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University of Southampton

Faculty of Arts & Humanities

School of Humanities

Self-efficacy of vision-impaired students: Impacts of Technology-Enhanced Language Learning

by

Khalid ElKhereiji

Thesis for the degree of Doctor of Philosophy

June 2019

ABSTRACT

SCHOOL OF HUMANITIES

Thesis for the degree of Doctor of Philosophy

Self-efficacy of vision-impaired students: Impacts of Technology-Enhanced Language Learning

This thesis explores the impact of inclusive technology (an E-book read by vision-impaired adult learners with their accessible software and hardware of choice) on the self-efficacy beliefs of college-level, vision-impaired (VI) EFL students at a Saudi Arabian university, as well as on their agency and performance. This study is predominantly qualitative to best elaborate the impact for each research subject and seeks to investigate the perspectives and attitudes of VI students at the Saudi Arabian university regarding learning English in general, and about the use of accessible technology as a tool for learning.

The methods used in the current study are pre- and post-intervention semi-structured interviews, a focus group discussion at three months post-intervention, and pre- and post-intervention self-efficacy beliefs questionnaires. The analysis of quantitative data was facilitated by statistical tools such as those found in Microsoft Excel. Meanwhile, data analysis for the qualitative component was in the form of content analysis, achieved by extracting relevant themes from the interviews and the focus group discussion.

Qualitative participant data in this study reveal that there are knowledge gaps relating to how best to support vision-impaired learners of English at university in Saudi Arabia, and that a) a lack of proper support and b) the provision of improved support bears a strong relationship to vision impaired English learners' self-efficacy beliefs. Implications of the research findings are outlined and a number of recommendations are provided for further research and pedagogical adaptations that could and should be introduced to improve the status of vision-impaired adult learners in the Saudi context. In particular, recommendations are made that form the basis of a new pedagogical framework for best practice, training, and government policy.

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Research Thesis: Declaration of Authorship

Print name:	Khalid ElKhereiji
Title of thesis:	Self-efficacy of vision-impaired students: Impacts of Technology-Enhanced Language Learning

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: Date: June, 2019

Acknowledgements

"Without ambition one starts nothing. Without work one finishes nothing. The prize will not be sent to you. You have to win it." --Ralph Waldo Emerson

"And, when you want something, all the universe conspires in helping you to achieve it."-- Paulo Coelho, *The Alchemist*

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I dedicate this thesis to the memory of my uncle Yousef, I miss you. May You be in Heaven in the highest paradise, by the mercy of God, rest in eternal Peace. Amen.

Khalid – Southampton, 2019.

Chapter 1: Introduction

Introduction

At present, educational practices and pedagogical adjustments for vision-impaired university students in Saudi Arabia urgently require exploration, evaluation, extension and better implementation. Qualitative participant data in this study show that there are knowledge gaps relating to how best to support vision-impaired learners of English at university, and that a) a lack of proper support or b) the provision of improved support bears a strong relationship to vision impaired English learners' self-efficacy beliefs – beliefs about what they think they are able to achieve when learning English. This is carried out with respect to a tool with great potential for boosting self-efficacy beliefs – the accessible E-book. The need for improved educational provision - provision that promotes self-efficacy and good learning outcomes for vision impaired learners of English in Saudi Arabia - is the key motivator for the undertaking of this thesis.

The current investigation explores the impact of inclusive technology on the self-efficacy beliefs of college-level, vision-impaired (VI) EFL students, as well as on their agency and performance. This study is predominantly qualitative to best elaborate the impact for each research subject (student). This introductory chapter describes the background of the current investigation and signals its importance. It then outlines the rationale of the study, the research objectives, the research questions and the structure of the thesis.

Background

Self-efficacy is a critical determinant of adjustment to vision impairment (Pinquart & Pfeiffer, 2011). Indeed, adjustment to vision impairment may be partly determined by realistic expectations regarding one's competencies. It is important to note that self-efficacy is usually developed according to self-evaluations of previous performances such that past self-efficacy beliefs diminish when an individual's vision declines. On the other hand, for individuals with congenital vision impairment, the development of realistic expectations pertaining to one's competencies is of utmost importance in as much as

young people need to know whether they can achieve goals their peers typically achieve, such as, for instance, passing their driving test.

The concept of self-efficacy, which refers to an individual's confidence in his or her ability to succeed in tasks, is part of Bandura's (1997) Social Cognitive Theory (SCT). Related to this is perceived self-efficacy, which pertains to a person's belief regarding his or her ability to perform certain tasks (Prat-Sala & Redford, 2010). Self-efficacy is not concerned with the requisite skills needed for the performance of a task but, instead, with judgments regarding what an individual can do with those skills that they possess (Tabrizi & Saeidi, 2015). Moreover, self-efficacy does not pertain to a person's static ability. Instead, self-efficacy is "…a generative capability in which cognitive, social, emotional and behavioural sub skills must be organized and effectively orchestrated to serve innumerable purposes" (Bandura, 1997, pp. 36-37). In other words, self-efficacy affects an individual's cognitions, emotions, motivations and behaviour. Here, it must be noted that possessing a specific skill is different from being able to use it or to incorporate it into a proper course of action in order to perform different tasks. As Bandura (1997) explains, "…motivators are rooted in the core belief that one has the power to produce desired effects; otherwise one has little incentive to act or to persevere in the face of difficulties" (p. 87).

According to Bandura and Locke (2003), personal efficacy is the most central and pervasive mechanism of human agency. From this perspective, the study of self-efficacy is essential considering that it powerfully influences different behaviours, including attributions, choice of tasks, effort, emotions, cognition, goals, persistence, and achievement (Bandura, 1986). Numerous studies show that there is a strong association between self-efficacy beliefs and learning, and, in particular, learning English as a Foreign Language (EFL) (Asakereh & Dehghannezhad, 2015; Baleghizadeh & Masoun, 2013; Bong & Skaalvik, 2003; Bonyadi, Nikou & Shahbaz, 2012; Nisbet, Tindall & Arroyo, 2005; Tilfarlioglu & Cinkara, 2009; Wang, Kim, Bong & Ahn, 2013). Thus far, one of the most consistent findings in the context of language learning is that self-efficacy for the target language is positively associated with achievement as defined by course grades in that target language (Hsieh, 2008; Mills, Pajares & Herron, 2007). According to Hsieh and Schallert (2008), self-efficacy is an effective predictor of language learning achievement

that, in turn, is a form of performance. In relation to these, a learner that has a high level of self-efficacy beliefs usually performs goal-oriented actions and possesses generative capability (McCombs, 2001). Self-efficacy beliefs compel learners to strive more to pursue the attainment of their goals, as well as make them more confident in the face of problems and challenges. Therefore, the level of self-efficacy in a specific domain impacts the level of performance and achievement in that domain (Bandura, 1977; McCombs, 2001).

Considering this information, studies on self-efficacy, and the related concepts of agency and performance, in VI people are extremely significant for education. Here, acquiring positive self-efficacy beliefs can potentially promote skilled behaviour, as well as academic and life success. When it comes to academic performance, VI students may lag behind their sighted peers in areas such as learning English, reading fluency, vocabulary, and concept development (O'Donnell & Perla, 1998; Emerson, Holbrook & D'Andrea, 2009; Tobin & Hill, 2012). One of the reasons for this is that the majority of VI students attend "regular" classrooms but do not have enough supports for learning (Giesen, Cavenaugh & McDonnall, 2012). These supports are extremely important because they enable VI students to better understand their lessons. It may be said that VI students can potentially attain the same levels of academic performance as their non-disabled peers, but it is crucial that they receive opportunities for meaningful engagement in classes, instruction from well-trained tutors, as well as appropriate assistive visual supports (Giesen et al., 2012).

Many VI students face challenges in terms of learning, for example, when only conventional educational materials are used in their classrooms, or when they face difficulties accessing information, or when there are problems with inclusion in the educational setting (Hersch & Johnson, 2008; Ketterlin-Geller & Tindal, 2007; Leventhal, 2008; Lewis, Corn, Erin & Holbrook, 2003; Sapp, 2009; Babu & Singh, 2013). It cannot be overstated that VI EFL learners are even further challenged in learning because language is the medium of complex thought. Indeed, language has many functions that may be challenging for vision-impaired learners, even at the college level, including, "…positional, spatial, classification, association, and even body concepts" (Guinan, 1997, p. 560).

It has been recommended that colleges and universities provide assistive devices to VI students (Judge & Simms, 2009; Kelly, 2009). Due to vision impairment, sensory data available to the learner is inadequate such that self-efficacy beliefs among VI EFL learners are usually at low levels (Hutto & Thompson, 1995). However, one of the challenges faced by VI students is inadequate access to appropriate technologies that could enhance their learning experiences (Zhou, Parker, Smith & Griffin-Shirley, 2011; Siekierska, Labelle, Brunet, McCurdy et al., 2003). One such technology is inclusive technology. The primary difference between inclusive technology and assistive technology is that the former greatly embodies accessibility such that it is a "technology for people rather than for disability" (Foley & Ferri, 2012, p. 198).

Many studies attest to the benefits that assistive technology provides to vision-impaired learners (Allen, Leung, Mcgrenere & Purves, 2008; Hersch & Johnson, 2008; Hemmingsson, Lidström & Nygård, 2009; Orsini-Jones, 2009). This is because assistive technologies can potentially provide adaptations and modifications so that VI students may learn at the same pace as sighted peers and thus be fully integrated into regular classrooms. However, recently, scholars have been asserting that there is a need to shift in focus from assistive technologies to inclusive technologies because of the shortcomings associated with the former. As Foley and Ferri (2012) explain, inclusive technologies consider disability and technology "more fluidly and responsively" (p. 198).

Rationale

There are only a handful of studies exploring the experience of VI EFL students, and these pertain mostly to instructional techniques, curriculum design and pedagogical frameworks (Guinan, 1997; Conroy, 1999; Milian & Pearson, 2005; Topor & Rosenblum, 2013). Several studies show that most Saudi students at Saudi universities own personal mobile devices; they also have positive attitudes towards using them for learning purposes (Chanchary & Islam, 2011; Seliaman & Al-Turki, 2012; Altameem, 2011; Khrisat & Mahmoud, 2013; Nassuora 2012). These studies do not take into consideration the Saudi Arabian VI university learner population, however. This is to say that there is a dearth of empirical knowledge regarding the number of VI students who own mobile devices, and whether these devices are fully accessible for them. There is also a lack of

empirical knowledge regarding VI students' beliefs and attitudes towards using such devices for learning. Here, the term 'fully accessible' encompasses ease of use and the ability to interact with all the capabilities of such mobile devices. If VI students use such devices only for making calls and texting, this means to say that these are not fully accessible to the learners because they cannot completely exploit the capabilities of said devices. To note, devices count as inclusive if the VI student owns mainstream devices that he or she may use independently, for example, iPhones or tablets.

Finally, it cannot be emphasised enough that the topics addressed in this thesis are under-studied and under-researched within the Saudi context. A key aim of this thesis is to go some way to improving the understanding and implementation of inclusive education with respect to E-books and self-efficacy, for VI learners of English in the Saudi educational context.

Research objectives

Against this backdrop, this study seeks to determine VI students' perspectives and attitudes regarding learning English in general, and about the use of accessible technology as a tool for learning. Along with this research objective, this study also seeks to offer the following interventions and research contributions:

- Provide a course book and all supplemental materials to vision-impaired students in their first year, third level English course in a format that allows them to fully interact in the course by using the inclusive technologies they own such as iPhone, iPad, Android phones/tablets and Mac OS X/Windows OS laptops, among others.
- Increase awareness of the current state of assistive technology, accessible E-books, and how they can be effectively implemented for vision impaired ESL/EFL learners.
- Contribute to special education research by enriching the field with data about special education, particularly for vision-impaired adult English students learning in Saudi universities.
- Provide Saudi Arabia's Ministry of Education with data on vision-impaired learners' perspectives regarding the teaching of English in the foundation year in Saudi universities in order to increase the likelihood that VI students will receive

adequate and effective reasonable educational adjustments during their university career.

Research questions

Observations of first year English classes at Saudi universities reveal that teachers tend to focus only on listening and speaking skills when teaching English to VI learners. VI EFL learners are generally given double marks for such skills but they are not given tests for reading or writing. Because of this, questions are raised pertaining to the acceptability of these practices in terms of equality and fairness. Just as importantly, VI learners already harness technology considering that some already own smartphones and PCs, that, in turn, they can use independently on a daily basis. These technologies are generally used for accessing students' university records, such as grades and timetables. These technologies represent opportunities for usage on VI EFL learners' foundation English courses.

The primary goals for this study are to obtain VI students' perspectives and attitudes about learning English and about the use of accessible technology as a tool for learning. Moreover, the study is also intended to contribute to the pool of special education research by enriching the field with data about a particular group (VI adult English learners) and a particular intervention in the educational setting in Saudi Arabia. It is important to note that there are several challenges with regard to the said setting in the context of VI students. For instance, according to Benabid and Zuhair (2015), there is inadequate adaptation and availability of assistive tools in Saudi Arabia in order to support VI students. There are researchers and information technologists based in the country that seek to develop assistive devices including those for VI individuals, but actual use of these technologies in the classroom is not widespread (Benabid & Zuhair, 2015). This suggests a real need for research of the type undertaken in this thesis.

Apart from the above, along with the low adoption rates of assistive technologies in the classroom, researchers have also noted that teachers lack the essential training for the use of accessible devices (Subihi, 2013). Special education teachers do not attend specialist courses or training in assistive technologies (Subihi, 2013). An additional challenge pertaining to the adoption of assistive technologies in Saudi Arabia is that most

of the devices that are communication-based typically use English or Spanish (Alquraini, 2011). Naturally, this is unsuitable for VI individuals whose first language is a variety of Arabic, and, crucially, are attempting to learn English from a basic level. Accessible devices and software that have been adapted to the Arabic language are usually over-priced compared to the already costly English versions, thereby limiting the number of learners that can obtain them (Alquraini, 2011). However, with the rapid development of technology and the popularity of open source development, inclusive and universally accessible software and devices that support Arabic are gradually becoming available.

