideration" (p.4). Locke and Latham (2002) highlight the importance of setting specific goals. They state, "We found that specific, difficult goals consistently led to higher

performance than urging people to do their best" (p.706). While goals should be challenging, it is important that they are also attainable. This point was stressed by Dörnyei when he compiled a list of strategies to motivate language learners (1994). He opined that teachers should "Encourage students to set attainable subgoals for themselves that are proximal and specific" (p.281). Rubin (2015) advocates for S.M.A.R.T. goals. She concludes her research paper by stating that, "taking the time to help learners acquire specific language learning skills, in particular, the metacognitive skills of SMART goal setting and TA (task analysis), can make Task based teaching and learning much more effective" (p.78). The need for language goals to be attainable deterred the polyglots from setting perfection as a goal.

8.3.3.2 Perfection

The data from both the quantitative and qualitative research tools suggested that perfection should not be a language learner's goal. The polyglots' documents contained clarification on the reasons for this stance. They listed the demoralising effect of chasing perfection, and its unrealistic nature amongst reasons for avoiding setting such a goal. A lot of research has been undertaken on perfectionism and its effects. Two distinct constructs, adaptive and maladaptive perfectionism, have emerged from these studies. Adaptive perfectionism can be positive in nature, while maladaptive perfectionism is detrimental and leads to the phenomena that the polyglots highlighted in chapter 5.2.3.1. For this reason, perfectionism has been described as "a double-edged sword that may energize or paralyze people, motivating some perfectionists to engage and others to disengage" (Stoeber et al., 2018, p.19). Adaptive perfectionism has been attributed to desirable characteristics such as possessing high standards and being concise and well-organised (Stoeber et al., 2008). Barabadi and Khajavy (2020) reported that those with adaptive perfectionism experienced positive emotions of pride and enjoyment. Antony and

Swinson (1998) purported that adaptive perfectionism can cause language learners to not accept mediocrity and strive to limit their errors. Flett et al. (1991) discovered that participants with adaptive perfectionism are able to set attainable goals and have an understanding of their limitations. This leads to them being emotionally invested in their studies and enjoying their success.

Numerous studies have highlighted the negative effects of maladaptive perfectionism. Those with maladaptive perfectionism have been reported to be driven by a fear of failure and a fear of negative evaluation (Neumeister, 2004; Hewitt & Flett, 1991). Furthermore, "Individuals with high levels of maladaptive perfectionism are prone to negative emotions because they tend to invest hard effort in a driven manner to achieve absolute perfection instead of reasonable level of excellence" Barabadi and Khajavy (2020, p.12). They experience negative emotions in the classroom because they fear to reveal any of their faults publicly (Flett et al., 2016). This is in line with perfectionist paralysis that Benny Lewis mentioned as a hindrance to language learners (see chapter 5.2.3.1). According to DiBartolo et al. (2008), learners with high levels of maladaptive perfectionism can equate their inadequacies to their self-worth, resulting in low self-esteem. Their fear of failure also causes them anxiety and a lack of confidence (Pintrich, 2000). This can lead to them procrastinating in order to avoid experiencing negative emotions due to their inevitable shortcomings (Closson & Boutilier, 2017).

The overwhelming majority of polyglots who participated in this research hold that language learners should avoid setting perfection as an explicit goal. However, the majority of the participants in the questionnaire indicated that making mistakes means the language learning journey is not over. Therefore, although perfectionism should not be explicitly set as a goal, it may be the consequence of continuously striving for improvement. Framing one's objectives in

this way can minimise anxiety and lead to success. Barabadi and Khajavy (2020) concluded their study by outlining recommendations for those advising students on how to set goals that facilitate success rather than hinder progress.

The polyglots' views on perfection as a goal provide insight to the mindset of successful language learners. Although some of them may now boast proficiency test scores at the C2 level on the CEFR, and work as interpreters and lecturers in a foreign language, they avoided setting perfection as an explicit goal and thereby avoided the negative consequences revealed in the research literature. This insight to their mindset offers and important consideration for language learners seeking successful language acquisition.

8.3.4 Language Learning Strategy

The final findings regarding important considerations for successful language acquisition were related to LLS. The vast majority of the participants in the questionnaire signalled their belief that a language learner's strategy is a significant contributing factor to his or her success. This belief was reiterated in the documents of the polyglots. The polyglots' belief complements the research on successful language learners which has also indicated that LLS play a major role in successful language acquisition (see chapter 2.4.2). Oxford maintains that LLS "... are especially important for language learning because they are tools for active, self-directed movement, which is essential for developing communicative competence" (1990, p.1). The findings suggest that LLS are pertinent enough to be taught to language learners.

8.3.4.1 Strategy Instruction

Over 85% of the participants in the questionnaire expressed that aspiring language learners would benefit from being taught LLS. Andrew Cohen has long been an advocate for strategies-based instruction for language learners:

> Unfortunately, many learners do not develop sufficient mastery of the strategy repertoire on their own to enable them to make impressive gains in their language learning. They need to be trained explicitly to become more aware of and proficient with a broad range of strategies that can be used throughout the language learning process. (2000, p.15)

Other researchers have also maintained that once effective LLS which facilitate learning have been identified, they should be taught to language learners (Rubin & Wenden, 1987; Oxford, 1989; Ellis & Sinclair, 1989). Psaltou-Joycey holds that "teachers should empower learners with strategy training in order to help them take control of the learning process" (2020, p.177). Researchers have developed frameworks for how to integrate language instruction and LLS training. One of the pressing issues is whether to teach LLS separately, or integrate it into language instruction. O'Malley and Chamot (1990) state, "An unresolved issue in instruction in learning strategies is whether instruction should focus only on learning strategy instruction or should be integrated with classroom instruction in the language or content subject" (p.152). Ellis and Sinclair (1989) and Oxford (1989) have posited frameworks for LLS instruction. Ehrman et al. (2003) and Cohen and Macaro (2007) also made suggestions of how to effectively teach LLS. Cohen (2003) has also provided several ways to administer LLS instruction. It is not within the scope of this study to determine the most effective way to give LLS instruction. However, the question still remains as to which strategies should be taught to language learners.

Researchers have developed taxonomies which classify LLS (e.g. O'Malley & Chamot, 1990; Oxford, 1990; Stern, 1992; Rubin & Wenden, 1987). They have identified LLS such as memory, cognitive, compensatory, metacognitive, social, and affective strategies. These strategies may not

be suitable for all, and so the question arises as to which strategies should be taught to learners. Chamot (2004) indicated that students' preferences differ in different cultural contexts. Martinez reiterates the importance of considering cultural contexts. He states:

> We believe that strategies can and should be taught, but learners possess their own set of strategies; we do not feel the need for imposing on them a particular strategic system which may not be in keeping with their personality, cultural background, cognitive style, age, etc. (1996, p.106-107)

There are several factors which influence the strategies that a language learner may adopt. It is important when teaching LLS to bear them in mind (Willing, 1987). These factors include: gender (Gardner & Lambert, 1972; O'Malley et al., 1985; Oxford et al., 1983; Prokop, 1989), motivation (Martinez, 1996; Oxford, 1990; Prokop, 1989), attitude (Bialystok, 1983; Oxford, 1990; Platsidou & Kantaridou, 2014; Wenden, 1987), and belief (Horwitz, 1985; Nyikos & Oxford, 1993; Wenden, 1987). Due to these differences, Horwitz (1988) and Wenden (1991) hold that teachers should assess students and in tandem discover the strategies that would work well for them. The notion that language learners may use different LLS that work for them was one of the findings that emerged from the polyglots' documents. They stressed that there was no single best LLS and that it was important that language learners enjoyed the LLS that they deployed, and that they discovered strategies that worked for them.

8.3.4.2 No best strategy

A key finding of this study was the polyglots' belief that there was no single best LLS that was suitable for all language learners. As previously stated, this complements what is found in the research literature. This belief gives insight to the polyglots' mindset that despite developing effective methods which they prosper from, there is an element of self-awareness that these strategies may not be beneficial for everyone. The implications of this finding is support for what was articulated by Martinez above that imposing a single strategy on language learners may be

problematic. The polyglots whose documents were analysed all have their own unique strategy for language learning. They differ on various aspects of their strategy such as Benny Lewis's belief that a language learner should start speaking from day one, and Steve Kaufmann's belief that a language learner should delay speaking until they have been exposed to sufficient input. Despite the respect for these differences, the polyglots maintained that there are certain integral characteristics of an effective LLS. The first of these was the need for enjoyment.

8.3.4.3 Enjoyment

The polyglots naming enjoyment as an essential element of an effective LLS reveals their mindset when formulating their own LLS. They ensure that language learning remains enjoyable, and this finding suggests that this element is an important consideration for successful language acquisition and should be duly considered when formulating any LLS. The introduction of positive psychology to language acquisition (MacIntyre & Mercer, 2014) has increased interest in positive emotions, such as enjoyment, and their role in language acquisition. There is support in the literature for enjoyment leading to positive outcomes. Dewaele and Alfawzan (2018) investigated foreign language enjoyment and foreign language anxiety in relation to language performance. They reported a strong correlation between foreign language enjoyment and lexical decision test scores. Jin & Jun Zhang (2021) revealed direct and indirect effects of enjoyment on foreign language achievement. They concluded their study by stating that, "These findings suggest the necessity to enhance learners' fidelity to FL (foreign language) learning and to create a positive classroom environment for more enjoyable and effective language learning" (p.960). Wong and Nunan (2011) also linked enjoyment in the language classroom to learning outcomes. One of the ways that the polyglots suggested LLS could remain enjoyable was to limit the focus on grammar.