The intervention designed for this thesis accomplishes the followings objectives:

- Provision of a course book and all supplemental materials to vision-impaired students in their first year, third level English course in a format that allows them to independently interact with the textbook and increase participation in the course.
- Enhanced awareness of the current state of assistive technology, accessible E-books, and how they can be implemented effectively for vision-impaired ESL/EFL learners.

The above-mentioned challenges and research objectives have led to the formulation of the following research questions:

- What are the factors that determine self-efficacy beliefs among vision impaired college-level learners of English at a Saudi university?

- To what extent are there equal EFL learning opportunities for vision impaired college-level learners in their first year mainstream EFL course when compared to their fully sighted counterparts?

- What are vision impaired college-level learners' perceptions regarding the implementation of an electronic text into their first year mainstream EFL course?

- How does the accessibility of electronic text and technology impact the self-efficacy beliefs of vision impaired college-level learners?

- Is there a change in ENGLISH 103 vision impaired college-level learners' self-efficacy beliefs in the areas of listening, speaking, reading, writing, and grammar and vocabulary after this intervention?

It is anticipated that the results of this study will provide insight into the use of inclusive technologies to enhance the learning of VI EFL students. It is believed that these insights will be beneficial to VI EFL students, university administrators, teachers, curriculum designers and policymakers in the realm of education in Saudi Arabia.

Thesis structure

This thesis consists of seven chapters. The first is the Introduction, which outlines the background of the study, its rationale, the research objectives, the significance of the study, the research questions and the structure of the thesis. The second chapter provides a more detailed background to the study and sets up the context in which the study takes place. Chapter two begins with a section on disability in Islam, followed by a detailed critical discussion of the history and the current status of vision impairment in Saudi Arabia, its demography within the country, and how Saudi society and the government support the vision impaired.

The third chapter discusses the pedagogical and social context of the study. This is the Literature Review, and it presents a thorough critical discussion of relevant concepts and constructs, starting with the definitions, origins and current understanding self-efficacy. I then undertake a thorough explanation of Bandura's Social Cognitive Theory, justifying its selection as the main theoretical framework upon which this thesis is based. Additionally, chapter three relates to the concepts of agency and performance, self-regulation, learning strategies, and inclusion and highlights the relationship between the educational setting and self-efficacy. Chapter three also includes an essential review of the literature about E-books. Finally, this chapter addresses the challenges facing the vision impaired in learning English as a foreign language, bringing to light some key concepts and the current state of discussion around accessing technologies and the help they afford VI students as EFL learners.

The fourth chapter sets out the methodology employed in this study. It begins with a reiteration of the research questions, and how the current study is intended to answer them. Then, the chapter provides an overview of the research approach selected to explore the self-efficacy beliefs of VI freshmen who are taking mandatory English language courses in their preparatory year. The chapter adds to the research context outlined in the second chapter, justifies the research design and relates to issues of reliability and validity of the research instrument, addressing issues of ethics along the way. From a technical perspective, E-books are discussed as a tool and technology employed within this study.

In the fifth chapter, I critically discuss the findings from the pre-intervention and post-intervention interviews conducted with the participants in this study. The responses from the interviews are analysed recognising the need to explore relations between the three pillars of Bandura's Social Cognitive Theory: the person, environment and behaviour. Analyses in this chapter also benefit from cognitive constructs adopted from Bandura's social cognitive theory, for example, the self-regulatory mechanisms which are important for exploring aspects of learning and changes in behaviour.

The sixth chapter is a further discussion of the findings of this thesis in relation to E-books within the context of the study. It also sheds light on the accessibility which using E-books offers to the visually impaired and relates, again, to the challenges of integrating E-books in the Saudi context. It also returns to the research questions and presents a discussion of what the researcher has learned about self-efficacy throughout the course of the study.

The final chapter, chapter seven, represents the conclusion, which provides a thorough recap of the study, and an overall evaluation of the research findings. Implications of the research findings are outlined in this chapter and the last section of the chapter provides recommendations for further research and pedagogical adaptations that could and should be introduced to improve the status of vision impaired adult learners.

Chapter 2: Background and Context

Before moving on to examine the literature related to concepts and frameworks important to this thesis, it is necessary to set out something of the cultural backdrop against which this thesis is set. Naturally, given the cultural context in Saudi, it is relevant to explore the view of disability in Islam, as it may affect how the learners themselves and, specifically, teachers view VI students, their abilities, and learning needs. It is also important to unpack the prevalence and nature of visual impairment within the Saudi context. In what follows, these important contextual backdrops are discussed, setting the scene for a rich interpretation of the literature that motivates this study.

Disability in Islam

Since this study took place in an educational setting in Saudi Arabia – a country governed by Islamic principles and where most citizens follow the Islamic faith - it is crucial to establish and discuss the Islamic view of disability in the Saudi Arabian context. Disability is not given a definition in either of the two fundamental texts of Islam: the *Qur'an* (Islam's holy book dictated by Allah) and the *Sunnah* (the ways of the Prophet Muhammad). Instead, Islamic attitudes towards all human beings are found in the *Qur'an*, Chapter 49, verse 13, "O people, we created you from the same male and female, and rendered you distinct peoples and tribes, that you may recognize one another. The best among you in the sight of Allah is the one among you most righteous (of his duty)." The idea that all people belong to one family where every person is created out of the same mother and father emphasises that this equality of biological origin should be reflected in the equality of human respect towards all (Bazna & Hatab, 2005). In the *ahadith* (the collections of recorded sayings and acts of the Prophet), the Prophet Muhammad explains this message by saying, "…verily, Allah does not look at your bodies or your appearances but looks into your hearts" (Muslim Saying, #2564). The Islamic stance towards disabled people supports the idea that disability is a natural result of the interaction between an individual's challenges and his or her social environment. Since society plays an important role in hindering disabled people, the Qur'an puts the responsibility of correcting this inequality on the shoulders of society (Bazna & Hatab, 2005).

Thus, it is central to Islamic belief and social practice to apply the moral attitude of equality towards all people, and thus to disabled people as well. This application is strongly articulated in both the *Qur'an* and the *Sunnah*. For example, in the *Qur'an* it is written that, when the Prophet Muhammad was engaged with the most influential chiefs of pagan Mecca and was in the midst of persuading them to accept Islam, one of his followers, a blind man, approached the Prophet to ask for an explanation of a passage from the *Qur'an*. The Prophet Muhammad was disturbed by this interruption of what the Prophet deemed to be a very important cause - spreading the message of Allah to all, including these wealthy influential people who could also guarantee the safety of Muslims in pagan Mecca. Thus, the Prophet Muhammad frowned and turned away from the blind man. Allah then accused the Prophet Muhammad of acting improperly and revealed the following ten verses, "He (Muhammad) frowned and turned away. When the blind man came to him. And what would make you know, [O Muhammad], that He, the blind man, may purify himself? Or become reminded so that the remembrance would profit him? As for the rich man, you gave him your attention. Even though you could not guarantee his salvation. But as for the one who came to you striving for knowledge eagerly while he fears Allah, from him, you are distracted." (*Qur'an*, Chapter 80, verses 1-10).

The accepted interpretation of these 10 verses, according to the *tafsir* (the exegetical writings of Islamic scholars), is that they show that all disabled people must be treated with respect and dignity (Imam, 2013). Furthermore, it is understood that the disabled should receive treatment equal to that given to the wealthy, the powerful, and the non-disabled. These verses also show how the right to equality for disabled people is deeply rooted in Islam. The *Qur'an* does not consider disability "as an individual's functional limitation; it rather considers that society is the main contributor to the inequality that could exist between disabled people and non-disabled people" (Bazna & Hatab 2005, p. 12).

To supplement the above point, it was also told that a blind man came to the Prophet Muhammad and said, "Messenger of Allah, I have no one to guide me to the mosque [Muslims are required to perform five daily prayers at the mosque]." He therefore asked the messenger of Allah permission to perform the prayers in his house. He (the Prophet)

granted the blind man permission. Then when the man turned away, the Prophet called to him and said: “Do you hear the call to prayer?” He said, “Yes”. The Prophet then said, “Respond to it.” (Muslim Saying, #310). This shows that all people are expected to continuously perform their religious obligations to the best of their abilities; people with specific conditions are not exempted from such responsibility, though they may receive accommodations in how they meet their religious obligations in society. Other accommodations include, for example, that in order to preserve their health, the very old, the ill, pregnant women, and nursing women are not required to fast during Ramadan (the 9th month in the Islamic calendar, during which Muslims focus on their devotion to Allah by fasting, praying more often in the day, and reading the *Qur’an*, etc.). Those worshippers with exemptions may instead perform other charitable acts or make up days of fasting when their health is restored.

Such a positive religious understanding of (temporary or permanent) disability rights and expectations should have a positive outcome for all disabled people of faith in their day to day life. It should also play an important role in promoting the equal treatment of disabled people within the faith community. In Muslim majority cultures, and in countries where the government is guided at least in part by Islamic principles (all Muslim majority countries respect the Islamic laws governing family relationships for example, even though very few follow the Islamic criminal code), these principles should be found to guide social institutions such as those of organised health care and education. Nonetheless, a clear distinction must be drawn between religiously-based norms and socio-culturally established practices. From the Islamic perspective, disability is perceived as a trial for disabled people, and if they can deal with their disability well, Allah rewards them accordingly (Alquraini, 2011). Therefore, this works as an advantage to motivate the disabled individual to persevere and put extra effort into overcoming their lifetime challenges. There are many texts like the previously mentioned verses from the *Qur’an* that reiterate the idea that people with disabilities should be empowered and can perform actions in acceptable ways without having to emphasise obstacles that they might encounter.

As Saudi Arabia is a Muslim majority country that adheres closely to Islamic principles in everyday life and in the social institutions of its citizens, these ideas are important to this

current study of VI Saudi students and their self-perceptions, as well as the accommodations provided for their learning currently, and those that might be helpful in future. For example, I observed that some VI students within the Saudi educational system consider the types of assistance provided to them as being marginal and not targeting the core of their learning. For instance, the provision of a guide to walk the VI student from one building to another on campus can be perceived as only minimally empowering if there is not also institutional support in the form of sustainable training, or well-established services to help the disabled student independently manage relatively simple day-to-day activities such as mobility orientation training around campus, and learning skills and time management taking into consideration the issues VI people have to deal with such as working with screen-readers, or braille. More significantly there is a lack of appropriately formatted books for use by screen readers, which reduces accessibility to knowledge - whether for class preparation or assignments.

Having an accessibility services office at some Saudi universities is a recent addition. Currently, these accessibility services offices offer basic support, e.g., transporting students to and from buildings inside campus. Additionally, once a semester, these offices organise some basic training in how to use Windows. There is no central policy regarding adjustments for all universities to apply. Currently, individual universities "muddle along". However, there are some efforts currently ongoing to create policies for the types of facilities that can be offered to disabled students. It is mainly, for now, individual professors who become responsible for adjustments. It is not possible to say whether these professors are generally helpful since we are dealing with individuals rather than a consistent set of rules and regulations that govern staff as regards what is considered accessible and what are accepted accommodations. Present services should go beyond the current situation by helping the student organise accommodations such as extra time for assignments, test taking, screen reading programmes, computers with these programmes in libraries, and so on. For instance, as a VI undergraduate, I was never aware that I was entitled to extra time to sit exams. At that time, many professors simply recalculated the total marks for the test in line with the portions that had been answered during the "normal" time, while others deducted marks for any questions that had not

been answered during the allotted time. Neither individual practice is acceptable and such practices are unfair for students.

Furthermore, another problem occurs when the type of help offered by the institutional social community (represented by some of its academic staff) can be clearly seen as disempowering and counterproductive. As an example, prior to embarking on the current study, I met with some VI individuals enrolled in Saudi universities who revealed their observations about cases in which some VI students were given extra high, undeserved marks out of sympathy and out of the teacher's belief that they would be helping the VI student by doing this. These VI learners expressed concerns regarding assistance that - though with the best of intentions - promotes social dependency at the expense of social agency.

In light of the above, it can therefore be claimed that Saudi university institutional and social attention to VI students is currently insufficient for their educational needs, despite the foundation of the Islamic attitude toward enabling the disabled as described above, as well as Islam's great value placed on education, and Saudi Arabia's considerable investment in education.

The research undertaken in this thesis is naturally influenced by the religious and institutional contexts in which the study was conducted. This thesis offers a closer look at the intricacies of the differences between the day-to-day experiences of the disabled, here VI students at Saudi universities, and the highly-valued religious teachings of the Book (*the Qur'an*) and the prophetic tradition (*the Sunnah*), as interpreted and applied by the institution and its well-intended community of scholars. This thesis explores how societal help offered to the disabled might backfire, even with the best of intentions and the moral values of compassion and charity if the help offered is not also based on the values of equality and holding persons to account for themselves, and based on the awareness of genuine issues of empowerment. Certain questions upon which this study has been built are designed to empirically explore the participants' perspectives on the forms of assistance offered to the VI in higher education settings in Saudi Arabia. The question of whether societal practices live up to available religious teachings will always

be in the background of the current project, as well as providing the hope that religious ideals can contribute to the motivation to implement necessary future changes.

To add further richness to the context in which the present research is embedded, it is now necessary to examine visual impairment and how it is handled within Saudi Arabia.

VI in Saudi Arabia

Vision Impairment is an important global health concern that has impacted individuals on personal, economic, and social levels (Alswailmi, 2018). Notably, there have been a good number of population-based surveys addressing VI causes and prevalence in different countries, but, thus far, such a thorough study has not been undertaken in Saudi Arabia. Nonetheless, there exist fragmented data pertaining to VI in Saudi Arabia, including data on the sub-populations affected, causes, and current activities being undertaken to address VI. However, it must be emphasised that the lack of comprehensive data on VI in Saudi Arabia constrains the development, implementation, and monitoring, as well as the assessment, of policies that would assist individuals with VI. This section presents data on VI that have been published on Saudi Arabia. It is important to note that, in Saudi Arabia, the definition of VI encompasses blindness (Al-Hamid, 2013). From the perspective of this study, knowledge about patterns of VI and responses to these patterns provide guidance in determining actual and future educational needs for Saudi VI individuals. The following provides an understanding of the patterns of VI in Saudi Arabia, and efforts being undertaken to address prevention, treatment, and education.

The Prevalence of Visual Impairment in Saudi Arabia

The prevalence of VI has been studied in different regions of Saudi Arabia, and a summary of the findings are shown in Table 1 below (Alswailmi, 2018). Based on the summary provided in Table 1, the prevalence of VI in Saudi Arabia ranges from 7% to 25.3%.

Table 1: Prevalence of VI in Saudi Arabia's Regions (Alswailmi, 2018)

Area	*Age (Years)*	*Sample size*	*Prevalence of VI*	*Major cause of VI*	*Year of publication*	*Reference*
Arar District Northern Border Region	18 and older	705	23.5%	CAT	2017	1
Aljouf Province Northern Region	18 and older	620	13.9%	RE	2011	33
Riyadh	2 – 18	5217	7%	RE	2005	34
Bisha region	All	2882	11.6%	CAT	1993	35
South Western region	All	1681	25.6%	CAT	1993	36
Al-Baha region	6-18	3590	8.8%	RE	1992	37

Although no single study has been conducted on the prevalence of VI or blindness in young people in Saudi Arabia, Ur Rehman Parrey and Alswailmi (2017) did study the prevalence and causes of vision impairment among Saudi adults in Arar City, the capital of the Northern Border Region of Saudi Arabia, in relation to age and sex. The results of their study are shown in figure 1 below. Their findings support previous studies stating that VI and blindness are more prevalent among women, and older people. The data in figure 1 also provides insight as to the differences in prevalence between blindness, low vision, and mild VI, according to age and sex.

Groups		Normal and Properly corrected	VI			Uni VI N (pre) (CI)	B/N N (pre) (CI)	All surveyed (100%)
			Mild VI N (pre) (CI)	Low vision N (pre) (CI)	Blindness N (pre) (CI)			
Gender	Male	208 (61%)	64 (18.7%) (14.8-23.4)	19 (5.5%) (3.4-8.7)	5 (1.4%) (0.5-3.5)	39 (11.4%) (8.3-15.4)	6 (1.7%) (0.7-3.9)	341
	Female	247 (68%)	51 (14%) (10.7-18)	20 (5.4%) (3.4-8.5)	7 (1.9%) (0.8-4)	32 (8.8%) (6-12.3)	7 (1.9%) (0.8-4)	364
Age	18- 30 Y	215 (73%)	31 (10.5%) (7.4-14.7)	7 (2.3%) (1-5)	2 (0.7%) (0.1-2.7)	34 (11.5%) (8.2-15.8)	6 (2%) (0.8-4.5)	295
	31-40 Y	108 (79%)	10 (7.3%) (3.7-13.4)	3 (2.2%) (0.5-6.7)	0	14 (10.2%) (5.9-16.8)	2 (1.5%) (0.25-5.7)	137
	41-50 Y	82 (75%)	13 (11.9%) (6.7-19.8)	3 (2.7%) (0.7-8.4)	1 (0.9%) (0.05-5.7)	7 (6.4%) (2.8-13.2)	2 (1.8%) (0.7-8.4)	109
	>50 Y	50 (30.5%)	61 (37.2%) (28.8-45)	26 (15.8%) (10-22.5)	9 (5.5%) (2.7-10.5)	16(9.7%) (5.8-15.6)	3 (1.8%) (0.1-4.8)	164
	Totals	455 (64.5%)	115 (16.3%) (13.7-19.3)	39 (5.5%) (4-7.5)	12 (1.7%) (0.9-3)	71 (10%) (8-12.6)	13 (1.8%) (1-3.2)	705

Abbreviations: B/N; one eye blind and other eye normal, CI; confidence interval, N; number, Pre; Prevalence, Uni VI; unilateral visual impairment, VI; visual impairment.

Figure 1 Prevalence, Sex, and Age of VI in Arar, Saudi Arabia (Ur Rehman Parrey & Alswelmi, 2017)

The Demographics for Eye Disease and VI in Saudi Arabia

Some researchers in Saudi Arabia study the patterns of eye diseases in the country that contribute to VI (Darraj et al., 2016), as well as patterns of refractive errors (Al-Tamimi, Shakeel, Yassin, Ali & Khan, 2015). However, in these studies, VI itself was not the focus of research. In 2013, it was estimated that nearly a million people in Saudi Arabia exhibited VI, with 75% blind and the remaining 25% suffering from “acute vision impairment, partial vision loss, or an ailment of the retina” – yet all of these individuals are categorised as visually blind (Al-Hamid, 2013). In comparison, according to the World Health Organisation, (WHO) (2017), at least 80% of blind people and severely VI individuals are 50 years old or older. In comparison, blindness among children, in general, is roughly 10 times lower than in adults (Alswailmi, 2018). Nearly 90% of global VI occurs in low-income settings, and at least 80% is preventable or treatable (Ur Rehman Parrey & Alswailmi, 2017). Another important statistic points to females as being at greater risk for VI compared to males (Al-Shaaln, Bakrman, Ibrahim & Aljoudi, 2011). This phenomenon is explained by the longer life expectancy in women compared to men, while, in certain countries, access to health services is also poorer for women compared to men. It must be emphasised that blindness affecting young people should remain a high priority

considering that they will live a greater number of years in blindness or in VI (Alswailmi, 2018).

The Causes of VI Among Saudi Adults and Youth

Again, there is no singular, population-based study on the causes of blindness in Saudi Arabia. Rather, there are fragmented data about what causes blindness or VI. The only study conducted on this topic was undertaken back in the mid-1980s, through a community-based blindness survey to determine the prevalence of the main causes of blindness and VI (Sommer, 1986). It was found that 1.5% of the population are blind, while 7.8% are vision impaired (Sommer, 1986). Blindness was mostly caused by eye disorders, namely, cataracts, trachoma, non-trachomatous corneal scars, refractive errors, congenital anomalies, and glaucoma, while some blindness was caused by errors in surgery (Sommer, 1986). Unilateral loss of vision was caused by refractive errors, amblyopia, and trauma (Sommer, 1986).

At the turn of the 21st century, the most common causes of blindness or VI were cataracts, trachoma, corneal scars, refractive errors, over the counter topical medications, and ocular conditions (Tabbara, 2001). Now, twenty years after the millennium, there seems to have been a shift in causes. For example, congenital cataracts are very common among children and adolescents, and are the primary cause of VI in the Northern region, as well as in the South-western region, as seen in Table 1. Uncorrected Refractive Errors (RE) are the leading cause of VI among adults in Northern Saudi Arabia, as set out in Table 1, as well as the leading cause of VI in the school children of Qassim Province (Aldebasi, 2014). There is also high prevalence of RE in Jazan (Al-Tamimi et al., 2015) and Al Hassa (Al Wadaani, Amin, Ali & Khan, 2012). Though glaucoma is the third major cause of global blindness, it is the second leading cause of irreversible blindness in Al Baha, Saudi Arabia (Alghamdi, 2016). All these data are summarised in Table 1 above.

Once again, there is no singular study about the causes of blindness or VI in young people in Saudi Arabia, except for one on participants born before 1962 (Tabbara & Badr, 1985). More recently, Tabbara, El-Sheikh and Shawaf (2005) conducted a study on 5217 children aged between 2 and 18 years old at a referral centre in Riyadh, Saudi Arabia, 2% of whom were blind and 5% of whom had VI. The researchers found that the most common causes

of bilateral blindness were optic nerve diseases, retinal disorders, and cataracts, while the leading causes of unilateral blindness were trauma, retinal diseases, refractive errors, and optic nerve diseases (Tabbara et al., 2005). The major causes of bilateral VI were RE, corneal disease, retinal disorders, cataracts, and congenital nystagmus (Kotb et al., 2007). Approximately 70% of 53 patients with bilateral blindness had congenital disorders, as did 56% of 93 patients with VI (Tabbara et al., 2005). A similar study was conducted by Kotb, Hammouda and Tabbara (2007) who sought to determine the causes of blindness in 217 students enrolled at a special educational institution named The Al Noor Institute for the Blind in Riyadh, Saudi Arabia. The researchers found that, of the 217 children, 89% were blind due to inherited diseases or congenital disorders, while 11% were blind because of acquired diseases (Kotb et al., 2007). The primary causes of bilateral blindness in the children "were retinal degeneration, congenital glaucoma, and optic atrophy" while "the most common acquired causes of childhood blindness were infections and trauma" (Kotb et al., 2007, p.7).

Addressing VI and Blindness in the Saudi Arabian Context

In 2006, a study on the state of low vision services in Saudi Arabia conducted by Alotaibi revealed a great need for (improved) services. Indeed, Alotaibi (2006) found that, of 75 eye care centres in Riyadh, Saudi Arabia, 95% of hospitals and private eye clinics did not provide low vision services. Moreover, 75% of individuals with low vision were given care by ophthalmologists, while 25% received care from optometrists (Alotaibi, 2006). However, many of the participants in Alotaibi's study had not even had specialist training in low vision care. Nevertheless, all the survey participants conceded that low vision services are needed in Saudi Arabia.

By 2013, it appeared as if the Saudi Arabian government had been seeking to improve or supplement care services for individuals with vision problems. According to The International Agency for the Prevention of Blindness (IAPB, 2013), significant achievements have been made in the improvement of eye health in Saudi Arabia, with the government obtaining both political and economic support for the endeavour. Although there is a lack of empirical data pertaining to the state of vision-related services in Saudi Arabia, it has been reported that a Global Action Plan is currently in place, with

Saudi Arabia committing to evidence-based planning for eye care (IAPB, 2013). Saudi Arabia's Ministry of Health (MOH) collaborated with the National Prevention of Blindness Committee (NPBC) in order to undertake evaluations of preventable blindness, as well as diabetic retinopathy in three regions of the country (IAPB, 2013). This has led to the development of a national strategy for screening and combatting diabetic retinopathy. Hajar, Al Hazmi, Wasli, Mousa and Rabiu (2015) studied the causes and prevalence of blindness and diabetic retinopathy in Southern Saudi Arabia. The researchers found that, out of a sample population of 3800, 20% had VI caused by posterior segment diseases, including DR (Hajar et al., 2015).

In addition, Saudi Arabia's new primary health care policy incorporates the prevention of blindness and deafness, with budget allocation to train health professionals to deliver eye care services (IAPB, 2013). This policy seeks to deliver a continuum of eye care, containing a five to ten-year programme that covers "screening for Retinopathy of Prematurity (ROP), pre-school vision, diabetic retinopathy, glaucoma and cataracts" (IAPB, 2013). As of 2013, Saudi Arabia's MOH sought to establish four additional eye centres in the country in order to provide these services. The MOH has also relaunched its Prevention of Blindness (PB) unit in light of new data pertaining to blindness caused mainly by DR and has expanded the geographical reach of these services. In 2013, the government allocated $2.66 million for blindness prevention in relation to DR screening, developing protocols for glaucoma, ROP, as well as pre-school screening and increased research endeavours (IAPB, 2013).

Unfortunately, there is no recent population-based study on the prevalence of Visual Impairment in Saudi Arabia, but earlier studies show that it may range from 7% to 25.3% of the population. Women are at greater risk for VI, as are individuals from lower socio-economic backgrounds. The main causes of VI in Saudi Arabia are uncorrected Refractive Errors (RE), cataracts, and glaucoma. In children, the major causes of bilateral VI are RE, corneal disease, retinal disorders, cataracts, and congenital nystagmus. The Ministry of Health has responded to the prevalence of VI in the country only recently. As such, the MOH has already developed a Global Action Plan that contains evidence-based planning for eye care. Special attention is given to DR. A significant gap in the literature has been

uncovered in this respect, and with regards to the educational needs of people with VI in Saudi Arabia and how to best help them.

This thesis now turns to an extended and critical literature review of concepts, frameworks and theories important for the justification of this study, and the interpretation of its results.

Chapter 3: Literature Review

Introduction

This study investigates the impacts of inclusive technology on the self-efficacy beliefs of college-level, vision-impaired (VI) EFL students. This literature review explores theories, concepts and research pertaining to five variables investigated in this study: vision impairment in college-level EFL students, self-efficacy, human agency, performance, and inclusive technologies. Along the way, relevant literature on technologies and E-books for learning is also raised, particularly in section 3.7. Self-efficacy is crucial to learners because it impacts behaviours towards choice of tasks, effort, emotions, cognition, goals, persistence, and achievement in relation to learning, particularly in EFL (Asakereh & Dehghannezhad, 2015; Baleghizadeh & Masoun, 2013; Bandura, 1986; Bong & Skaalvik, 2003; Bonyadi, Nikou & Shahbaz, 2012; Nisbet, Tindall & Arroyo, 2005; Tilfarlioglu & Cinkara, 2009; Wang, Kim, Bong & Ahn, 2013). Moreover, self-efficacy is a determinant of language learning achievement, a form of performance (Hsieh, 2008; Mills, Pajares & Herron, 2007). Learners with high self-efficacy beliefs usually perform goal-oriented actions and possesses generative capability (McCombs, 2001). Meanwhile, based on studies of self-efficacy, the related concepts of agency and performance in VI people are important for education. Understanding self-efficacy, agency and performance is essential for the exploration of learning in VI students as many of them lag behind their sighted peers in learning English, reading fluency, vocabulary, and concept development (O'Donnell & Perla, 1998; Emerson, Holbrook & D'Andrea, 2009; Tobin & Hill, 2012). An important explanation for this is that the majority of VI learners attending regular classrooms lack enough supports for learning (Giesen, Cavenaugh & McDonnall, 2012). Learning supports are naturally important to this student population because they provide opportunities to achieve comparative levels of academic performance to non-disabled peers (Giesen et al., 2012). One example of such learning supports are inclusive technologies, designed for people rather than for disabilities (Foley & Ferri, 2012, p. 198). Finally, and crucially, for the contribution of this thesis, there is a need to study the five variables addressed here within Saudi Arabia due to the dearth of empirical knowledge regarding this specific research context.

Self-Efficacy Beliefs: Definitions, Origins and Current Understanding

Based on Social Cognitive Theory (SCT), self-efficacy refers to an individual's judgment of, or belief in, his or her capability to undertake a given task at a specific level (Bandura & Schunk, 1981). Self-efficacy is key to an investigation of college-level, VI EFL students because it can facilitate adjustment to vision impairment (Pinquart & Pfeiffer, 2011). Moreover, self-efficacy, aside from being a predictor of learning a new language, is positively associated with achievement as defined by course grades in that target language (Hsieh & Schallert, 2008; Mills, Pajares & Herron, 2007). Indeed, a person's self-efficacy beliefs are related to the fulfilment of their goals, and the degree of self-confidence that they have in solving problems and overcoming obstacles.