8.3.4.4 The role of grammar

Another finding of this study is the polyglots' belief that one's LLS should not heavily focus on grammar. They expressed this to especially be the case for beginners of a language. The role of grammar instruction in language acquisition has been one of the most controversial and provocative topics debated by researchers for decades. Historically, grammar instruction was integral to language teaching and often the only activity undertaken in language classrooms as the grammar translation method was given prominence (Brown, 1994). This method focuses on a detailed analysis and memorisation of grammar rules, followed by translation drills which focus on the form and are often decontextualized. The goal is to understand the components of a language in order to manipulate its morphology and syntax. Opposition to the grammar translation method arose in the 1960s and 70s and subsequently new methods emerged (De Mauro, 2009). The audio-lingual and direct method "were a reaction to the grammar translation method which produced learners who could not use the language communicatively despite their considerable knowledge of grammar rules" (Hinkel & Fotos, 2002, p.2).

Despite the criticisms raised against the grammar translation method and the development of subsequent methods, it is still widely used in language classrooms around the world (Richards & Rodgers, 2014). The polyglots' objections to grammar-centric LLS are echoed in the literature by linguists such as Krashen (1982). However, other researchers continue to advocate for explicit grammar instruction. This is based on the belief that declarative knowledge, obtained through explicit grammar instruction, can transfer to implicit procedural knowledge through practice (Norris & Ortega, 2000; Scheffler & Cinciala, 2011; Spada & Tomita, 2010).Various studies have purported to show benefits of explicit grammar instruction over implicit instruction (Nazari, 2013; Rizwan & Akhtar, 2016), while other studies have been inconclusive (Soleimani et al.,

2015). Krashen continues to rally against those who advocate for explicit grammar instruction. In one article (1999) he states that his goal "was only to illustrate that recent studies claiming to support grammar teaching over subconscious acquisition really show nothing of the sort" (p. 253).

The polyglots in this research did not claim that grammar instruction is without merit. However, they expressed that the current weighting given to grammar instruction needs to be addressed, especially for students in the early stages. Thus, although one may cite studies which suggest benefits of explicit grammar instruction, it is still possible to question whether priorities have been misplaced. Evaluating LLS holistically, with a desire to incorporate enjoyment and where the language is treated as a tool rather than a theoretical subject, requires further research to weigh the stated benefits of explicit grammar instruction against possible harms. As Grit acknowledges, "grammar is not the only aspect in language learning and it must be carefully weighed and balanced with other aspects in language learning" (Grit, 2018, p.11). This is especially the case when research suggests learners need ample opportunities to practice in order to transfer explicit instruction into implicit procedural knowledge (Spada & Tomita, 2010). The final consideration which emerged from this study was the need for consistency regardless of the LLS adopted.

8.3.4.5 Consistency

The final belief of the polyglots which emanated from this research regarding language learning strategies was the importance of consistency. There is a paucity of research on consistency in language learning. This is most likely because the benefit of consistency in the pursuit of a goal is intuitive. Indeed, numerous books have been authored across an array of disciplines describing consistency as the key to success (Johnson, 2020; Prosper, 2015; Stawicki, 2021). Polyglots

believe in their strategies, and believe that if they are consistent with them they will eventually achieve their goals. An obvious but important point to stress in any LLS instruction would be the importance of consistency.

8.3.5 Conclusion

This section has explored the findings of the research related to the second subsidiary research question about important considerations for successful language acquisition. Again, these considerations are not intended as an exhaustive list, however, they highlight elements which emerged from this study that the polyglots held are important for successful language acquisition. The findings have been considered alongside existing research literature. Section 8.3.1 outlined the findings pertaining to language acquisition in schools. It detailed the importance of treating languages as tools to be used rather than theoretical subjects. Furthermore, the need for language classes to be interesting and for testing to be minimalised was considered. Section 8.3.2 considered the findings that experience is a vital component of language acquisition, and that language learning is a skill which improves with time. Section 8.3.3 considered the significance of language learning goals and their desirable characteristics and section 8.3.4 outlined the findings regarding LLS and how they relate to successful language acquisition. The research revealed the polyglots' belief that language learners would benefit from being taught LLS. They opined that there was no single best LLS, but that it was important that the strategies created an element of enjoyment. The polyglots were critical of the current focus on grammar instruction and stressed the importance of consistency when implementing a LLS for successful language acquisition. The discussion will now move on to focus on the third subsidiary research question regarding the role of technology in language acquisition.

8.4 The benefit of technology in language acquisition

Findings from the research suggest that technology provides many benefits to language acquisition. The polyglots expressed that technology has made language learning much easier now than it was in the past. A multitude of studies have been conducted which investigate the effectiveness of technology in language learning, and which support the belief of the polyglots in this research (see chapter 2.5.1). Empirical studies have concluded that the use of digital multimedia technologies are more efficient than the use of print media (Labrie, 2000; Nutta, 1998; Shea, 2000). Furthermore, the use of video materials, which enable learners to access authentic and content-rich linguistic material, has been reported to be an effective tool in the language classroom (Herron et al., 2000; Weyers, 1999). The use of technology has also been reported to facilitate language learning by providing opportunities for authentic communication in the target language. Researchers have found these communicative interactions to have a positive effect on language learning (Harless et al., 1999; Holland et al., 1999; Parvin & Salam, 2015; Warschauer, 2000). Technology has also been deemed to make language learning easier by lowering learner anxiety which is a hindrance to language learning (Braul, 2006; Chapelle, 2001; Levy, 1997; Ozerol; 2009).

Findings from this research suggest that the benefits of technology in language acquisition is such, that technology-savvy learners have a distinct advantage over language learners that are less competent with technology. Various studies have highlighted the challenge faced by language learners who are not apt with using technology. According to Roblyer (2003), language learners who are not familiar with computer technology are unable to benefit their language learning. After reviewing research (Barrette, 2001; Winke & Goertler, 2008) on language learners' readiness for CALL, Hubbard (2013) surmises that "Additional training is necessary to

bring all students to the level of readiness needed for effective use of technology in language learning tasks and activities" (p.166). Other researchers have highlighted the importance of digital literacy if language learners are going to prosper from their use of technology (Godwin-Jones, 2016). According to Son et al., "It is important for language learners and teachers to develop digital literacy skills and strategies to take advantage of the use of digital technologies for language learning in digitally connected environments" (2017, p.80). Another benefit of technology that emerged from this study is its widening of access to language learning material.

8.4.1 Increased access

The participants in the questionnaire predominantly opined that technology has made language learning accessible to everyone. Ostensibly, the polyglots' belief refers to those who have access to modern technology. Researchers have highlighted that a lack of access to technology is still a barrier for some schools and individuals (Coghlan, 2004). Some schools have difficulties with the initial costs of installing technology (Warschauer & Meskill, 2000), while others struggle with the costs of hardware and computer equipment (Gips et al. 2004; Lai & Kritsonis 2006). The advent of language learning applications and online forums for language exchanges have no doubt increased the avenues for language learners who have access to such technology. According to Mindog (2016), mobile applications "...are easily accessible (free/cheap), highly portable for anytime-anywhere learning, customizable and can be accessed via smartphones that many students already own" (p.17). Language learning applications like Duolingo boast more than seventy million users (Hickey, 2015). While technology has certainly made language learning accessible to everyone who possesses it, it can obviously do little for those who do not.

8.4.2 Resources

The polyglots whose documents were analysed expressed that a benefit of technology is the abundance of resources that are now available to language learners. This has been acknowledged in the literature. The advent of the Internet has been noted in the literature as "placing an unprecedented amount of information at the hands of individual users all around the globe" (Warschauer, 1999, p. 7). Zhao (2003) highlights how the Internet has vastly increased language learners access to resources which help facilitate their learning. According to Martin et al. (2011), the development of the Internet has led to a number of digital tools, countless resources and an abundance of materials being available to language learners.

8.4.3 SRS

A finding of this research is the benefit that SRS provides for vocabulary acquisition. SRS is based on the premise that people's long-term retention is greater if they try to recall information after being exposed to it once, rather than re-reading it numerous times. This retention then increases if they gradually lengthen the delay interval of recalling the information. This premise is supported by research in the field of learning and memory (Roediger & Butler, 2011; Roediger & Karpicke, 2006). Researchers have established the effectiveness of SRS for long-term retention of vocabulary (Bloom & Shuell, 1981; Ellis, 1995; Fitzpatrick et al., 2008; Goossens et al., 2012). A lot of research has focused on the optimal interval length using SRS, however, a consensus has not been established (Cepeda, et al., 2006; Küpper-Tetzel, et al., 2014; Lotfolahi & Salehi, 2017). SRS programs and applications use different algorithms to calculate the interval length. Although, there is scope for further research to determine the optimal length, the general use of SRS as praised by the polyglots is supported in the literature. A number of the polyglots

who advocated for technology that uses SRS suggested that it should be utilised in conjunction with other methods.