Researchers contend that there is a strong positive relationship between learning and self-efficacy beliefs for English as a second language (Bong & Skaalvik, 2003; Nisbet, Tindall & Arroyo, 2005; Tilfarlioglu & Cinkara, 2009; Wang, Kim, Bong & Ahn, 2013). Learners with strong self-efficacy beliefs are usually willing to overcome setbacks, while those with weaker self-efficacy tend to believe that the tasks they encounter are beyond their capability and knowledge (Bandura, 1999; O'Donnell, Reeve & Smith, 2009). Hence, they do not exert as much effort in completing a task as compared to those with strong self-efficacy.

Self-efficacy is often described as an agentic concept (Bandura, 1982; 2000). Human agency here refers to an individual's capacity to coordinate their learning skills, emotions and motivation so that they can achieve goals and objectives (Bandura, 1982). Bandura (1989) notes that, of all the "mechanisms of personal agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over events that affect their lives" (p. 1175). In other words, the foundation of human agency is self-efficacy. Bandura (2000) explains that individuals produce experiences and shape events. The reason why he considers self-efficacy to be the foundation of human agency is as follows: unless a person believes that he or she *can* produce desired effects and eliminate undesirable ones through his or her own actions, that person will not be motivated to act. Bandura's (2000) perspective implies that the intersection between self-efficacy and

agency is associated with performance. According to some scholars and researchers (see Ng & Lucianetti, 2016), this intersection between self-efficacy and agency can lead to better performance in the form of enhanced innovative behaviour.

It is important to note that students use different skills, processes and strategies in order to learn (Prat-Sala & Redford, 2010). These strategies are influenced by several socio-cognitive factors which, in turn, impact academic performance. Self-efficacy is one of the factors that have been identified as positively associated with the approaches that students use in studying, as well as their self-regulated learning (Prat-Sala & Redford, 2010). Meanwhile, as noted above, it is not uncommon for VI students to lag behind their non-disabled counterparts in areas such as learning English, reading fluency, vocabulary, and concept development (O'Donnell & Perla, 1998; Emerson, Holbrook & D'Andrea, 2009; Tobin & Hill, 2012). In relation to this, VI students, especially adolescents, have weaker self-concepts, and poorer self-esteem compared to their sighted peers (Levin & Rotheram-Fuller, 2011). These issues are exacerbated by the severity of their vision impairments. Hence, there is a tendency for them to engage less in goal-directed, self-regulated and autonomous behaviour that significantly impacts performance (Levin & Rotheram-Fuller, 2011).

These are not the only issues that VI students must overcome. On a daily basis, many VI students strive to learn using conventional educational materials (Lewis, Corn, Erin & Holbrook, 2003; Hersch & Johnson, 2008). Studies investigating the different learning challenges that VI students face list accessing information as well as inclusion in the educational setting as challenges (Ketterlin-Geller & Tindal, 2007; Hersch & Johnson, 2008; Leventhal, 2008; Sapp, 2009; Babu & Singh, 2013). Among VI ESL/EFL students, learning challenges are caused by impairment problems that may have been affecting them since childhood. Examples of these learning challenges are (i) inadequate experience in the social use of language because of vision impairment; (ii) inability to tell if a conversational partner is listening, initiating a conversation or determining the interest level of a person to whom one is talking; (iii) poorer semantic associations; and (iv) difficulties in the separation of language formation from the formation of basic cognitive concepts (Warren, 1994). Just as importantly, it is also not uncommon for VI students to deal with inadequate access to appropriate technologies (Zhou, Parker, Smith

& Griffin-Shirley, 2011; Siekierska, Labelle, Brunet, McCurdy, et al., 2003). Because of these factors, VI students' potential for learning is severely impacted.

There is a need to call attention to the importance of access to assistive technologies. Here, the concept of universal access, which triggers various connotations, is of great importance. Notably, the term *universal access* is considered by some as "a new, politically correct term, referring to the introduction of 'special features' for 'special users' in the design of a product" (Stephanidis, 2001, p. 159). However, for people with disabilities, universal access can be a deeply meaningful and rich topic that highlights what designers consider as "good user-based design", meeting the needs of all potential users (Stephanidis, 2001, p. 159). The relationship between access and assistive technologies is grounded within laws seeking to enhance access to basic communications products and services, such as telephones, telegraph, and radio services[1] (Stephanidis, 2001). These laws ensure that providers of the relevant products and services have adequate facilities and bill reasonable charges, such that discrimination based on race, colour, religion, nationality, or sex is prevented.

For many other people with disabilities, access is linked to endeavours to provide and facilitate access to the built environment, especially for individuals with functional disabilities (Stephanidis, 2001). According to Stephanidis (2001), accessibility problems have historically been considered as concerned with the field of assistive technology so that people with disabilities can make use of everyday products and services. However, because of its perceived small size, the field of assistive technologies continues to be largely under-served by technological change. For instance, the transistor radio took many decades to become embedded into hearing aids. Today, with the advent of the digital computer, and its broad penetration into social activities, the accessibility issue has re-appeared. For example, both disabled and elderly people still face serious problems in terms of accessing computer-based assistive devices.

[1] Of course, the technologies mentioned here are somewhat dated, but the sentiment of the quote is still relevant.

Recently, accessibility has resurfaced as an important quality target in the context of the emerging information society and digital age. This is not only because of evolving world views on disabled people, but also because of the pace of technological change, which, in many instances, delivers products and services that require specific skills and abilities on the part of the human user. For example, such products and services require experience in the use of advanced technologies. Thus, due to recent technological developments, there are members of society that may be confronted by accessibility problems not only applicable to the disabled and the elderly population, but everybody else, too.

Accordingly, access to assistive technologies may refer to the global need to cope with diversity in (i) the target user population, encompassing people with disabilities, as well as their individual and cultural differences; (ii) the scope and nature of tasks; and (iii) the technological platforms and the impacts of their spread into business and social endeavours (Stephanidis, 2001).

In recent years, universal access has also been considered from a different perspective whereby it "recognises, respects, values and attempts to accommodate a very wide range of human abilities, skills, requirements and preferences in the design of computer-based products and operating environments" (Stephanidis, 2001, p. 160). Universal access also embraces the beliefs that any design of software, hardware or webpage ought to be completely accessible, or, usable by all members of society (Burgstahler, 2015). This perspective is extremely important to the concept of inclusive technologies adopted in this dissertation. Moreover, this view eliminates the need for special features in products and services, while simultaneously fostering individualisation and, by extension, a high quality of interaction and, ultimately, end-user acceptability. As such, universal access is not only direct access or access through assistive technologies. It also addresses issues pertaining to content, the functionality supported by different services, "and the physical, syntactic and conceptual (semantic) characteristics of interaction" (Stephanidis, 2001, p. 160).

In recent years, increasing numbers of VI students have been using assistive technology in order to aid their learning (Allen, Leung, McGrenere & Purves, 2008; Hersch & Johnson, 2008; Hemmingsson, Lidström & Nygård, 2009; Orsini-Jones, 2009). More recently, a

paradigm shift in the education of disabled students has emerged in the increased demand for inclusive technologies as a result of perceived shortcomings in assistive technologies (Foley & Ferri, 2012). The increasing popularity of inclusive technology has been attributed to “static and outdated definitions of disability and technology or conflating disability with assistive technology” (Ibid. p. 198). Consequently, there is a need to treat disability and technology “more fluidly and responsively” (Ibid. p. 198). Inclusive technology is different from assistive technology in the sense that the former is based on a “vision of accessible technology” that is “technology for people rather than for disability” (Ibid. p. 198). In other words, inclusive technology is based on the rationale that no technology should be designed only for certain people while other forms of technology should be redesigned or reworked so that they are accessible to the rest.

Although there have been studies showing the benefits that assistive technology provides to VI learners (Allen, Leung, Mcgrenere & Purves, 2008; Hersch & Johnson, 2008; Hemmingsson, Lidström & Nygård, 2009; Orsini-Jones, 2009), the same cannot be said of inclusive technologies. There is a dearth of empirical knowledge regarding the learning experiences of VI ESL/EFL students in the context of inclusive technologies. When the variables of self-efficacy, human agency and performance are factored in, it is reasonable to believe that there is even less empirical knowledge about the impacts of inclusive technology-enhanced language learning of VI ESL students.

Theoretical framework: Bandura’s Social Cognitive Theory, human agency, and the impact of self-efficacy performance

Bandura's (1986, 1997) Social Cognitive Theory is the main framework which underpins this thesis. The cornerstone of this theory is the idea that humans are proactively engaged in their own development. According to Bandura (1986), this perspective of self-regulation is an interaction of environmental, personal, and behavioural factors that influence each other in what is termed a triadic process. Social Cognitive Theory postulates that achievement relies on the interaction of personal beliefs and thoughts, behaviour, and the conditions in the surrounding environment. As Bandura (1986) asserts, "people's judgments of their capabilities to organize and execute courses of action [are] required to attain designated types of performances" (p. 391). These aspects constituting self-efficacy affect personal accomplishment and motivation (Pajares,

Valiante & Cheong, 2007). A chief characteristic of self-efficacy beliefs is that these beliefs are not explicitly concerned with students' actual skills, but rather what they believe they can achieve with those skills (Schunk & DiBenetto, 2016).

On the other hand, self-efficacy refers to an individual's confidence in his or her ability to accomplish certain tasks (Hutto & Thompson, 1995; van Dinther, Dochy & Segers, 2011; Prat-Sala & Redford, 2010). According to Bandura (1997), self-efficacy beliefs impact people's cognitive processes, as well as their emotions, motivations and behaviours. People with high self-efficacy tend to persevere despite difficulties in achieving tasks or goals. As discussed earlier, compared to individuals with low levels of self-efficacy, those with high levels of self-efficacy beliefs are more intrinsically motivated to perform tasks even if those tasks are challenging. Moreover, they are less likely to feel frustration in the event that they fail, and they are also more resilient than those without a strong sense of self-efficacy. Those individuals lacking in high self-efficacy tend to select activities in which they consider themselves competent and avoid those in which they do not feel competent. This means that people with the same level of skill may produce varying outcomes on certain tasks if they have different levels of self-efficacy (Bandura, 1997). In other words, self-efficacy impacts the choices that people make, their behaviours, the effort that they dedicate to undertaking tasks, and the extent of their perseverance, as well as flexibility in how they perform tasks (van Dinther et al., 2011).

The resilience intrinsic to those with higher-self efficacy is confirmed by Blake and Rust (2002). They investigated self-esteem and self-efficacy among undergraduate and graduate students with both learning and physical disabilities. The authors (2002), contrary to expectations, found that "self-esteem and self-efficacy measures were the same as or higher than the normative sample" (p. 217). They attribute this to several factors including that students with disabilities have had to overcome many challenges - in particular to gain entry to university. Attending university is an accomplishment for anybody, but for those with a disability, the obstacles and challenges are greater than those of the average person. They develop greater resilience and, therefore, such students have greater self-efficacy.

Self-efficacy arises from four main sources of information. These are “enactive mastery experiences, vicarious (observational) experiences, social persuasions, and physiological and psychological states” (van Dinther, et al., 2011, p. 98). Enactive mastery experiences are defined as successfully dealing with a specific situation (Bandura 1997). According to Palmer (2006), these experiences are the most powerful contributors to strong self-efficacy because they provide actual evidence of the capability to succeed in a task. However, a strong sense of self-efficacy is made possible not through easy successes, but by overcoming obstacles with persistence and effort (Bandura 1997). Mastery experiences, which include successful learning experiences and positive outcomes in students' performances, are regarded as the most powerful and reliable sources of the individual's self-efficacy beliefs (Bandura, 1997; Usher & Pajares, 2008).

Observational experiences constitute vicarious experiences because information is obtained by students about their own capabilities by observing peers, specifically those peers who are deemed suitable comparisons (Schunk, 1987). This source of self-efficacy can be detrimentally affected by students following students who fail (Schunk, 1989). Vicarious self-efficacy does not affect students as strongly as enactive mastery experiences do. Nevertheless, it has a greater negative impact on those with little mastery experience or those who are uncertain about their capabilities because they are more sensitive to this (Bandura, 1977).

Social persuasion assists students in developing their self-efficacy beliefs through evaluative feedback and persuasive communication when this is provided by people whom students regard as reliable and knowledgeable (Bong & Skaalvik, 2003). Verbal persuasive feedback, however, has a limited effect in engendering a lasting, robust sense of self-efficacy, whereas positive persuasory feedback contributes to a heightened sense of self-efficacy (Schunk, 1991). The fourth source of self-efficacy is drawn from emotional, mood and physiological states. Experiencing feelings and sensations such as tension, excitement, stress and anxiety can be viewed as signals of failure, while positive moods strengthen self-efficacy. These states are partly relied upon by people to determine their capabilities by interpreting and perceiving this information (Pajares, 1997). For instance, being in a state of tension can be interpreted by a student with high self-efficacy as energising, a boost which will aid them in their performance, while those with a low sense

of self-efficacy may experience self-doubt and, therefore, interpret their state of tension as a weakness.

Information about self-efficacy derived from these four sources does not directly influence self-efficacy, because, according to Bandura (1977, 1986), this is appraised cognitively. In this cognitive appraisal, students consider contextual factors such as effort expended, support, task difficulty, outcome of task, successes and failures, and their perceived similarity to their peers (Schunk 1989, 1991). The information selected constitutes the basis for interpretations of self-efficacy and the measures students utilise for combining and weighting them. According to Pajares (1997), it is those interpretations that are made because of students' performances or activities that provide the necessary information upon which self-efficacy is predicated. Earley (1994) has examined how cultural background may be related to where people search for self-efficacy information. Earley maintains that social cognitive theory has cultural limits and the level of influence of the source of self-efficacy information depends on cultural values that are personal, such as those that value collectivism or individualism. Thus, students will derive their self-efficacy beliefs from their interpretation of these four sources of information in varying degrees. The current study focuses on the impact of these four sources of information to determine which has the most prominent effect on the students' self-efficacy beliefs.

Self-efficacy and agency

Bandura (2000) explains that although people are partly the products of their environments, the human propensity for selection, creation and transformation of their environments also renders them producers of environments. In other words, human beings have an agentic ability for affecting or changing the course of events, including the direction which their individual lives will take (Bandura, 2000). According to Bandura (2000), based on self-efficacy beliefs, an individual can motivate and guide his or her actions. Here, it is important to note that efficacy beliefs are determinants of whether a person thinks strategically or not, and optimistically or pessimistically (Schunk & DiBenetto, 2016). Moreover, the actions and decisions that a person takes may hinge upon self-efficacy beliefs. Apart from these, self-efficacy can also be the basis of (i) goals that one establishes for oneself, as well as the commitment to the attainment of these

goals; (ii) the amount of effort that is invested in specific undertakings; (iii) the results that a person seeks to achieve through invested efforts; (iv) the length of time which one perseveres in spite of difficulties; (v) resilience to adversity; (vi) the levels of stress and depression from which an individual suffers when dealing with challenges; and, (vii) the accomplishments that are eventually achieved (see Schunk & DiBenetto, 2016 for a full discussion).

To recap, self-efficacy is an agentic concept. Usually, human agency is considered as the personal agency which is an individual practice. However, personal agency is not the only agentic way in which an individual deals with events impacting their lives. Social cognitive theory makes a distinction between three different forms of agency: personal, proxy, and collective (Bandura, 2000). Theories and research concerning human agency have tended to focus on its direct application, as well as the "cognitive, motivational, affective, and choice processes through which it exerts its effects" (Bandura, 2000, p. 75). However, in many undertakings, a person does not have real control over social factors and institutional practices impacting their lives.

Bandura (2001) emphasises that personal agency falls within the realm of the general network of socio-structural forces. In contrast with the common belief that enhanced self-efficacy that is manifested through greater engagement in agentic behaviour indicates an individualistic propensity, human agency has a collectivistic perspective that is compatible with self-efficacy. For example, a person with strong self-efficacy beliefs may strive to exceed their performance levels in order to achieve broader collective goals, provided that they believe the collective goals are personally important. This is naturally relevant to this thesis, hence the discussion here.

Looking beyond one's goals means that some people seek to attain well-being and security by exercising proxy agency (Bandura, 2000). Proxy agency exists when an individual seeks to influence others endowed with expertise, power or influence to act on his or her behalf in order to attain a desired outcome. Proxy control is also useful when a person does not want to be burdened by heavy work that enables the development of competencies. Under these circumstances, an individual's pursuit of personal control deteriorates (Bandura, 2000). Bandura (2000) also explains that, because people have to

interact and cooperate with one another in order to accomplish what they cannot do on their own, Social Cognitive Theory broadens the concept of human agency to collective agency (Bandura, 2000). Notably, a key component of collective agency is the set of beliefs that people share regarding jointly producing desired collective outcomes. Beliefs play a crucial role in this thesis, and this is the reason for their exploration in this section.

People's shared beliefs in their collective efficacy can determine the (i) attributes of the future that they aim for through collective action; (ii) the effectiveness through which they allocate their resources; (iii) how much effort they invest into the group effort; (iv) their perseverance in the event of failure to meet desired outcomes; and (v) vulnerability to disappointments that collective action plagues people who have taken on difficult social issues. To note, this study examines the intersections between self-efficacy, agency and performance in the context of EFL learning in VI students. The interrelationships between these three concepts are discussed in the next section.

Self-efficacy, agency and performance

As mentioned earlier, Bandura (2001, 2006), states that an agentic individual intentionally makes things happen through his or her actions. Therefore, precedents of agentic acts are intentionality and foresight. As Social Cognitive Theory (Bandura, 1977, 1997, 2001) addresses cognitive beliefs that underpin agentic action, it is a perspective from which innovative behaviour may be analysed. Janssen (2004) emphasises that innovative behaviour involves the intentional creation, introduction, and application of new ideas, highlighting the fit between Social Cognitive Theory and innovative behaviour research.

Bandura (2012) highlights that self-efficacy beliefs vary across activity domains and situational conditions and do not manifest uniformly across contexts. He (2002) asserts that a person becomes more motivated to expend resources and effort when they increasingly believe that said effort will lead to successful performance or rewards. Individuals with increased self-efficacy beliefs related to different domains of their innovative capacity are increasingly likely to engage in innovative behaviour that complements those beliefs. For example, Social Cognitive Theory would suggest that individuals who experience growth in creative self-efficacy, which is the self-view that one has the ability to produce novel ideas (Tierney & Farmer, 2002), are increasingly likely to

engage in idea-generation behaviour and persist in the face of setbacks (Sadri & Robertson, 1993). Indeed, between-individual research has discovered a relationship between creative self-efficacy and idea generation (e.g., Liao, Liu, & Loi, 2010). The individuals participating in this study have faced a number of challenges in their education and have likely had to be creative in their problem-solving and this justifies the discussion here.

The relationship between educational setting and self-efficacy

Self-efficacy in the educational setting has been the focus of increasing scholarly attention in recent decades. Studies have shown that self-efficacy is positively associated with students' motivation and learning levels by influencing students' interest in tasks, the goals that they establish for themselves, the choices that they make, as well as their self-regulatory strategies (Prat-Sala & Redford, 2010; van Dinther, et al., 2011). A lack of self-efficacy can lead students to avoid tasks, make excuses about not being able to finish them, or generally dread having to undertake tasks or activities that they cannot perform. There have also been studies regarding the relationships between self-efficacy and academic achievement at the primary, secondary, and tertiary levels, encompassing subjects such as reading, writing, mathematics, and computing science at varying levels of ability (Bouffard-Bouchard, 1990; Zimmerman, 2000; Pajares, 2003; Schunk, 2003; Carmichael & Taylor, 2005). These studies have shown that students' self-efficacy directly and indirectly impacts their achievements in terms of grades and ability levels. Those who are self-efficacious can achieve their goals, while those having low self-efficacy beliefs find it more difficult to attain their goals or are more likely to be unable to achieve them. Indeed, self-efficacy has been shown to be a determinant and mediator of students' achievements, motivation and learning. Moreover, student self-efficacy serves as mediator between competence and subsequent performances (Schunk, 2003).

Self-efficacy has also been studied in the context of EFL. Self-efficacy can determine the strategies students use in relation to the acquisition of a second language (Magogwe & Oliver, 2007; Jabbarifar, 2011). However, the association between proficiency and strategy use is dependent upon the type of strategy that a learner uses. There are also studies attesting to the importance of assistive devices in the learning of VI students

(Kelly, 2009; Li, Ajuwon, Smith, Griffin-Shirley, Parker & Okungu, 2012). A study in the American setting shows that, when VI students are provided with the opportunity to use assistive technologies in the classroom, there is a resultant improvement in their dependency and numeracy skills so that they are able to achieve the objectives targeted by their Individualised Education Programme (IEP) (Li et al., 2012). Considering that these learners lack significant use of the vision sense, it is reasonable to replace this loss or lack with an assistive tool. There are also resultant improvements in course grades and better scores on standardised tests. However, Kelly (2009) states that not many VI students have opportunities to use technology that would potentially enhance their learning, even though such technologies are widely available on the market. In other words, even in industrialised countries, not many VI students are experienced in using technology to improve their learning. This reality may be unfortunate but is not hopeless because the technology is available. What is vitally necessary is to increase access, and to introduce this technology to the educational setting.

Moreover, still from the perspective of EFL, successful interaction with course materials may be expected to raise self-efficacy for this specific course. Conversely, students who have been unable to interact with the materials successfully - thus lacking former successful experiences - may be expected to have low self-efficacy for successfully passing this course. However, it should be emphasised that these beliefs represent the student's interpretations of his or her failures or successes, rather than an objective indication of failures or successes, and this best predicts self-efficacy beliefs (Pajares, 1996). For instance, students' self-efficacy beliefs might not significantly change when they are unsuccessful in engaging in a specific course if the students attribute their failure to external factors, such as an inability to access the course book due to a lack of access to the necessary software, rather than a lack of required skills and knowledge.

Although not as influential as enactive mastery experiences, students can nurture their self-efficacy beliefs through observing and interpreting the performances of other students like them (Bandura, 1997; Klassen, 2004). Watching a classmate successfully access course requirements with whatever technology he has may increase one's self-efficacy beliefs for that course. Similarly, observing a classmate who constantly struggles with the course requirements may diminish one’s self-efficacy beliefs. Seeing the

performance of a classmate with similar ability is considered a powerful source of influence (Usher & Pajares, 2008). It is believed that vicarious experiences might be useful for students who doubt their own abilities, and for those with limited mastery experiences (Joet, Bressoux & Usher, (2011).

Vicarious experiences are significant because they depend on a student's identification when other students like him fail or succeed. The perception that their circumstances and abilities are similar lead to an increase in the student's self-efficacy beliefs when the observed peer succeeds. In other words, the self-efficacy beliefs of a VI college student taking English as a freshman can be boosted by observing another VI student in the same class who excels in the course (see Schunk & DiBenedetto, 2016). It will be interesting to see how the role of vicarious experiences unfolds during my fieldwork for this thesis.

Self-efficacy as a crucial determinant in vision impairment

More recently, Pinquart and Pfeiffer (2011) note that self-efficacy is a crucial determinant in adjustment to vision impairment. Indeed, adjustment to vision impairment may be partly determined by realistic expectations about one's competencies. Considering that self-efficacy is usually formed according to self-evaluations of previous performances, it is possible that past self-efficacy beliefs may no longer be realistic when an individual's vision declines. Among people with congenital vision impairment, developing realistic expectations of one's competencies is essential. Young people need to know whether they can achieve goals their peers typically achieve, such as passing tests for a driving license. Analysing the concept of self-efficacy in people who have vision impairment is significant for blindness education and rehabilitation since an increase in self-efficacy beliefs can potentially promote skilled behaviour as well as academic and professional success and well-being. This is vital information for being able to suggest best practice to educational institutions needing to better serve VI individuals.

The VI student, therefore, is confronted with myriad challenges in the context of learning. For those whose conditions are not congenital, full adjustment to blindness or vision impairment is a continual process (Roy & MacKay, 2002; McKenzie, 2009; Kamei-Hannan, Holbrook & Ricci, 2012). A recent study (Shogren, Kennedy, Dowsett & Little, 2014) notes that there is a strong relationship between self-concept and outcomes in students with

disabilities. However, the authors point out the complexities of targeting interventions for such students, as the type of support offered may not suit students whose experience is incongruous with the factors that influenced the choice of intervention or support. For instance, socioeconomic and racial and ethnic diversity must be factored in when considering such support programmes or interventions. Just as importantly, Shogren et al. (2014) claim that subsequent research must look to develop "systematic strategies that allow for the assessment and cataloguing of multiple factors that impact self-determination" such as community and school contexts that are of importance to "individual students and their families" (p. 229). In other words, a one-size fits all program or intervention is not the solution. While this study addresses cognitive and sensory disabilities and emphasises the need for individualised support and intervention, it does not address the specific needs of each sensory disability such as vision impairment. Nevertheless, there is an important contribution in that this work emphasises the importance of contextual factors impacting on the self-concept of students with disabilities and how these can be addressed more decisively.

A psycho-social view of this continual process of adjustment is that some students will develop personality problems, anxiety regarding their family relationships, as well as dissatisfaction with their academic achievement and activities (Dawn, 2011; Tobin & Hill, 2012). Some students, in noticing their delays in academic achievement compared to their sighted peers, lose the motivation to continue to learn. Other factors can exacerbate the loss of motivation in learning, e.g., when VI students are made to feel different by their peers. In college, a lack of resources and failure to accommodate VI students' needs may be decisive factors in VI students' ability to achieve academic outcomes. In fact, in some instances, instructors may not be aware of a student's disability unless it is highly visible, e.g., requiring the use of a wheelchair or a cane. In such instances, in order to have their needs met, VI students often have to consult with liaison officers through formal channels while their instructors often remain unaware that they are teaching students with a disability, as the student is not required to disclose it to anyone else. There are also students who organise their own adjustments informally by negotiating directly with instructors without having to provide any documentation. However, this sometimes leads to accusations of favouritism from other students. Often, students with

disabilities will downplay their disability status due to perceived stigma (Barnard-Brak, Lan & Lechtenberger, 2010). For example, a blind student may prefer to say nothing about his/her disability unless disclosure was necessary for access to assistive technologies, while another student with low vision may prefer to go without adjustments to not disclose (Barnard-Brak et al., 2010). In the 1990s, in the United States, only 1 to 3 percent of all freshmen requested accommodations for their disability, despite the fact that more than 9 percent actually reported having disabilities (Henderson, 1995). All such factors may also impact self-efficacy beliefs. What would be of interest in such studies are the attitudes and perceptions of faculty towards students with disabilities, in particular towards blind and VI students, in order to de-stigmatise disability and to prepare classes and classrooms with the necessary resources. For example, Orr and Hammig (2009) note that most faculty rely on student disability offices on their campus to prescribe recommendations for adjustments for students with disabilities who seek support. However, this is not always beneficial for students with disabilities because these "retroactive adjustments generally do not address barriers embedded within the curriculum design and may or may not increase faculty understanding of best practices" (Orr & Hammig, 2009, p. 182). Moreover, not every aspect of curriculum development and design can be made accessible prior to delivery, for example, live streaming video used for language learning such as a news item that does not have audio description.

Research has also shown that the type of educational setting, the climate in school, and ongoing social relationships within recurring social settings, greatly affect the well-being of VI students (Dawn, 2011). As already noted, one way that students with VI can lag behind their peers is when they are in an environment where other students are intolerant or insensitive to their different needs.