8.4.4 Applications

Another finding of this research is the polyglots' belief that applications are beneficial and best used in tandem with other material. This finding is well supported by existing research. With the rapid increase in mobile phone technology aimed at language learners, a growing amount of research has been conducted investigating mobile assisted language learning (MALL). Duman et al. (2015) and Burston (2015) both state, following a review of the literature, that most studies address the use of MALL for vocabulary acquisition. Burston's review (2015), despite lamenting the experimental design of many of the studies he reviewed, reports positive outcomes for MALL across various studies. In addition to vocabulary acquisition (Motallebzadeh & Ganjali, 2011; Sandberg et al., 2011; Saran et al., 2012), there were reported benefits for reading competency (Chen & Hsu, 2008; Zurita & Nussbaum, 2004) listening and speaking skills (Liu, 2009; Robertson et al., 2009), and writing skills (Hwang et al., 2011). Wang et al. (2009) notes that MALL is "more flexible, personalised and collaborative" (p.524), and thus facilitates student-centres learning. According to Cheon et al. (2012), MALL enables learners to individualise their learning with regards to pace and context. Furthermore, it provides the opportunity to learn from real contexts, and in a collaborative manner. Looi et al. (2010) state that MALL allows for student-centred classes where students become "an active participant, not a passive receiver in learning activities" (p.156). Several other researchers have reported benefits of using mobile applications for language learning (Burston, 2014; Godwin-Jones, 2011; Kim & Kwon, 2012; Lafford, 2011; Morgana, 2015; Steel, 2012). According to Rosell-Aguilar (2018), "Apps can provide opportunities to engage in interactive, meaningful and engaging tasks,

promote collaborative, rewarding, and challenging tasks and provide opportunities to produce target language" (p.855).

A lot of the research that has been conducted on mobile phone applications were in a classroom setting. There is a paucity of research on autonomous leaners use of mobile applications which is more aligned with how the polyglots use the applications. Researchers have recognised the need for research on mobile applications in a non-formal setting (Steel, 2012; Stockwell & Liu, 2015). Vesselinov & Grego (2012) did investigate the use of a language learning app amongst autonomous learners. They reported significant improvements in language ability and confidence with beginners making greater improvements than advanced learners. Rosell-Aguilar (2016) also looked at the use of applications in a non-formal setting. He reported that female participants used applications less often than male participants, but for longer periods of time. The respondents in his study believed that their knowledge of Spanish had improved by using applications.

The polyglots stressed the importance of varying language learning methods. Thus, although language learning applications on mobile phones are considered extremely useful tools, they stated that they are best used to supplement other material. The need to augment application use with other methods has been highlighted in the literature. Pareja-Lora et al. (2013) held that mobile apps provide fragmented language practice. Burston (2014) noted that language apps usually offer basic learning activities and thus are more suitable for beginners. Kim and Kwon (2012) lamented the lack of opportunity for socio-cognitive activities or collaborative learning, with most apps focusing on cognitive processes and receptive rather than productive language skills. As Rosell-Aguilar states (2018), "Whilst it is arguable whether apps can at this point be considered as a single solution to language learning, they... can provide a good supplement for

language learners who are enrolled in formal instruction as well as a good starting point for beginner independent learners" (p.855).

8.4.5 Social media

Several benefits of technology emerged from this study related to the use of social media. A majority of the participants in the questionnaire declared that they use social media as a part of their language learning activities. Furthermore, over half of the participants agreed or strongly agreed that social media is a good tool for a language learner. A third of the participants were not sure of the benefit of using social media for language learning. The advent of the Internet gave birth to collaborative web tools like social media. The popularity of social media has prompted researchers to investigate its effect in education. Researchers within the field of language acquisition have examined its benefit for language learners. A number of researchers have reported benefits of using social media for language learners in agreeance with the majority of the polyglots in this study. Several benefits have been mentioned in the literature review (see chapter 2.5.1). Recent studies have continued to report the positive effect that social media can have on language learning (e.g. Barrot, 2021; Jia & Hew, 2019; Manca, 2020; Paul & Friginal, 2019; Reinhardt, 2019). Researchers have noted that the use of social media affords language learners the opportunity to have authentic interactions with native speakers and thereby develop intercultural competence and gain motivation (Kern, 1995; Kinginger, 2004; Klapper, 2006). Researchers have reported the benefit of social media for language learners' pronunciation (Fouz-Gonzaléz & Mompean, 2012; Mompean & Fouz-Gonzalés, 2016), grammatical competence (Hattern, 2012), noticing (Blattner et al., 2015), peer-to-peer corrective feedback (Pérez-Sabater & Montero-Fleta, 2015), and literacy (Amicucci, 2017; Shepherd, 2015).

The majority of the participants in the questionnaire expressed that social media was good for authentic interaction in the target language. Moreover, they revealed that social media has increased their contact with native speakers in the native language. According to Klapper (2006), "perhaps the most exciting application of the web in language learning is its capacity for bringing together students and native speakers" (p.191). Hattem and Lomicka (2016) conducted a critical analysis of Twitter research in language learning from 2009 to 2016. Seven of the seventeen studies reviewed, cited interaction and communication with native speakers as a possible use of Twitter. McBride (2009) and Ota (2011) lauded the opportunity that social media provides for authentic interaction with native speakers instead of artificial material text books provide. Jin (2015) and Harting (2017) highlighted the possibility that social media affords for language learners to communicate with native speakers regardless of their location. However, Lomicka and Lord (2011) cautioned that interaction with native speakers can be difficult to enforce or regulate in a classroom setting which can limit meaningful interaction. Thus, if social media is to be used in a classroom setting, the teacher will have a role to ensure that interactions are maintained and fruitful. For autonomous learners, the literature supports the claim of the majority of the polyglots that social media can be exploited for language learning purposes and facilitate beneficial interaction with native speakers.

8.4.6 Online peers

A finding of this research is that the polyglots were reticent to declare online peers as a benefit of technology for language acquisition. A majority of the participants in the questionnaire opined that it is beneficial to have online peers who are learning the same language. Under ten percent of the participants disagreed with this sentiment, yet over a third were unsure. A review of the literature on learning languages from online peers highlights some positive aspects. The benefit

of online peer reviewing and feedback has been reported by various researchers (see chapter 2.5.1). In addition, online interaction with peers creates an environment which is conducive to learning. This is due to the reduced intimidation of not communicating face to face, and having more time to think (Cheon, 2003). Peeters (2018) comments that online interaction between peers provides social support and a feeling of responsibility within the community of learners. The sense of support that online peers provide is one of the findings to emerge from this study. The polyglots expressed that online peers offer an opportunity to practise the target language in an anxiety free environment. Another benefit of online peers to emerge from this study is the motivation that they provide. It is also acknowledged in the literature that interaction with online peers can enhance learner motivation (Webb et al., 2006).

Some researchers have highlighted the potential pitfalls of interacting with online peers. Dobao (2012) states that peers may focus more on meaning than on form during their interactions due to the limited knowledge of the language. While this may be viewed as a positive way of getting students to produce the language in an anxiety-free environment, it does potentially put them at risk of acquiring their peers' mistakes (Adams, 2007). The divide amongst the polyglots with regards to learning from online peers reveals more about the nature of many polyglots to be independent learners who often learn away from a classroom setting. Subsequently, the interactions that they seek in the target language are often with native speakers. The final finding of this research related to the benefits of technology for language acquisition concerns intercultural competence.

8.4.7 Intercultural competence

Intercultural competence has been defined as "the ability of a person to behave adequately in a flexible manner when confronted with actions, attitudes and expectations of representatives of

foreign cultures" (Meyer, 1991, p.138). A myriad of scholars have stressed the importance of intercultural competence in the contemporary world (e.g. Alred et al., 2003; Belz, 2003; Thorne, 2010). Byram remarks that successful interaction is not restricted to conveying information, but also "the ability to decentre and take up the other's perspective on their own culture, anticipating and where possible, resolving dysfunctions in communication and behaviour" (1997, p.42). Furthermore, national educational bodies have recognised the importance of intercultural competence alongside foreign language education. In the United States, the National Standards for Foreign Language Learning in the 21st Century (1999) stressed that "language and culture is part of the core curriculum" (p.7). The overwhelming majority of the participants in the questionnaire expressed the belief that technology has made foreign cultures accessible to them. There is acknowledgment in the research literature of how technology facilitates the exposure to foreign cultures. Uzun (2014) recognises that technology has "...created opportunities for people to become accustomed to different cultures and languages..." (2014, p.2407). According to Marcoccia (2012), "The internet affords its users an unprecedented level of contact with people from other cultural and social groups" (p.353).

The vast majority of the participants in the questionnaire held that social media enables a language learner to learn about a foreign culture as well as a foreign language. Furthermore, they opined that interacting with native speakers online increases cultural awareness. They also felt that social media allows one to learn about a foreign culture without travelling. The growing use of social media for language learning purposes has led researchers to investigate its effectiveness. A number of researchers have reported findings which support the perception of the polyglots that social media enables a language learner to learn about foreign cultures. Borau et al. (2009) found that the social media website Twitter "is suitable to train communicative and

culture competence anytime anywhere without face-to-face interaction" (p.86). Antenos-Conforti (2009) also reported that students' cultural awareness and competence increased due to interaction with native speakers on social media. Mills (2011) investigated the potential of Facebook for developing students' intercultural competence. She concluded that the students were able to develop their cultural awareness and competence using the social media site. Lee (2009, 2011) found that the use of blogs and podcasts enabled both the American and Spanish students in her study the opportunity to explore the target language and culture. By building interpersonal relationships, the use of social media had a positive impact on the participants' intercultural competence. Guth and Marini-Maio (2010) also reported a positive impact of using ءsocial media to enhance intercultural competence. Jin (2015) used the Intercultural Behavioural Assessment Indices (Byram, 2000) to measure intercultural competence following the use of Facebook. Jin concluded that the social media website had an overall positive impact on intercultural competence. The positive effect that social media can have on language learning in general has been highlighted in section 6.2.10.