Overall, academic engagement and achievement are two important dimensions in students, VI or sighted. These two factors play important roles in shaping a young student's self-esteem, identity and self-concept (Dawn, 2011). For college students, self-esteem is reinforced by academic success. However, some VI students feel overwhelmed by the adjustments needed for college education. They experience frustration, depression, and the desire to discontinue their studies (Hutto & Thompson, 1995). In fact, even for students with normal vision, the demands of college exert much pressure as this

phase in life prepares them to subsequently enter the workforce. For instance, Parry and Brainard (2010) write that around 75,000 students are vision-impaired in the United States. While colleges would not consider constructing new buildings without ramps or elevators to accommodate those with mobility difficulties, VI students are denied equal learning opportunities because colleges do not provide the necessary technology to enable them to fully participate in lessons. That VI or blind students have specific requirements should be self-evident, yet it still takes a court case to determine the responsibilities that educational institutions have towards such students. A recent example is the consent decree agreed to between the National Federation of the Blind on behalf of two blind students and Atlantic Cape Community College (Danielsen, 2015). The students alleged discrimination by the college, which insisted that they must always have an aide on campus instead of providing them with learning aides designed for their needs such as accessible eBooks and textbooks.

As such, many VI students struggle daily with the use of conventional educational materials that do not always enhance their ability to produce the necessary academic outcomes (Lewis et al., 2003; Hersch & Johnson, 2008). This has prompted numerous studies whereby frameworks relevant to vision impairment are analysed and which also emphasise the multiple challenges VI students face in terms of college education, including accessing information and inclusion in the educational setting (Hersch & Johnson, 2008; Ketterlin-Geller & Tindal, 2007; Leventhal, 2008; Sapp, 2009; Babu & Singh, 2013). Other research also points to the daily and long-term challenges confronting VI students because of inadequate access to appropriate technologies (Zhou et al., 2011; Siekierska et al., 2003). This is in a context where VI learners may continue with their college education by harnessing technologies that enhance learning experiences (Waller, Hanson & Sloan, 2009; Foley & Ferri, 2012).

Self-efficacy and language learning

Towards the latter part of the 20th century, the science of human motivation came to be defined by a focus on conscious cognitive processes, including self-efficacy beliefs, as well as the goals and expectations that determine action and behaviour (Dörnyei & Ushioda, 2011). As mentioned earlier, self-efficacy beliefs serve as the foundation of human

agency. Therefore, people, and by extension, students, are motivated to persevere in their endeavours in the face of difficulty, especially if they believe that they can achieve their desired outcomes. Regardless of whether other factors are at play generally, people with robust self-efficacy strongly believe that their desired outcomes can be achieved through their own efforts (Dörnyei & Ushioda, 2011). In addition to this, Matthews (2010) explains that a person with strong self-efficacy beliefs, when faced with challenges, tends to persist more, expends more effort, and harnesses better use of learning strategies compared to one who does not. At the other end of the spectrum, students with low self-efficacy beliefs in a specific subject tend to devalue that subject, may opt not to participate or invest effort in learning, and may consider themselves lacking in the ability to perform well in it. Therefore, self-efficacy belief is a predictor of learning and achievement in academic, as well as other settings.

Dörnyei and Ushioda (2011) emphasise that self-efficacy beliefs are merely indirectly associated with actual competence and abilities. They hold that such beliefs result from complex processes involving self-persuasion, which, in turn, depend on a person's cognitive processing of different sources. These may take the form of feedback, the opinions of others, encouragement, and past experiences, as well as training. From this perspective, self-efficacy in language learning may be linked to self-worth theory. According to Dörnyei and Ushioda (2011), self-worth theory focuses on the critical significance of a learner sense of competence or ability in influencing motivation in educational or any other achievement contexts. Likewise, learners perceived competence or ability is a main feature of self-efficacy beliefs and attributional processes (Ibid.).

According to self-worth theory, students have high motivation to maintain an important sense of worth and personal value, particularly in the face of failure, negative feedback and competition (Dörnyei & Ushioda, 2011). This fundamental need for self-worth leads to the development of distinctive patterns of motivational beliefs, as well as face-saving behaviours in the school environment, especially when a student's self-esteem is at risk due to poor academic performance. During such scenarios, there are some students who may resort to counterproductive strategies. A student may intentionally not put any effort into studying for a course or other similar strategy because, in doing so, academic failure will be attributed to effort to learn and not to lack of ability. An example of this

would be a student who does not adequately prepare for an exam so that, in the event of failure, the lack of effort may be used as an excuse for the poor academic performance rather than admitting to oneself a lack of competence and ability. This is harmful for the student's self-concept and self-belief. These views are supported by many studies (Hsieh & Kang, 2010; Matthews, 2010; Xiao, 2014). These views are also considered part of studies seeking to understand the various language learner strategies that differentiate effective learners from less effective ones. Such studies have increasingly shown that good language learners use a range of metacognitive strategies (Graham, 1997). There is also a need to emphasise that effective learning strategies are tightly linked with motivation, although it is not clear whether the use of learning strategies helps motivation or the other way around.

Learning strategies

Language learning strategies are commonly defined as mechanisms that learners use to help them acquire, store, retrieve and use information (Yang & Wang, 2015). Apt though this definition may be, it does not convey the meaningful and useful purposes of applying learning strategies. Therefore, the definition may be expanded to refer to specific actions that learners undertake so that they can learn more efficiently and easily in a more enjoyable, self-directed, effective manner, and ultimately transfer what they have learned to new situations (Yang & Wang, 2015). In other words, learning strategies are those processes that the learner consciously and intentionally selects.

Oxford (1990) explains that language learning strategies can be categorised as direct and indirect. Direct strategies encompass memory, cognitive, and compensation strategies, whereas indirect learning strategies refer to metacognitive, affective, and social strategies. Previous studies have shown that proficient learners apply more strategies than less proficient ones (Yang & Wang, 2015). Moreover, more successful language learners employ a broader range of strategies compared to less successful ones. It is important to note that the majority of less successful learners use memorisation strategies, thereby indicating that this approach is not highly effective (Yang & Wang, 2015). Unfortunately, these less successful language learners are less flexible and less effective in their way of using strategies and applying them to their learning. Therefore,

they have a tendency to stick with memorisation even when this strategy frequently fails them. On the other hand, more successful learners consciously monitor their own learning processes and performance and strive to overcome their learning and affective difficulties (Yang & Wang, 2015). Indeed, substantial evidence exists indicating that learners' studying behaviour and reading comprehension can be enhanced through metacognitive strategies, as is discussed in coming sections.

Notably, explicit strategy training or instruction can greatly facilitate language learning (Oxford, 1990). This type of instruction seeks to increase learners' awareness - both of their current strategy use and the existence of other strategies. This is of utmost importance because, as soon as learners become aware of learning strategies and gradually become more proficient in strategy application, not only will their learning skills be enhanced, but also their language skills (Oxford, 1990). Here, strategy training or instruction refers to explicit instruction on the application of learning strategies for the promotion of the type of learner autonomy and self-direction needed for mastering the target language (Yang & Wang, 2015). Strategy training informs students about learning strategies, while at the same time giving them the opportunity to try the different strategies, so that, in the process, they gain proficiency in applying them (Yang & Wang, 2015).

Self-efficacy as defined above is vital to developing language learning strategies, including for EFL. Learning strategy instruction should be integrated into a language learning curriculum so that learners may gain knowledge about the specific functions of each language learning strategy and of promoting the application of strategy. Many studies have been undertaken to investigate the association of self-efficacy beliefs with learning strategies. For example, studies have been conducted to explore language learning strategies among EFL/ESL learners and looking at self-efficacy beliefs. Study findings show that high self-efficacy learners tend to use more language learning strategies (Magogwe & Oliver, 2007; Wang, Schwab, Fenn & Chang, 2013). Other researchers have also learned that reading self-efficacy is positively associated with reading strategies, namely cognitive, social/affective and metacognitive strategies (Li & Wang, 2010). Readers with high self-efficacy used more reading strategies than readers with low self-efficacy (Raoofi, Tan & Chan, 2012). Previous studies also show that learners with higher self-efficacy

beliefs tend to use a broader range of learning strategies compared to those who do not. In terms of instruction and interventions, tutoring sessions, deep-level questioning, explicit explanation of structural rules, as well as the consideration of a foreign language as a learnable model, can all positively impact students' self-efficacy (Matthews, 2010).

Metacognitive strategies

The phenomenon by which a student perseveres with language learning despite difficulties is known as 'motivational maintenance' (Graham, 2007). In relation to this, metacognitive beliefs pertain to students' beliefs regarding themselves as learners, a concept that is widely discussed in the literature. Notably, metacognitive beliefs are beliefs pertaining to thinking and learning (Graham, 2007). Two categories of metacognitive beliefs are agency and instrumentality.

Agency refers to learners' beliefs regarding their own abilities and competences (Paris & Winograd, 1990). A crucial aspect of agency is self-efficacy, as discussed earlier. To recap, self-efficacy beliefs are determinants of choices that people make, the level of effort that they exert, as well as their degree of persistence with tasks. As noted earlier, when a person has a high level of self-efficacy, he or she remains motivated to achieve desired outcomes regardless of perceived barriers or threats of failure. Research into the impacts of self-efficacy on language learning show that self-efficacious learners have better control over, and knowledge of, effective learning strategies (Victori, 1999). Here, self-efficacy is considered as a student response to a query that is at the heart of motivational behaviour: Can I accomplish this specific task e.g. to work out the meaning of unknown words through listening to short passages in French (Graham, 2007). Moreover, self-efficacy beliefs provide an indication about a person's judgment regarding his or her capability in undertaking certain activities - instead of judgment regarding who he or she is as an individual, or how he or she feels about the self in general. Considering these concepts, it may be said that self-efficacy beliefs are context-dependent (Pajares & Miller, 1994; Loo & Choy, 2013). Indeed, one might be self-efficacious in solving complex algebraic equations but have low self-efficacy for undertaking laboratory experiments or learning a foreign language.

It is important to note that self-efficacy is different from perceived self-competence, the latter being less specific than the former (Bandura, 1993). Perceived self-competence also entails a broad, general assessment of one's competence. For example, perceived self-competence is a response to queries such as: How well do I perform in the subject of English? How well do I do in writing an argumentative essay? Questions such as these are typically related to perceived proficiency in the "here-and-now", while self-efficacy refers to beliefs and expectations regarding future achievement (Graham, 2007, p. 82). Just as importantly, self-efficacy beliefs reflect not only how much skill a student has, but "are believed to contribute to academic performance over and above actual ability" (Graham, 2007, p. 82). This means that students need self-efficacy in order to optimise their abilities. In addition to this, it is important to note that, even if a student has the skill and knowledge needed to succeed in an academic endeavour, this does not necessarily mean that they will have a high level of self-efficacy for such achievement. For example, Graham (2007) explains study results comparing predictions regarding academic performance among Year 11 students in England of French and those made by their teacher. Significantly, students underestimated their academic performance, indicating that they had low levels of self-efficacy despite their high levels of ability.

Instrumentality is the second dimension of metacognitive beliefs (Paris & Winograd, 1990). The term refers to students' perceptions regarding the relationship between the learning strategies they use for tasks and their learning outcomes. As such, instrumentality is related to the notion of attributions, or the underlying reasons to which students attribute their perceived successes or failures. Attributions are closely related to self-efficacy beliefs and motivation for language learning (Graham, 2007; Hsieh & Kang, 2010). According to Hsieh and Kang (2010), there is a two-fold relationship between attribution and self-efficacy. Since a student's self-efficacy may be impacted by the manner in which he or she explains the results of a test, a student's attributions for an outcome may also be impacted by the degree of confidence he or she has that they can accomplish a given task. Schunk (1982, cited in Hsieh & Kang, 2010) explored the reciprocal relationship between self-efficacy and attribution with regards to the problem-solving abilities of children. When children are provided with positive attributional feedback, their attributions of their own effort and ability are enhanced and their self-

efficacy intensifies, while attributing failure to a lack of ability results in dramatically reduced self-efficacy.

Notably, this view is supported by other studies, indicating that "high or low self-efficacy beliefs lead to corresponding performance attributions, which, in turn, affect one's perceptions of self-efficacy and create a cycle between the two" (Hsieh & Kang, 2010, p. 610). When successful academic performance is attributed to internal factors, self-efficacy beliefs are enhanced, but when academic failure is attributed to internal and stable sources, self-efficacy beliefs are reduced. Graham (2006) investigated students' self-efficacy and attributions in the foreign language-learning context by means of interviews. According to study findings, students with low self-efficacy have the propensity to believe that they cannot control their learning outcomes, while students with high self-efficacy believe that they fail because of inadequate effort on their part (Graham, 2006). In another study, Schallert and Hsieh (2008) discovered that students who attributed their failure to a lack of effort had higher self-efficacy compared to those who believed that their efforts are not significantly associated with failing tests. These studies imply that students' self-efficacy beliefs are compromised when they do not believe that they have any control over their test results, i.e., they failed because the test was hard, and not because they did not study for it.

In light of the preceding discussions, it can be said that the impact of attributions on self-efficacy beliefs and motivation for language learning can be positive (adaptive), or negative (maladaptive) (Graham, 2004). Students who believe that their academic performance, including failure, may be explained by factors over which they have control, such as their perseverance to study, or the strategies that they choose to use, tend to have high motivation levels for attempting similar endeavours again. For example, such students can adjust the intensity of their efforts in studying, or the specific strategy that they use, such that they open themselves to the possibility of improving their academic performance. Again, the concept of motivation is important in this regard. Indeed, motivation may be lower among students who attribute their failures or poor academic outcomes to factors over which they do not have control, such as, for instance, the degree of difficulty of their examinations or homework. According to some researchers on foreign language learning, some students have the propensity for maladaptive

attributions for doing less well in foreign languages, attributing their poor performance to factors such as low ability or degree of task difficulty (Graham, 2007). This has been observed to be particularly true for requisite skills involving processes that students feel are inaccessible and uncontrollable. In view of these studies, it must be emphasised that, in the context of ESL/EFL, the promotion of self-efficacy beliefs among students is of great significance (Dörnyei & Ushioda, 2011; Graham, 2007; Hsieh & Kang, 2010; Matthews, 2010). Studies show that, among ESL students, perceptions and beliefs that they lack the ability to perform well academically are barriers to enrolment for such courses (Graham, 2004). Many modern foreign language students in the UK also believe that learning a foreign language is more difficult than their A-level subjects (Graham, 2007). Overall, substantial evidence exists that learners' metacognitive beliefs and the attributions students use in order to explain their academic success or failure can be changed (Graham, 2007). Indeed, modifications to attributions and metacognitive beliefs are possible by means of specific activities, as well as teacher feedback, encouraging students to address their difficulties and setbacks by "retracing their steps to find their mistake or by analysing the problem to find another approach" (Brophy, 1998, cited in Graham, 2007 p. 83). In particular, feedback is crucial in helping students attribute academic failures to "insufficient effort, lack of information, or use of ineffective strategies rather than to lack of ability" (ibid.). Thus, effective feedback is persuasive and is positive when the teacher communicates to the student that he or she is capable of attaining certain skills and predetermined goals. Generally, students will experience high self-efficacy when a trustworthy source such as a teacher tells them that they will do well on a course (Bandura, 1997; Schunk & Swartz, 1993; Dörnyei & Ushioda, 2011). Through this approach, teachers can draw their students' attention to the critical association between their learning strategies and their learning outcomes, considering that doing so increases their "sense of instrumentality" (Graham, 2007, p. 83).

Self-efficacy, self-regulation, and learning strategies

Self-regulation has been associated with the relationship between self-efficacy and language learning strategies (Schunk & DiBenetto, 2016), and, as such, it is a concept that must be unpacked as part of the foundation to this study. Self-regulation is the degree to which students are metacognitively, motivationally and behaviourally active participants

in their own learning processes (Phakiti, Hirsh & Woodrow, 2013). Self-regulation is comprised of three successive phases: forethought, performance/volitional control, and self-reflection (Zimmerman, 2000b). Self-regulated students consistently establish goals, apply strategies to achieve these goals, and additionally self-evaluate their performance so that they improve when faced with more challenging tasks (Zimmerman, 2008). Self-regulated students also tend to employ multiple motivational strategies, such as mentally and physically preparing for assignments, collecting relevant information, integrating different theories, monitoring comprehension, evaluating their own progress, as well as deploying metacognitive strategies to achieve the goal (Boekaerts & Cascallar, 2006; Schunk, 2012). Many studies have shown that Self-Regulated Learning Strategies (SRLS) are positively associated with good student performance on standardised tests (Kim, Wang, Ahn & Bong, 2015). In ESL, there are four categories of SRLS that help students improve in writing English: self-evaluation, organising and transforming, seeking information, and seeking social assistance (Ching, 2002). Indeed, substantial evidence exists that students tend to perform better academically when they receive positive feedback that they can then use (Mackey, Oliver & Kanganas, 2007; Bitchener, Young, & Cameron, 2005).

It cannot be emphasised enough that self-efficacy plays an important role in the process of self-regulation (Zimmerman, 2002). Notably, students' self-efficacy beliefs impact the choices they make, as well as the level of effort they put into their performance (see Schunk & DiBenedetto, 2016 for an overview). This statement is supported by empirical studies demonstrating a strong association between self-efficacy beliefs and the use of SRLS strategies (Ching, 2002; Boekaerts & Cascallar, 2006; Yusuf, 2011). Researchers have also explained that students with low self-efficacy beliefs are (a) more likely to quit when faced with difficulties compared to those who have high self-efficacy; and, (b) are more likely to constantly postpone doing their homework, compared to those who have high self-efficacy (Komarraju & Nadler, 2013; Linnenbrink & Pintrich, 2003; Margolis & McCabe, 2006).

Thus, it may be also said that self-efficacy is directly and positively associated with the performance-approach goal, but with negative effects on the performance-avoidance goal (see Darnon et al., 2007 for a discussion of these concepts). For example, in a study

of the English writing processes of Malaysian college engineering major students, Ching (2002) found that students tend to respond more positively to negative feedback after the implementation of SRL strategies. This is an indication that there existed improved self-efficacy beliefs regarding writing a more developed essay. There have been similar studies, such as the investigation by Bai, Gu, and Hu (2014), of primary school students in Singapore, where the SRL strategies of planning, revising, self-evaluating, and seeking social assistance were found to be strongly and positively associated with English language proficiency for students of all levels of English proficiency. There are also differences in the use of SRL strategies, as well as English writing strategies. For instance, learners with low English proficiency tend to use more SRL strategies, such as seeking social assistance and emotional control, compared to their peers with high English proficiency (Bai, Gu & Hu, 2014). In contrast, students with high English proficiency tend to use strategies such as revising, self-evaluating, and information-seeking strategies (ibid.). The significant relationships between self-efficacy beliefs and SRL strategies are consistently found across educational levels, from primary school to college (Bai, Gu & Hu, 2014; Ching, 2002; Zimmerman, 2008). Indeed, Diseth (2011) reported that both self-efficacy and SRL strategies mediated between GPA at high school and final examination results for university students. Yusuf (2011) investigated the self-efficacy beliefs and SRL strategies of university students. They reported that the two constructs are significantly related to one another, with self-efficacy directly influencing academic performance, and SRL strategies having a moderating impact on this relationship.

Background on Issues Surrounding vision Impairment

Vision is the primary sense that enables people to organise, synthesise and integrate information coming from the environment so that understanding about the world and how it functions may be formed (Bedny & Saxe, 2012; Bhargava, 2014). A person with impaired vision must depend more on the other senses of hearing, touch, smell, movement and taste in order to be aware of, and understand, phenomena within their environments. Because of the missing sense of sight, it is not uncommon for learning to sometimes be inaccurate or delayed in comparison with sighted peers (McKenzie, 2009; Dawn, 2011; Tobin & Hill, 2012). Students with vision impairment often interpret concepts and structures of a foreign language according to limited and fragmented

information such that many of them are at a distinct learning disadvantage compared to their peers. This observation is drawn from my extensive personal experience as a VI teacher in the field of ESL.

Vision impairment

There are two types[2] of vision impairment: blindness and low vision (Alves, Monteiro, Rabello, Gasparetto & de Carvalho, 2009). Some people with low vision have impaired visual functions in spite of having undergone corrective procedures. In the educational field "students with low vision have residual vision, which enables them to read printed material" provided they use support tools such as "didactic resources and special equipment" (Alves et al., 2009, p. 148). Meanwhile, a blind person has a total loss of vision; therefore, blind learners are completely reliant on vision substitution skills and aids or technologies. For this study, the term "vision impairment" refers to the latter group, i.e., students who are either totally blind or have severe vision loss such that magnification software does not assist in reading printed materials. Thus, the focus of this study is on VI students with severe vision loss. Many studies show that vision impairment typically leads to negative consequences for an individual, such as psychological, social and economic challenges at certain points in their lives. These challenges, in turn, affect autonomy and self-esteem (Hersch & Johnson, 2008; Alves et al., 2009).

Challenges Confronting VI Students

There is a broad range of challenges that face VI learners. These are discussed in the following subsections. Students with vision impairments tend to experience many challenges with classroom tasks, including reading and writing activities. This remains the case even if some VI students use optical aids that enlarge the image, or non-optical resources such as material adaptation and changes in the environment (Hersch & Johnson, 2008; Alves et al., 2009).

[2] Due to the wide range of visual impairments related to both visual perception and visual acuity in the UK, criteria for certification is gained when a person is said to be "severely sight impaired (blind) or sight impaired (partially sighted)" (https://www.rnib.org.uk/eye-health/registering-your-sight-loss/criteria-certification). However, in research the terms "blindness" and "low vision" may also be used.

A gap in the pace of learning

Bedny and Saxe (2012) point out that “visual” concepts can only be acquired normally through vision, and blind people could have large gaps in their concepts, compared to similar concepts learnt by sighted people. These gaps are most likely to occur with concepts that, in sighted people, are considered highly visual such as concrete objects, actions, and experiences that specifically involve vision, such as seeing. These can impact learning in languages which are dependent on visual imagery for comprehension.

Significant empirical evidence exists for the adverse consequences of vision impairment on learning. Studies have shown that elementary and middle school students who are VI tend to lag by three years behind their sighted peers in subjects such as mathematics and language (O'Donnell & Perla, 1998; Emerson et al., 2009; Dawn, 2011; Giesen, Cavenaugh & McDonnal, 2012; Tobin & Hill, 2012). According to Bozic, Douglas, Greaney, Rossand and Tobin (1997), compared to their sighted peers, VI students are slower in decoding and processing printed text. This task is even greater for students who have been blind since birth because the principal reading medium for these individuals, Braille, requires precise tactual discrimination ability.

This also imposes strict usage rules on users that tend to burden the vision impaired person with cognitive demands, as explained earlier in the chapter. For example, Braille, contrary to what many believe, is not a language. Instead, it is a phonetic alphabet that uses tactile codes over which people with vision problems run their fingers in order to read (International Council on English Braille [ICEB], 2013). For the sake of uniformity in the Braille presentations of a range of literary and technical material being published and used in the English-speaking world, the Unified English Braille Code (UEB) has been established. This Braille code standard has been updated at least twice in order to reflect changes entailed by the adaptation of new language conventions, as well as new symbols that have been integrated in order to better facilitate reading of different types of text. The UEB has many rules requiring strict compliance for the sake of uniformity. Braille readers have to master these rules in order to make reading easier. These rules concern Alphabet Whole Word Contractions, punctuation, numbers, letter signs, short-form words, certain mathematical functions, italics, and composition signs (ICEB, 2013).

The complexity of Braille codes and their rules exacts tactile and cognitive demands on the reader (Hamilton & Pascual, 1998). The reader should be able to discern, through tactile sensitivity that will lead to accurate reading, subtle patterns of raised and depressed dots through their finger pads. After this, the reader translates the spatial codes into meaningful information. Due to the complex cognitive demands of Braille reading, dramatic adaptive changes develop in the reader's brain. These demands are even greater on children with vision impairment. The demands of learning as well as actual Braille reading could eventually contribute to the reported learning lag in certain VI students (Hamilton & Pascual, 1998). It is not unreasonable to believe that, in light of the challenges that VI students have to address in order to learn effectively and efficiently, these strict usage rules may also impose further cognitive demands on users in terms of learning additional languages.

Learning another language is a complex process. A student who is seeking to learn English needs to also learn the basic interpersonal communication skills or surface skills of listening and speaking that are usually acquired by many students, especially those coming from language backgrounds similar to English, and who spend a considerable part of their school time interacting with native speakers (Topor & Rosenblum, 2013). It has been theorised that these students also have to learn cognitive academic language proficiency skills, or "the language that is the basis for their ability to cope with the academic demands placed on them in various classes on academic subjects" (Topor & Rosenblum, 2013, p. 81).

The development of sufficient EFL intelligibility in students may take at least two years of immersion in the target language, but it may take five to seven years for them to be working on a level with high fluency as far as academic language is concerned (Topor & Rosenblum, 2013). The implication for VI students using Braille is that non-native speakers who have a high level of fluency in everyday English may not have the corresponding academic language proficiency, and the imposition of strict usage rules can make the attainment of this proficiency even more challenging. Indeed, because written language for VI students and the learning of English may entail reading and writing Braille, there is a concern about such students' ability to master the academic reading and

writing of English Braille that comes with strict usage rules[3], and, therefore, they may take even longer than the seven years suggested by theorists.

Specialist teachers and educational psychologists notice delays and deficiencies in the reading development of most children registered as Partially Sighted (PS). Of interest here is the finding that this observation holds across different languages. For example, Mohammed and Omar (2011) report reading deficits among Malaysian-speaking, vision-impaired readers. One of the particular concerns of professionals when noting an apparent detrimental effect upon a partially sighted child's reading progress is whether it seems to be an overall, generalised impact over the reading process, or whether it is possible to isolate a particular sub-skill, for example, reading comprehension, reading accuracy, or reading speed. Indirect pointers to the possible significance of this third factor are to be found in preliminary work by Mason and Tobin (1986) and then, later, in a larger investigation by Tobin (1998), who examined the speed of information processing in 257 PS children, aged 6 to 17 years, by means of the British Ability Scales' Speed of Information Processing sub-scale. This sub-scale requires the child to identify and mark the highest value number in each row of a matrix of numerical digits, the digit spans increasing in length from page to page. While both these studies revealed well below average performance by the PS children, it was noteworthy that some of them achieved scores at the 80th and 90th percentiles, indicating their ability to scan backwards and forwards along each line and to locate each new line accurately despite having the text no more than a few inches from their eyes. Some of those who scored below the 10th percentile made no errors at all but were unable to meet the strict time criteria.

Other reasons for lagging behind are bound up with later entry into formal education due to slower development related to independence, typically attained by sighted peers by the time they enter primary, or elementary school. In a study on the psycho-social dynamics of VI students, Dawn (2011) explains that it is possible that some VI students lag academically because of their delayed entry to education. This means that these students

[3] The rules of Braille are described as "strict" because Braille only functions as intended if each and every instruction for usage is rigidly followed. For example, because of tactile reading, the size of Braille letters cannot be changed.

are not enrolled in regular academic classes at the age that is considered normal because they have not attained a sufficient degree of independence as a result of their disability. Alternatively, there are some VI students who have the same academic level as their classmates but they are at least two years older, which also suggests that this is the outcome of a delay in entry to formal education.

Although VI students are able to progress during preschool and kindergarten, by the third grade they may begin to fall behind their sighted peers (McKenzie, 2009). In this regard, Bhargava (2011) cites Lowenfeld (1983) who conducted a series of studies on VI and blind students and elaborates on the three important areas in which VI and blind people are at a disadvantage. These are (i) the range and varieties of experiences that impact cognitive development; (ii) mobility, which encompasses the orientation of and locomotion of the individual within his or her immediate surroundings; and (iii) interaction with a relevant environment. Vision impairment limits an individual's interaction with and exploration of the environment. By third grade, these explorations may be higher compared to the lower grades. Without vision, students will be limited in what they can do on their own. Since school activities are designed for visually normal individuals, teachers would continue with their activities, in all likelihood making only minimal concessions for their VI students.