8.4.8 Conclusion

This section has outlined the study's main findings regarding the benefits of technology for language acquisition. Existing literature has been considered alongside the study's empirical findings in order to give them context. The findings reported in this section are that technology has made language acquisition easier than in the past and has afforded access to language learning materials to more people. In addition, modern technology has increased resources available to language learners. SRS was noted as a valuable tool for vocabulary acquisition and applications were also cited as beneficial innovations for language learners. It has also been reported that social media has several benefits for language acquisition such as facilitating

interaction with native speakers of the target language. Technology has also been cited as affording the opportunity to interact with online peers. However, due to the apparent independent nature of many of the polyglots, technology is not exclusively utilised as a means to interact with online peers. Finally, technology was lauded as creating the opportunity to enhance intercultural competence.

8.5 Conclusion to the chapter

This chapter has explored the main findings which emerged from this study in order to address the three subsidiary research questions. Several essential characteristics of a successful language learner have been posited and important considerations for successful language acquisition have been outlined. Finally, the benefits of technology for language acquisition have been detailed. These findings have been noted alongside existing literature in order to highlight where the polyglots' beliefs and perceptions are supported by existing empirical research. The final chapter of this thesis contains a summary of the research findings, as well as recommendations for stake holders involved in language education based on the findings. The limitations of the study are highlighted and suggestions are proposed for further research.

CHAPTER 9. CONCLUSION

9.1 Introduction

The aim of this study was to investigate polyglots' beliefs and perceptions regarding language learning. The study was triggered by the lack of consideration given to polyglots' beliefs in the research literature. The field of language acquisition is such that no single study can cover all aspects of it. Subsequently, I consciously decided to focus on certain areas of language acquisition theory in this study. The overarching research question of polyglots' beliefs and perceptions vis-à-vis language learning was guided by three subsidiary research questions which assessed their beliefs about essential characteristics of a successful language learner, important considerations for successful language acquisition, and the benefits of technology for language acquisition. This conclusion chapter presents a summary of the research findings and outlines the contribution that the study makes to the field. Recommendations are provided based on these findings, and the limitations of the study are highlighted. Finally, suggestions are proposed for further research.

9.2 Summary of Key Findings

The research design adopted for this study was an explanatory sequential mixed methods design. The initial phase consisted of the collection of quantitative data by way of a questionnaire, and the second phase involved the document analysis of thirteen polyglots. Analysis of the polyglots' responses to the questionnaire informed and guided the document analysis in the second phase. Both phases of the mixed methods design contributed to a number of findings which emerged from the study and answered the research questions posed. A summary of these findings for each subsidiary research question follows.

9.2.1 Essential characteristics of a successful language learner

A number of findings emerged from this study regarding the polyglots' beliefs about essential characteristics of a successful language learner. They were divided over whether successful language learners have an aptitude for language learning which they acquire at birth. However, they expressed the belief that anyone can learn a second language, and that one does not need to be gifted or have a special talent to learn several languages. The polyglots held that effort and passion were more pertinent to language learning success than anything in one's genetic makeup. The polyglots opined that it is important for a language learner to plan his or her learning. They also suggested that successful language learners self-evaluate their progress and take control of the learning process, partly by making an effort to find suitable material and by finding opportunities to communicate in the target language. Another essential characteristic of a successful language learner that the polyglots alluded to was the need for a language learner to set goals. The polyglots who participated in the questionnaire also opined that motivation was the most important factor determining acquisition success and that a motivated learner will succeed in language learning.

9.2.2 Important considerations for successful language acquisition

Several findings of this study highlight important considerations for successful language acquisition. Firstly, the polyglots vehemently held that language learning becomes easier with experience. Thus, the more languages someone learns the easier and more efficient it becomes. They opined that language learning is a skill which improves with time, and therefore the first time learning a foreign language is the most challenging. The polyglots did not believe that language education in schools was adequate. They felt that languages were not taught the right way in schools, and subsequently there was a need for reform. They do not believe that schools

give students the tools to be successful language learners. They expressed that languages should be treated as tools to be used rather than subjects to be studied. Thus, the way languages are taught should not follow conventional subjects like mathematics and science. Furthermore, they stressed that classes need to be more interesting, and teachers should refrain from using boring materials. Finally, the polyglots stressed that the way tests are currently used in schools is detrimental to the learning process. They opined that there needs to be a shift from a focus on tests and test results, to fostering a love of languages and the effective use of them.

The polyglots did not believe that the aim when learning a language should be perfection. Thus, the goal of a language learner need not be to communicate without mistakes, or reach native like proficiency. The polyglots stressed the importance of setting language learning goals with certain characteristics. These characteristics are gathered in the acronym S.M.A.R.T. Thus, it is important that language learning goals are specific, measurable, attainable, relevant and time-related. The polyglots also expressed that a language learner's strategy is an important factor in his or her success. This is reflected in their belief that polyglots are successful because they have a good language learning strategy. The overwhelming majority of the polyglots believed that aspiring language learners would benefit from being taught language learning strategies. However, they stressed that there isn't a best strategy for learning a language which is suitable for all learners. Rather, it is important for language learners to find a strategy that works for them. However, there are certain key elements of an effective language learning strategy. The polyglots emphasised that enjoyment is an important component of a good language learning strategy. Furthermore, one's language learning strategy should not be overly focused on grammar, especially those at the beginning of their language learning journey. Finally, whichever strategy a language learner adopts, the polyglots stated the importance of consistency.

9.2.3 The benefits of technology for language acquisition

A number of findings also emerged regarding the benefits of technology for language learning. Responses to the questionnaire revealed the belief that technology has made language learning much easier than in the past and accessible to everyone. The polyglots declared that they are more efficient language learners now because of technology and that technology has sped up the language learning process. The polyglots in the qualitative phase of the study elaborated that technology has aided the language learning process by making it easier to find resources. They also recognised the benefits of using SRS to learn vocabulary in conjunction with other methods. Finally, the polyglots recognised the value of applications for language learners, with many of the polyglots declaring that they use applications as part of their language learning routine.

Most of the polyglots in the quantitative phase of the study revealed that they use social media as part of their language learning activities. Although a sizeable proportion of the polyglots were unsure of the value of social media as a language learning tool, the majority suggested that it is a good tool for a language learner. Most of the polyglots believed that social media is good for authentic interaction in the target language, and admitted to using social media to interact with native speakers of the target language. They also associated social media with their increased contact with native speakers of the target language.

The majority of the polyglots who participated in the questionnaire recognised the benefit of having online peers who are learning the same language. Over half of the polyglots held that feedback from peers online is useful in the learning language process. The polyglots were not decisive on whether a language learner should try to find online peers who are learning the same language. A slim majority of the polyglots believed that online peers are helpful because they are in an environment away from the pressure of the classroom. The polyglots whose documents

were analysed for the qualitative phase of the study did not suggest that online peers need be an essential component of a language learner's strategy. However, it was recognised that online peers can be a source of motivation and create the opportunity to practice the target language.

The questionnaire revealed that the polyglots feel technology has made foreign cultures accessible. They asserted that the use of social media enables a learner to learn about a foreign culture as well as a foreign language. Furthermore, it allows one to learn about a foreign culture without travelling. Most of the polyglots believed that interacting with native speakers online increases cultural awareness. They attested that communicating with people online has increased their cultural awareness of target language communities.

9.3 Research Contribution

This study provides a valuable contribution to the research literature on polyglots and language acquisition. It has been highlighted that there is a paucity of research on polyglots in the fields of linguistics, psychology, sociology and neuroscience. This research contributes to bridging this gap in the literature by investigating and presenting the beliefs and perceptions of polyglots regarding a myriad of topics. To date, very few studies have examined the beliefs and perceptions of polyglots on such a scale.

This study contributes to the discourse on language policy. As mentioned in the introduction chapter of this thesis, governments periodically form committees and groups in order to evaluate the state of language learning in their jurisdiction, and produce recommendations to improve learner outcomes. For example, The Dearing Report of 2007 followed a request by the UK government for an extensive review of the progress of the National Strategy for Languages. The Dearing Report concluded that modern foreign language learning in the UK was in crisis. The

report also put forward a number of recommendations for the government to adopt. The report did not contain a major contribution by a notable polyglot. The same can be said of a 2020 report by five organisations which sought to present proposals for a UK-wide national languages strategy (The British Academy et al., 2020). The data collected in this study can be of use to such inquiries and committees tasked with formulating recommendations for language policy, as it presents the beliefs and perceptions of polyglots on a number of issues that would be under their consideration.

Furthermore, this study contributes to the discourse on best pedagogical practices in the classroom. Polyglots, as successful language learners, offer valuable insight into methods which they deem to be effective in the classroom. Currently, the voice of polyglots is given little consideration when pedagogical practices are reviewed. For example, in 2016, the Teaching Schools Council in the UK commissioned a review of evidence about effective pedagogy of foreign languages. Their primary focus was on Key Stages 3 and 4. The findings of their review along with some recommendations were published in the Modern Foreign Languages Pedagogy Review (2016). The Department for Education funded the National Centre for Excellence for Language Pedagogy (NCELP) to implement these recommendations in schools across the UK. The Advisory Group which was appointed to support the review contained accomplished individuals such as Professor Katrin Kohl[6], Emma Marsden[7] and Bernadette Holmes[8]. Polyglots were underrepresented in both the Advisory Group and the research and publications which were listed as being referred to while writing the report (2016, p.22-23). If polyglots are not included

[6] Professor Kohl is a professor of German at Oxford University.
[7] Emma Marsden is a Senior Lecturer in Second Language Education at the University of York.
[8] Bernadette Holmes is a language consultant and linguist who has received an MBE for services to language education.

on such advisory committees, then their beliefs and perceptions which this research has gathered, can be an aid to those charged with scrutinising pedagogical practices in modern foreign language education.

The study contributes to the literature on essential characteristics of successful language learners. For example, it complements the literature reporting a positive correlation between effort and achievement in language learning (Aratibel & Bueno-Alastuey, 2015; Inagaki, 2014; Twum Ampofo and Osei-Owusu, 2015) and passion and L2 proficiency (Lake, 2016; Chen et al., 2021). It also contributes to the literature on important considerations for successful language acquisition, such as Rubin's encouragement for learners to set S.M.A.R.T. goals (2015) and the literature citing the negative effects of learners seeking perfection (Barabadi & Khajavy, 2020). This study also contributes to the literature on the benefits of technology for language acquisition. For example, it supports the literature on the positive effects of communicative interactions in the target language (Parvin and Salam, 2015; Warschauer, 2000) and the benefit of technology for enhancing intercultural competence (Antenos-Conforti, 2009).

This research also makes methodological contributions. A valid and reliable questionnaire was developed to examine the beliefs and perceptions of polyglots. This questionnaire can form the basis of future research that seeks to examine beliefs with a different sample. Furthermore, the sub-scales can be expounded upon to form the basis of a study which focuses on one particular area of language acquisition in greater depth. This research has also illustrated the benefits of using a mixed-methods research design to garner the beliefs and perceptions of polyglots. It has demonstrated how a mixed methods approach facilitates elaboration of points which emerge from quantitative data.

This study provides insight to language learners, language instructors, and course administrators to the beliefs of polyglots and provides them with a number of recommendations about how to improve language learning outcomes.

9.4 Recommendations

Polyglots are successful language learners. Although it is not claimed that the findings of this study are generalisable to all polyglots, it is hoped that insight to the beliefs and perceptions of the participants of this study will be useful to a number of parties. Based on the findings of this study several recommendations will be made which should be beneficial for language learners, language instructors and course administrators.

9.4.1 Recommendations for Language Learners

The majority of the polyglots who contributed to this research were raised in a monolingual household and proceeded to learn multiple languages. Despite empirical studies citing differences between language learners, it is recommended that language learners believe that they are capable of learning a foreign language, and that effort and passion will contribute to their success regardless of any genetic predisposition. Furthermore, the findings of this research suggest that language learners will become better and more efficient learners with time. Thus, it is recommended that language learners persevere with the belief that as they gain more experience and hone their LLS, they will become better language learners.

The findings also suggest that language learners set goals as they progress through their language learning journey. It is recommended that language learners refrain from setting perfection as a vague goal, but rather set goals that are specific, measurable, attainable, relevant and time-related.

The findings of this study supports the research literature in recognising the significance of LLS. Thus, it is recommended that language learners be strategic instead of aimlessly moving from one task to another. They could adapt their LLS to find what works best for them, as this study suggests that they need not look for the perfect LLS which all successful language learners adopt. Language learners could seek a strategy which they enjoy implementing and which helps them spend time with the language. The findings of this study suggest that a learner's strategy should not be overly concentrated on grammar, especially if they are starting out in a new language, and that they are likely to witness more progress if they are consistent with their learning.

The polyglots who contributed to this study held that language learners should take responsibility for their learning. It is recommended that they take control of the learning process, rather than being passive bystanders. They could accomplish this by making an effort to find suitable material and by self-evaluating their progress. Another finding to emerge from this study is the importance of learners finding opportunities to communicate in the target language. It is suggested that learners strive to interact with native speakers or people who are competent in the target language. The findings also suggest that motivation is an important characteristic for language learners to possess. Subsequently, language learners could contemplate the advantages of succeeding in their endeavours and the potential opportunities it would create.

It is recommended that language learners incorporate technology into their learning. This study and the wider research literature suggest that technology has made it possible for learners to find a wide range of resources which can facilitate their learning. The findings of the study suggest that learners consider incorporating SRS technology to support their vocabulary acquisition, and

that they consider using language learning applications which have emerged in recent years in order to supplement their language learning.

The polyglots who contributed to this study hinted at the benefit of social media for authentic interaction with native speakers of the target language, and for increasing their access to foreign cultures. Therefore, it is recommended that they recognise the potential of technology to increase their exposure to the target language, and their access to foreign cultures.

9.4.2 Recommendations for Language Instructors

The findings from this research suggest that language instructors should dispel the notion which some of their students may have that language learning is not for everyone, and that only people with a language learning gene can succeed. They can point to multiple examples of polyglots who struggled with language learning at first, and went on to become very accomplished polyglots. It is recommended that instructors inform language learners that the passion they have and the effort they put into their learning is more likely to contribute to their success than any gift for language learning.

The research findings recommend that language instructors consider ways to get their students to learn the language, rather than learn about the language. This could be achieved by making the target language a tool which is used, rather than a subject which is studied. The polyglots who contributed to this research held that many students get turned off if classes are boring. Hence, it is recommended that instructors make an effort to use interesting materials and capture their students' imaginations. Many of the polyglots opined that the way tests are currently used in schools is detrimental to the learning process. Therefore, it is recommended that instructors consider alternative modes of assessment, and also focus on fostering a love of languages in their

classrooms. This research, as well as previous research reported in the literature, suggests that minimising tests can lower learner anxiety and result in positive outcomes. The polyglots who contributed to this research suggested that in the current situation many students focus primarily on passing tests and are deprived of the opportunity to enjoy the language learning experience.

Findings from this research suggest that language instructors inform language learners of the importance of setting S.M.A.R.T. goals and having a LLS. This research, supported by previous research literature highlights the fact that many learners may not know how to formulate a LLS, subsequently they might benefit from being taught LLS. It is important for instructors to understand that one strategy may not be suitable for all of their learners. It is recommended that instructors work with their learners to find strategies which are beneficial for them. The polyglots in this study suggested that these strategies should be enjoyable and applied consistently. It is recommended that instructors refrain from solely focusing on grammar at the expense of other important elements of the language. This is especially the case if their learners are turned off by grammar instruction.

It is recommended that language instructors facilitate communication between their learners and native or competent speakers of the target language. The polyglots opined that this is the best way to improve one's speaking. Modern technology has made it possible for instructors to establish channels of communication between their learners and competent speakers of the target language.

The majority of the polyglots held that many language learners do not succeed because they do not see the value of language learning. Thus, it is recommended that language instructors convey the value of speaking a foreign language to their learners. Instructors could motivate language learners by outlining the opportunities that being multilingual creates, and by perhaps getting a

multilingual to explain the joy of being multilingual and communicating with people from different countries and with different cultures.

Findings from this research suggest that language instructors look at ways in which they can incorporate technology into their classroom. The polyglots in this study believe that technology has made language learning easier than in the past, and sped up the language learning process. Thus, instructors could evaluate ways they can use technology to make language learning enjoyable, and offer the opportunity to their learners to expose themselves to the target language and practice using it.

The polyglots who participated in this study opined that technology has made foreign cultures accessible, and that learners are able to interact with native speakers online and thereby increase their intercultural competence. Language instructors can facilitate this communication online and build channels of communication between their learners and native speakers of the target language.

9.4.3 Recommendations for Course Administrators

Findings from this research suggest that people responsible for the design and management of language courses should design courses in such a way that learners get ample exposure to the target language with an emphasis on using it, rather than it being merely a theoretical subject which they learn about. Furthermore, it is recommended that course administrators ensure that they have a healthy balance of assessments whereby the instructors do not feel pressured to teach to the test, and the learners do not feel that passing a test is more important than experiencing and enjoying the process of learning a foreign language.

It is also recommended that language course administrators build time into their courses for instructors to teach essential skills that will help language learners progress. This could include how to set effective language learning goals and how to use language learning strategies to aid the learning process.

The polyglots who contributed to this research held that many language learners do not succeed because they do not see the value of language learning. They believe that the value of speaking multiple languages should be explained to language learners. Thus, it is recommended that course administrators allot time for instructors to motivate learners by outlining the benefits of learning a foreign language. Furthermore, course administrators could arrange for successful language learners to talk to the students and express the ways in which being multilingual have benefited them in their lives. The extent to which this could be done would no doubt need to be weighed against budgetary and other considerations.

It is recommended that course administrators ensure, wherever possible, that technology is available for language learners. Thereby, language learners would be provided with the opportunity to exploit modern technology to aid their language learning. Research conducted which assesses the use of technology in foreign language classrooms suggests that teachers are in need of assistance by course administrators to fully take advantage of it. As Kessler and Hubbard recognise, "More than ever, teachers need knowledge of computer-assisted language learning (CALL) principles and practices and skill in adapting them to their own classroom settings" (2017, p.278). A previous study undertaken by Kessler (2010) found that without such guidance there is a tendency for teachers to overlook the potential of modern technology and depend on the tools and practices that they utilised as language learners. In order to prevent this from occurring, it is important that course administrators are proactive and give their instructors the

training and tools they need to successfully integrate technology into their classrooms. Kadel (2005) notes that positive attitudes towards the adoption of technology in the classroom by instructors is essential in order to overcome obstacles that appear. Instructors' attitudes towards the use of technology in the classroom has been found to be influenced by the level of training they have received (Kessler, 2007). Unfortunately, pre-service CALL training (Hubbard, 2008; Kessler, 2007) as well as in-service training (Comas-Quinn, 2011) for teachers has been deemed inadequate. Therefore, it is imperative that course administrators provide appropriate training and support to their staff so that the language learners can fully benefit from technology.

9.5 Limitations of the Study

Although a robust mixed methods research design was adopted for this study, it is nevertheless inevitable that it has certain limitations. Firstly, this study utilised snowball sampling to attain the participants. Snowball sampling is often the choice of researchers when studying a hidden or unknown population. However, there are certain limitations of snowball sampling which are well documented in the literature (see chapter 3.3.1.5). One of these limitations is the fact that the participants are not randomly selected, but dependent on the choices of the participants who are initially contacted. This may lead to selection bias and render the researcher unable to make claims of generality from the sample to the wider population (Griffiths et al, 1993). In order to avoid selection and community bias, chains were pursued and started in different places. Furthermore, the generation of a large sample helped to address the problem of selection bias (Atkinson & Flint, 2001). In addition, such is the nature of this research that its value does not lie in being able to generalise the findings to the entire population of polyglots (see chapter 3.3.1.5). Another limitation of snowball sampling is that it misses people who are not affiliated or connected to any network that the researcher has approached (Van Meter, 1990). Therefore, it is

possible that successful polyglots were not able to participate in this research because the request did not reach them. This limitation of snowball sampling cannot be overcome.

Another limitation of this study was the constraint on the areas of language acquisition that could feasibly be covered. Language acquisition is a vast field which branches off into several disciplines. The scope of this study had to be given certain parameters, and it was not possible to cover all areas of interest. A multi-item questionnaire, while aiding validity and reliability, limited the number of items that could address any particular construct. To examine, for example, several aspects of motivation and language learning using a multi-item design would result in a very lengthy research tool which would threaten the response rate. Researchers who wish to build on any aspect of this study could take a single construct and go into greater depth with their entire research focusing on one single area.

Another limitation of the study relates to the participants of the study. The questionnaire which was used during the quantitative phase of this study was written in English. It was not translated into any other language. As a result, only polyglots who spoke English could contribute to the study. Such is the status of English in the twenty first century, with the language being described as a lingua franca, that it is uncommon to encounter a polyglot who has not prioritised English as one of the first foreign languages that he or she learns. However, there are no doubt polyglots in the world who do not speak English, and thus were unable to be a part of this study. The qualitative phase of this study consisted of a document analysis of thirteen polyglots. The selection of these polyglots was limited to polyglots who release material in English. Therefore, polyglots who write blogs and do interviews in languages other than English were not considered for the document analysis. Furthermore, the polyglots whose documents were analysed also have a lot of material in the foreign languages that they speak. This material was not translated and

used for the document analysis. Rather, the material that they have released in English contributed to the study.

The study was limited in the sense that the researcher was unable to independently assess the language level of the more than five hundred participants who participated in the questionnaire. For the purpose of this study a polyglot was defined as someone who speaks four or more languages to at least a B1 level on the CEFR. Thus, the level of one's language was a determining factor as to whether or not he or she could participate. The assessment of one's language was left to the self-assessment of the individual polyglots, and they were provided with band descriptors for the CEFR. There are language tests in several languages which assess the level of one's language and then equate it to the CEFR. However, it was considered impractical to require all participants to provide evidence of their language levels. Many polyglots learn for the enjoyment of it, and do not do any formal tests in the languages they learn. Thus, requiring proficiency test scores would have affected the response rate to the questionnaire. A number of the participants were obtained from institutions were a good command of their languages is a requirement. This includes university faculties and interpreter organisations. However, ultimately, questionnaires are always reliant on the veracity of participants' responses.

A final limitation is in regard to the data gathered. Polyglots whose documents are in the public domain contributed to the document analysis. Therefore, only polyglots who are motivated to share about their language learning experience publically could contribute. There is, therefore, the possibility that this masked other attitudes that were not put in the public domain. It is not possible to ascertain whether this is the case, however, it is hoped that polyglots who prefer to remain out of the public eye, would nevertheless have contributed to the questionnaire data if the request to do so reached them.

9.6 Suggestions for Further Research

In light of the findings of this research, as well as its limitations, there are a number of avenues that researchers can pursue in order to build upon this study. Firstly, as previously mentioned, this research was limited to English speaking polyglots. Further research could look to examine the beliefs of non-English speaking polyglots to determine whether they share the beliefs and perceptions of the participants in this study. Secondly, further research can be conducted which investigates aspects of language acquisition which were not explored in this study. Researchers could focus on topics such as code switching, linguistic interference, learning multiple languages at once, and the Critical Period Hypothesis.

The participants in this research were divided on the notion of whether successful language learners are born with an aptitude for language learning. This reflects the lack of consensus in the literature. For Birdsong (2018), "It is axiomatic that people vary widely in the effectiveness and efficiency with which they learn an L2" (p.9). Despite this, Biedroń and Pawlak lament the fact that "In the field of second language acquisition (SLA), little research addressing gifted and exceptionally talented language learners has been conducted, and, consequently, little is known about this population" (2016, p.151). It has been highlighted that "Individuals who attain near-nativelikeness in multiple languages tend to be endowed with high working memory capacity, are highly motivated to learn, and strategically apply metalinguistic knowledge and analysis across their learned languages" (Birdsong, 2018, p.9). However, as Singleton (2017) stresses, "contrary to the traditional view of language aptitude, there are increasingly indications and claims that such aptitude is not an unalterable endowment present from birth-or not *just* something which is innate and unalterable-and that, at least to an extent, the awareness that derives from experience and training impacts on it" (p.91). There is a wide scope for further

research to be done examining different aspects of aptitude and language learning. As Biedroń and Pawlak point out, “Very little is known about the IQ of linguistically gifted individuals” (2016, p.168). Furthermore, “...it is not possible to decide on the basis of available empirical data whether superior memory abilities in gifted L2 learners are inborn or, rather, evolve as a result of multiple experiences of FL learning” (2016, p.170). Finally, “...there is very little research on the relationship between FL aptitude and personality traits” (2016, p.172).

One of the recommendations of this study was for language instructors to treat the target language as a tool to be used rather than an academic subject to be studied. One way which has been surmised to achieve this is through content based instruction which “views the target language largely as the vehicle through which subject matter content is learned rather than as the immediate object of study” (Brinton et al., 1989, p.5). While it has been posited in the literature that “people learn a second language more successfully when they use the language as a means of acquiring information, rather than as an end in itself” (Richards &Rodgers, 2001, p.207), there is nevertheless the opportunity for further research to be done on various aspects of content based instruction in language classes. One area in relation to content based instruction where research is scarce is teacher education. Morton states in his chapter on teacher education in content-based language education (CBLE) that, “Not only is there a reported lack of teacher education provision for CBLE, there is also little research on what programmes do exist, or what teachers’ training needs actually are” (2019, p.171).

The polyglots who participated in the qualitative phase of this study voiced their concern for the way tests are used in language classrooms. Washback, the influence of testing on teaching and learning, has been the subject of a vast amount of empirical research (e.g. Cheng, 2005; Hughes, 1989; Shepard, 1991; Watanabe, 2004). Despite this, it is still contended that how testing

influences teaching and learning is not fully understood (Xie & Andrews, 2013). Empirical research on forms of alternative assessment has increased in recent years. Nevertheless, there is a need for further research to be done to ascertain whether moving away from traditional methods of assessment and towards alternative methods would have positive outcomes for language education. For example, Burner (2014) states that portfolio assessment can be viewed "not to be an alternative form of assessment, but rather a common assessment tool" (p.146). However, "There is great scope for further empirical work on how portfolio assessment can be implemented and used to enhance instructional practices in language teaching and learning" (Vo, Zhu & Diep, 2019, p.15). Peer assessment is another form of alternative assessment that has gained traction in recent years. Researchers have reported benefits of peer assessment for student learning (Sebba et al., 2008; Sanchez et al., 2017; Topping, 2017). As Li et al. state "there is considerable theoretical support for using peer assessment to promote student learning" (2019, p. 204). However, they continue that "Despite both the great potential and widespread use of peer assessment, empirical evidence in regard to its effect on leaning and the factors that might influence such effect is insufficient and inconsistent" (2019, p. 204). The polyglots who contributed to this study expressed their beliefs about the detrimental effects that language testing can have on language learners. There is the need for further research to determine suitable alternatives or to at least find an optimum way of using current methods.

The participants in this research opined that language learners would benefit from being taught language learning strategies. As Plonsky recognises, "A vast body of empirical research has been concerned with language learning strategy instruction (LLSI)" (2019, p.3). However, "…very few studies have explicitly investigated the relative effects of different methods of LLSI" (Plonsky, 2019, p.3). Following a meta-analysis investigating research on LLSI, Plonsky

concludes that there is scope for further research in this area. According to Plonsky, the value of LLSI depends greatly on its effects over time. However, there is a paucity of research which assesses delayed posttest scores. Subsequently, “Additional measurements of the persisting effects of LLSI are sorely needed” (Plonsky, 2019, p.15). Furthermore, “In terms of learner populations, additional studies are still needed with L2 (as opposed to FL), pre-adolescent and advanced learners" (Plonsky, 2019, p.15-16). Plonsky also notes that “Although the effects of instruction on certain strategies have been studied extensively, scores of individual strategies remain untested” (Plonsky, 2019, p.16).

The polyglots who contributed to the qualitative phase of this study lamented the weight which is traditionally given to grammar study in language classrooms. They suggested that this balance needs to be addressed, especially for beginner language learners. Although grammar instruction remains an area of great interest for researchers, there is still the need for further research as different approaches continue to emerge. A lot of recent research has focused on how teachers’ own beliefs shape their strategies and practices for grammar instruction (Diaz et al., 2019; Iqbal et al., 2017; Onalan, 2018; Toprak, 2019). Moreover, research continues to be conducted which seeks to assess methods of grammar instruction and their effectiveness. These methods include focus on form (Van Patten & Benati, 2015), processing instruction (Benati, 2019), consciousness-raising tasks (Wong, 2005) and structured-output tasks (Benati & Batziou, 2017). The prevailing sentiment with regards to grammar instruction is summarised by Benati and Schwieter (2019), “When it comes to grammar instruction the question is not whether or not we should teach grammar, but how” (p.485). In light of the beliefs expressed by the polyglots in this study and the empirical research conducted thus far, there is scope for further research to examine the exact role that grammar instruction should play in language classrooms.

The final suggestion for further research is in regards to learning from online peers. The polyglots who contributed to the quantitative phase of this study were unsure of whether a language learner should try to find online peers who are learning the same language. Although some empirical research has been reported which examines the use of online peers, there is nevertheless a need for further research. As Peeters and Mynard note (2019), "analyses on the ways in which learners interact with one another when involved in these online spaces are scarce" (p.451). Chakowa (2019) recognises that conversational interaction aids language acquisition through negotiation of meaning and adjustment, however she concedes that "insufficient research has been conducted on how beginner learners, with restricted knowledge of the target language (TL), engage with different communities online and how it impacts their learning". Two of the polyglots who contributed to the qualitative phase of this study shared their experience of working together as online peers (see chapter 5.2.6). One of the polyglots shared her beliefs about interacting with online peers whose language is at a higher level, similar level, and lower level. There is a paucity of research which addresses the varying dynamics of online peer interaction and it is suggested that further research examines this.

9.7 Conclusion

The aim of this study was to investigate the beliefs and perceptions of polyglots vis-à-vis language acquisition. The need for such a study stems from the fact that "Despite their extraordinary success in language learning, polyglots have received very little attention from researchers in the field of language acquisition" (Rodda, 2011, p.69). According to Alkire (2008), "If multilingualism is indeed one of the great achievements of the human mind…it is regrettable that few linguists have studied polyglots and what it is they know about language learning" (p. vii). Rodda concurs that (2011) if polyglots' successful language acquisition "stems

from factors other than natural talent…their experiences become highly relevant for the typical learner" (p.70). Previous studies on good language learners have tended to focus on those who have gained mastery of one foreign language (e.g. Naiman et al, 1978; Stevick, 1989). However, as Rodda (2011) posits, there is value in researching the feats of those who have acquired multiple languages since "polyglots can be expected to have refined their learning approaches to a higher degree than bilinguals and therefore provide a more reliable perspective on successful language learning" (p.71).

This study has been informative as it has highlighted many beliefs and perceptions which polyglots hold about language acquisition. Several recommendations have emerged from this research which can guide language learners. While it is not possible to generalise the findings and proclaim that all successful language learners think or act accordingly, it is nevertheless beneficial to be aware of what a substantial number of successful language learners claim. Moreover, recommendations for language instructors and those who run and administer language programs have emerged from this study. While it is understood that both instructors and administrators have numerous considerations when planning their approaches to their respective obligations, it is hoped that the recommendations from this study will give them valuable insight to the beliefs of successful language learners and that this research will prove to be a useful resource.

This study has also laid the foundations for future research, as it has highlighted various matters which, thus far, remain under researched. It is hoped that polyglots' voices continue to be heard in the field of language acquisition.

APPENDICES

Appendix A: The Questionnaire Items

Please read the following statements carefully and circle the number which you feel best describes your opinion.

There are no right or wrong answers. Please answer according to your perspective, not what you think the case is for most people.

1= strongly disagree

2= disagree

3= neither agree or disagree

4= agree

5= strongly agree

	Dimension 1: Language learning as a unique talent					
9.	Successful language learners are born with an aptitude for language learning.	1	2	3	4	5
10.	Not everyone can learn a second language.	1	2	3	4	5
11.	Only gifted people can learn several languages.	1	2	3	4	5
12.	Being a polyglot requires a special talent.	1	2	3	4	5
13.	The ability to learn languages is something you either have or don't have.	1	2	3	4	5
	Dimension 2: Language learning in schools					
14.	Language education in schools is adequate.	1	2	3	4	5
15.	The way languages are taught in schools should not be changed.	1	2	3	4	5
16.	Schools give students the tools to be successful language learners.	1	2	3	4	5
17.	Language learning in schools does not need reform.					
18.	Schools teach languages the right way.	1	2	3	4	5
	Dimension 3: Experience and language learning					
19.	Language learning becomes easier with experience.	1	2	3	4	5
20.	The more languages someone learns the easier it becomes.	1	2	3	4	5
21.	With every additional language, a polyglot's language learning becomes more efficient.	1	2	3	4	5
22.	Language learning is a skill which improves with time.	1	2	3	4	5
23.	The first time learning a foreign language is the most challenging.	1	2	3	4	5
	Dimension 4: Language learning goals					
24.	The aim when learning a language should be perfection.	1	2	3	4	5
25.	The goal for a language learner should be to communicate without mistakes.	1	2	3	4	5
26.	One should learn a language to reach native like proficiency.	1	2	3	4	5

27.	One should not be satisfied with their language learning until they reach native like proficiency.	1	2	3	4	5
28.	Making mistakes means the language learning journey is not over.	1	2	3	4	5
	Dimension 5: Importance of language learning strategy					
29.	A language learner's strategy is an important factor in his or her success.	1	2	3	4	5
30.	Polyglots are successful because they have a good language learning strategy.	1	2	3	4	5
31.	Aspiring language learners would benefit from being taught language learning strategies.	1	2	3	4	5
32.	Language learners need to be taught how to learn a language.	1	2	3	4	5
33.	It is important to develop a strategy for language learning.	1	2	3	4	5
	Dimension 6: Metacognition and language learning					
34.	It is important for a language learner to plan their learning.	1	2	3	4	5
35.	It is important for a language learner to set goals.	1	2	3	4	5
36.	A successful language learner self-evaluates his or her progress.	1	2	3	4	5
37.	A successful language learner takes control of the learning process.	1	2	3	4	5
38.	A successful language learner makes an effort to find suitable material.	1	2	3	4	5
	Dimension 7: Communication strategies					
39.	A successful language learner finds opportunities to communicate in the target language.	1	2	3	4	5
40.	Successful language learners interact with people proficient in the target language.	1	2	3	4	5
41.	It is important to communicate with competent speakers of the target language.	1	2	3	4	5
42.	The best way to improve one's speaking is to find native speakers of the target language and practice with them.	1	2	3	4	5
43.	It is important to find native speakers with whom to practice with.	1	2	3	4	5
	Dimension 8: Motivation					
44.	Motivation is the most important factor determining acquisition success.	1	2	3	4	5
45.	A motivated learner will succeed in language learning.	1	2	3	4	5
	Dimension 9: Value of language learning					
46.	The value of speaking multiple languages should be explained to language learners.	1	2	3	4	5
47.	Many language learners do not succeed because they do not see the value in language learning.	1	2	3	4	5
48.	The benefits of being multilingual are not understood by most language learners in schools.	1	2	3	4	5

	Dimension 10: Technology aiding language learning					
49.	Technology has made language learning much easier than in the past.	1	2	3	4	5
50.	Technology has made language learning accessible to everyone.	1	2	3	4	5
51.	Technology-savvy learners have a distinct advantage over language learners that are less competent with technology.	1	2	3	4	5
52.	I am a more efficient language learner now because of technology.	1	2	3	4	5
53.	Technology has sped up the language learning process.	1	2	3	4	5
	Dimension 11: The use of social media					
54.	I use social media as part of my language learning activities.	1	2	3	4	5
55.	Social media is a good tool for a language learner.	1	2	3	4	5
56.	Social media is good for authentic interaction in the target language.	1	2	3	4	5
57.	I use social media to interact with native speakers of the target language.	1	2	3	4	5
58.	Social media has increased my contact with native speakers of the target language.	1	2	3	4	5
	Dimension 12: Learning from online peers					
59.	It is beneficial to have online peers who are learning the same language.	1	2	3	4	5
60.	Online peers aid my language learning.	1	2	3	4	5
61.	Feedback from peers online is useful in the language learning process.	1	2	3	4	5
62.	A language learner should try to find online peers who are learning the same language.	1	2	3	4	5
63.	Online peers are helpful because they are in an environment away from the pressure of the classroom.	1	2	3	4	5
	Dimension 13: Social media and intercultural competence					
64.	Technology has made foreign cultures accessible.	1	2	3	4	5
65.	The use of social media enables a learner to learn about a foreign culture as well as a foreign language.	1	2	3	4	5
66.	Communicating with people online has increased my cultural awareness of target language communities.	1	2	3	4	5
67.	Social media allows one to learn about a foreign culture without travelling.	1	2	3	4	5
68.	Interacting with native speakers online increases cultural awareness.	1	2	3	4	5

< End of Questionnaire >

Appendix B: Screenshots from the electronic questionnaire administered

Polyglot Beliefs and Perceptions

Section A: Background information

1. Gender:

- ☐ Male
- ☐ Female

2. Age group:

- ◯ 18-24
- ◯ 25-34
- ◯ 35-44
- ◯ 45-54
- ◯ 55-64
- ◯ 65+

3. Nationality:

Other (please specify)

4. Native Language:

Other (please specify)

Polyglot Beliefs and Perceptions

Section B: Beliefs and Perceptions

Please read the following statements carefully and select the option which you feel best describes your opinion.

There are no right or wrong answers. Please answer according to your perspective, not what you think the case is for most people.

9. Successful language learners are born with an aptitude for language learning.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

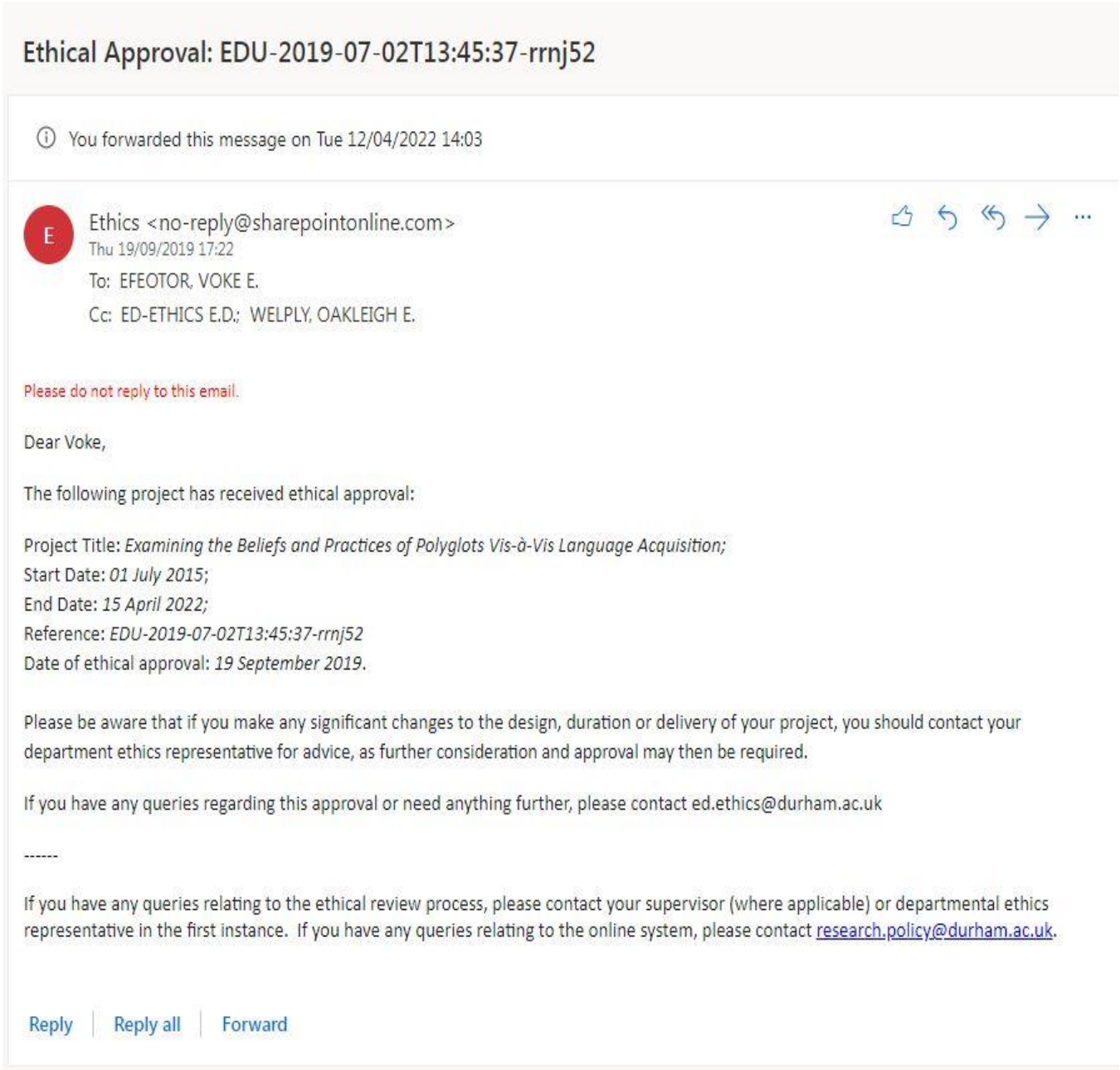
10. Not everyone can learn a second language.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

11. Only gifted people can learn several languages.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

Appendix C: Ethical Approval



Ethical Approval: EDU-2019-07-02T13:45:37-rrnj52

You forwarded this message on Tue 12/04/2022 14:03

E

Ethics <no-reply@sharepointonline.com>
Thu 19/09/2019 17:22
To: EFEOTOR, VOKE E.
Cc: ED-ETHICS E.D.; WELPLY, OAKLEIGH E.

Please do not reply to this email.

Dear Voke,

The following project has received ethical approval:

Project Title: *Examining the Beliefs and Practices of Polyglots Vis-à-Vis Language Acquisition;*
Start Date: *01 July 2015;*
End Date: *15 April 2022;*
Reference: *EDU-2019-07-02T13:45:37-rrnj52*
Date of ethical approval: *19 September 2019.*

Please be aware that if you make any significant changes to the design, duration or delivery of your project, you should contact your department ethics representative for advice, as further consideration and approval may then be required.

If you have any queries regarding this approval or need anything further, please contact ed.ethics@durham.ac.uk

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If you have any queries relating to the ethical review process, please contact your supervisor (where applicable) or departmental ethics representative in the first instance. If you have any queries relating to the online system, please contact research.policy@durham.ac.uk.

Reply | Reply all | Forward

Appendix D: Cover letter for the questionnaire

Dear Polyglot,

I am a PhD student at the School of Education at Durham University in the UK. I am researching polyglots' beliefs about language learning, and the strategies that they believe are important to successfully learn them. I am particularly interested in how polyglots utilise technology to aid their learning process. This questionnaire constitutes one of the methods that I am using to gather information about the aforementioned topics.

The questionnaire consists of 60 questions and it is estimated that it will take no longer than 20 minutes to complete. Although I hope that you are able to share your language learning experiences, your participation is completely voluntary, and you may change your mind at any point during the questionnaire. If you choose to participate, I would like to assure you that the information you give will be handled in accordance to Durham University's strict ethics policy. Your responses will be confidential and your anonymity protected. All data collected will solely be used for the purposes of this study.

Thank you for taking the time to read this letter. For those of you who are able to participate in the study, I would like to express my gratitude and appreciation. A final copy of the research findings can be sent to those who express an interest. Should you have any questions or comments regarding this questionnaire, please contact me via email: v.e.efeotor@durham.ac.uk

Yours sincerely,

Voke Efeotor

PhD candidate
Durham University, UK

Appendix E: CEFR band descriptors

PROFICIENT USER	C2	Can understand with ease virtually everything heard or read. Can summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.
INDEPENDENT USER	B2	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.
BASIC USER	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

Appendix F: Excerpt of a transcribed video with themes and codes

Lýdia Machová- Do you need talent to learn a language?

(https://www.youtube.com/watch?v=1R9QISDoKbg&t=3s)

Theme: Language learning as a unique talent	
Codes:	Support of questionnaire data:
Talent	Polyglots succeed because of good LLS
Effort	

Lýdia Machová: "Whenever I tell people that I speak seven languages and I'm learning my ninth one right now, they always say oh you're so talented, you're so lucky…I wish I had the talent that you have. But the question is…Is it really the talent that helps people learn languages and is talent important to learn a language? Can people learn a language if they are not talented? I personally think that if I have some talent for languages, then it helps me maybe 15% more than other people who are not talented. That means that I have to work just 15% less than those who are not talented and that's not really very much is it? I really believe it because I've been working with people who have been thinking for twenty thirty years that they are not talented for languages because they've been struggling, they're learning on and on, they try different methods and nothing works. And then they change something in their learning and suddenly it works. Suddenly they can learn a new language or even two or three, and suddenly they are talented. So I really think it's not about the talent, it's about the approach that we have to language learning…"

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