However, the degree to which a student is disadvantaged in these three aspects depends on the type and severity of vision impairment and, hence, the unique educational and learning needs of each student should be taken into consideration. This means that those who are only partially impaired in vision can still participate meaningfully in class activities so that learning is not affected, but those who lack total vision cannot do so unless they are given activities that are suitable for them. Therefore, it is possible that a student with vision impairment may lag behind in terms of academic achievement because of the impact of vision impairment on learning (Bhargava, 2011). Bozic et al. (1997) and Tobin and Hill (2011) acknowledge that not all studies on learning and vision impairment show that VI students lag behind their sighted peers. Whatever the precise and possibly changing significance over time of associated cognitive and perceptual skills and of alternative teaching methods, for most children, the process of learning to read is not obstructed by severe visual impairment, but there is good 'clinical' evidence from

teachers of children registered as partially sighted that those having a visual acuity of 6/18 or worse after the optimal correction by lenses experience real and marked difficulties when trying to access print and other pictorial materials in school environments. However, the evidence from the ophthalmic/ophthalmological field is not unequivocal about the question of whether reduced acuity in and of itself is sufficient to impair the ability to decode text. Indeed, surprisingly, in some early research, Grosvenor (1977) pointed out that myopia, severe short sight, was in fact consistently associated with good reading performance. Given the diversity of the causations, the nature, and the age of onset of impairments to the visual system, it is perhaps not surprising that there is no clear, overarching description of how reading development in young children is affected by severe malfunctioning of one or more of the various components of such a complex system.

Specific language learning challenges

In relation to the gaps in learning pace among VI EFL students discussed in the preceding section, it is interesting to note that, according to Conroy (2005), English Language Learners (ELLs) should "move into verbal production of the new language at a comfortable rate" (p. 103). The students should be able to clearly hear and understand messages in the target language as well as construct a listening vocabulary before they may be expected to speak that target language. Instructors should structure activities so that the ELLs feel comfortable enough to participate (Conroy, 2005). This phase of language acquisition, commonly referred to as the silent or preproduction period, is crucial to the learning of a second language. Because of the importance of this stage of learning, teachers are expected to plan teaching techniques in advance and organise the structure of the learning environment for it to be conducive for ELLs. Teaching techniques and strategies should take into consideration the possible presence of VI students in the classroom. The main concern here is that traditional ELL teaching techniques may not be effective for all VI students because of a reliance on visuals for the motivation or prompting of language (Conroy, 2005). In addition to this, emphasising verbal descriptions as recommended in the engagement of VI students is usually not effective considering that the student is still learning English. To address this challenge, teachers

should plan teaching techniques, structure the learning environment appropriately, and prepare materials that address the educational needs of the VI student (Conroy, 2005).

Language has many functions that could be challenging for VI learners, even at college level, including “positional, spatial, classification, association, and even body concepts” (Guinan, 1997, p. 560). Although it requires particular resources to meet the special education needs of VI college students in the EFL classroom, it is of utmost importance that colleges and universities undertake “whatever is possible to meet them in order to reasonably accommodate learners” (Fraser & Maguvhe, 2008, p. 86). In most cases, colleges and universities need to provide assistive devices such as computers with screen-reader software (Judge & Simms, 2009; Kelly, 2009). This is because, with vision impairment, the amount of sensory data available to the learner is decreased. In light of this, it is not surprising that self-efficacy beliefs among some university students tend to be low (Hutto & Thompson, 1995).

Language competencies and VI learners

In terms of language competencies, VI students are at risk of lagging behind their sighted peers in areas such as learning English, reading fluency, vocabulary, and concept development (O'Donnell & Perla, 1998; Emerson et al., 2009; Tobin & Hill, 2012). There are several explanations for this. In a traditional classroom, the teacher often does not pay attention to whether all students see well from a distance. This is because the teacher's primary focus is to deliver content rather than assume that low-vision may be a factor in some students' ability to learn at the same rate as their sighted peers.

Tobin and Hill (2012), who conducted a longitudinal study on reading skills in VI readers, proposed an explanation regarding why VI students trail behind their peers in terms of English, reading fluency, and vocabulary. A person with a missing sense, such as vision impairment, experiences learning delays because new information, such as that provided in lessons, may not converge with information that the person picks up through the other senses. VI students tend to encounter problems with reading first, particularly through the manner in which they read. It is not uncommon for some VI people to hold the text close to their eyes in order to see it clearly, thereby resulting in visual clouding that is caused by reductions in the field of vision such that the reader fails to see page layout

markers, including paragraphing, indentations and italicising. Other VI people depend mainly on synthesised audio output from their personal computers or smartphones when reading, which results in reading all assigned material as plain texts without any visual features such as text format and text attributes. Because of this, reading development tends to be slower than for non-VI students. As a result, this delayed reading development or slowness in reading impedes easy access to information. This absence of information not only delays or hinders further learning but also impacts on VI students' motivation, their interest in reading, as well as their self-efficacy beliefs (Tobin & Hill, 2012). The study by Tobin and Hill (2012) is especially significant because the technology to facilitate and speed up VI students' reading not only enables easier and quicker diagnosis of a student's level of impairment, but it also allows for programmes to be more individualised. Moreover, while this study's recommendations target educational psychologists and specialist teachers, the technology can be widely used even in school settings without everyday access to specialist teacher input.

Additional Challenges facing VI learners

There is an entire spectrum of other challenges related to the phenomenon studied in this thesis. These range from inclusion to learning gaps, from affording to possessing accessible technologies to learning how to use them and so forth. A discussion of these issues is necessary for rich interpretation of the qualitative interview data obtained for this thesis.

Challenges in accessing technologies

Since the accessible textbook used in the intervention for this thesis is a) itself a technology and b) is interacted with through technology, it is vital to have a discussion of challenges around the access to technology, as this helps the author to make sense of their findings regarding the intervention.

Several efforts have been devoted to addressing the accessibility barriers encountered by people with disabilities on the Web. International legislation mostly draws on the guidelines proposed by standardisation bodies such as the World Wide Web Consortium (W3C) (see, for example, the Web Content Accessibility Guidelines 2.0 (Caldwell, Cooper,

Reid & Vanderheiden, 2008)). The W3C developed the Web Content Accessibility Guidelines (WCAG) with the goal of providing a single shared standard for web content accessibility that meets the needs of individuals, organisations, and governments internationally. WCAG documents provide insight into how web content can be more accessible to people with disabilities. Here, the term 'web content' pertains to information in a web page or web application, including (i) natural information, including text, images and sounds; and/or (ii) code or markup defining such aspects as structure and presentation, among others (W3C).

It must be noted that W3C is committed to universal design, and, thus, to universal access. According to Tim Berners-Lee, the inventor of the web, "[t]he power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect" (Berners-Lee, n.d.). Indeed, the Web Accessibility Initiative (WAI) was introduced in order to create strategies, standards and resources to make the web more accessible for individuals with disabilities. The WAI acknowledges that web accessibility benefits people without disabilities as well. One of the main principles of web accessibility is designing software and websites that are sufficiently flexible to meet diverse user needs. As previously noted, this benefits people without disabilities in certain situations, such as those using a slow Internet connection, people with "temporary disabilities", such as a broken arm, and people with changing abilities due to aging. (WAI, n.d., What is Web Accessibility?).

Nevertheless, it is noteworthy that users still encounter several accessibility-related problems even if guidelines are satisfied (Power, Freire, Petrie & Swallow, 2012). These guidelines pertain only to feasible technical checks and are not specifically designed for learning materials such that they do not necessarily address functional ease of access. Navigating the web is particularly challenging for disabled users who are not familiar with the idiosyncrasies of the online environment and who have to rely on assistive technologies. The following subsections present different challenges VI students experience when navigating the Internet.

Research using electronic databases

Although the research discussed here is on electronic databases rather than accessible textbooks, there are some similarities between these two types of resource and how VI individuals might interact with them.

Numerous studies have been conducted into the significance of information literacy instruction for the research skills of students (Dermody & Majekodunmi, 2011). Generally, without training or tutorials, students lack the skills and knowledge to conduct research using electronic databases (Head & Eisenberg, 2009). Moreover, when researching, students tend to draw on the same few information resources and preferred sources for their "brevity, consensus, and currency over other qualities and less so, for their scholarly authority" (Head & Eisenberg, 2009). This is because conducting research using electronic databases is associated with many different approaches and requires continuous practice before mastery is attained (Head & Eisenberg, 2009). Therefore, processes such as searching for relevant materials using electronic databases can pose challenges for researching students. If this is the case, then it cannot be overemphasised that the act of searching databases is even more challenging for VI students (Dermody & Majekodunmi, 2011).

It has long been established that VI students, compared to their sighted peers, need more time for information seeking through the Internet (Vigo & Harper, 2014). Indeed, VI students need more time for most, if not all, aspects of the research process using the Internet, such as finding out if a certain webpage/piece of software is accessible, or making sure that a specific textbook is accessible, i.e., can be read independently by VI students. Frequently, VI students performing research, either through the use of traditional materials or electronic databases, depend on interpersonal contacts, such as librarians, friends and counsellors to make sure that they can access appropriate and/or required information (Saumure & Given, 2004; Harris & Oppenheim, 2003). Hence, it may be said that VI students lack independence in their information-seeking behaviour and tend to look for readily available sources on the Internet in order to reduce the need for resources (Saumure & Given, 2004; Vigo & Harper, 2013). The unfortunate outcome of this is that academic performance can be adversely impacted by such behaviour.

Dermody and Majekodunmi (2011) conducted a study to determine the information process that ten VI Canadian students using screen readers followed while performing the first step in research: collecting information. Based on tests to assess their abilities to navigate databases and find three articles, 70% believed that they had succeeded in the task whereas video coverage of the study shows that they did not (Dermody & Majekodunmi, 2011). Roughly 44% of the time, the participants used inaccurate Boolean search strategies and the actual success rate for finding the two assigned scholarly articles was 53%. About 75% of the participants were able to locate the abstract page for an article, but this success rate dropped to 55% when tasked with finding the full text and reading the first page. Although 90% of the participants stated that they could limit their results to peer-reviewed in one test, only 13% actually did so (Dermody & Majekodunmi, 2011). These numbers strongly indicate a low success rate for selecting appropriate articles. Among the barriers encountered by the participants were (i) negative article results because articles were only available through Inter-Library Loan; (ii) inability of the screen reader to read image-based links; and (iii) inaccessible pdfs that the screen readers could not read (Dermody & Majekodunmi, 2011).

Navigating the internet

Over the years, different approaches and methods have been suggested for developing technologies in order to help VI persons access the Internet and surf the Web. However, such technologies still have shortcomings. For example, text browsers such as Lynx were developed so that the VI person can avoid using a mouse and hypermedia. However, due to the fact that the majority of Web designers typically use popular browsers only, the content that they contain is not accessible through text browsers (Loo, Lu & Bloor, 2003). Another example is the screen reader, which studies have subsequently found is taxing to use, because the technology reads aloud each item on a Webpage, so that the user can make a choice. This takes a heavy toll on the user's short-term memory (Loo et al., 2003). Another example is a Braille device which has the capability to depict in codes an image of the computer screen but which was very costly and sold for $6,000 back in the early 2000s (Loo et al., 2003). More than fifteen years later, and still specialised braille devices are overly expensive e.g. purchasing a "top end" Windows or Mac notebook is fraction of the price of these Braille devices.

Taking these shortcomings into consideration, Loo et al. (2003) developed a tool that enabled VI persons to surf the Internet. Developers called this the VocalSurf, using a speech capability technology and Human-Computer Interface (HCI) model. Resident programmes read HTML pages downloaded through the Web browser, and, using dictionary files and knowledge databases, produce human speech to read out the contents of the browser. This voice serves as the VI person's guide in surfing the Internet.

VocalSurf and the text browser Lynx are now part of the history of the technologies that VI people used to use. They, like many other VI technologies and standards, came and went. It would be very safe to say that, even nowadays with all the progress in developing screen-readers and web browsers, and with all the initiatives and guidelines to make the web universally accessible, that the concept of complete accessibility to accessing and navigating the internet is far from being a reality. To varying degrees and in varying domains, it is true that certain things have been achieved. In terms of HTML5 when following all the accessible guidelines, we have a solution that seems to do the job, albeit with a few caveats 1) webpages comply with existing standards, and, 2) the availability/affordances of technology to access the web. If an individual does not have the money to buy the accessible software and the device that allows access the web, then that technology can be of no benefit. In domains like STEM, for instance, the challenges are currently far bigger still in terms of accessing web content about complicated math equations for instance. JAWS2019, NVDA2019.1, and Supernova18.1 are just three examples of the latest versions of available screen-readers in the market for VI people. Having the latest version of a screen-reader, however, does not guarantee seamless access to the internet. We have three things at stake which work together at once: the internet browser like Firefox or Google Chrome, the screen-reader, and the actual webpage on the world wide web. If one part of this chain experiences problems, accessibility breaks down. For example, if an internet browser drops or adds support for a particular feature in one of their updates, the VI user will likely experience difficulty accomplishing work on the web as a result. A solution could take several months for the developers of the internet browser to fix it with another update, and, moreover, the screen-reader must also make sure they release a timely update to comply with the

changes to the internet browser. This is just the tip of the iceberg for the myriad challenges that blind persons may encounter when surfing the web.

The acquisition of internet navigation skills

VI persons navigating the Internet commonly encounter barriers that are categorised into accessibility and usability problems (Vigo & Harper, 2014). These problems make users underperform as well as experience frustration. When VI users encounter these problems, they use eight tactics and seventeen different ways of executing said tactics in order to solve the problems (Vigo & Harper, 2014). These tactics are seeking help, impulsive clicking, exploration tactics, narrowing search, gaining orientation, redoing, not operating and giving up (Vigo & Harper, 2014). These tactics, as seen in Figure 2 below, are typically triggered by uncertain situations (UNC), reduced mobility (REM), confusion (CON) and overload (OVE) (Vigo & Harper, 2014).

Vigo and Harper (2014) sought to determine the tactics used, and the tactics triggers encountered, by five VI students who were being trained to surf the Web over a two-month period. As shown in the figure 2 below, uncertainty accounts for 20% of the problems the participants encountered, while 40% of the problems are consistently caused by confusing situations (Vigo & Harper, 2014). Information overload and reduced mobility were more variable and ranged from 10% to 40% and 20% to 70%, respectively (Vigo & Harper, 2014). However, as the sessions progressed, participants started replacing last resort tactics with more sophisticated exploration tactics, thereby implicating that they became more skilled in the process as well as more independent and autonomous. During the latter stages of the study, participants were able to accomplish tasks more effectively but at reduced efficiency. According to Vigo and Harper (2014), later stage users may have felt overconfident and, as a result, they misused tactics. The implication for web designers is to provide VI users with mechanisms to recover from failure without interfering with the learning process.

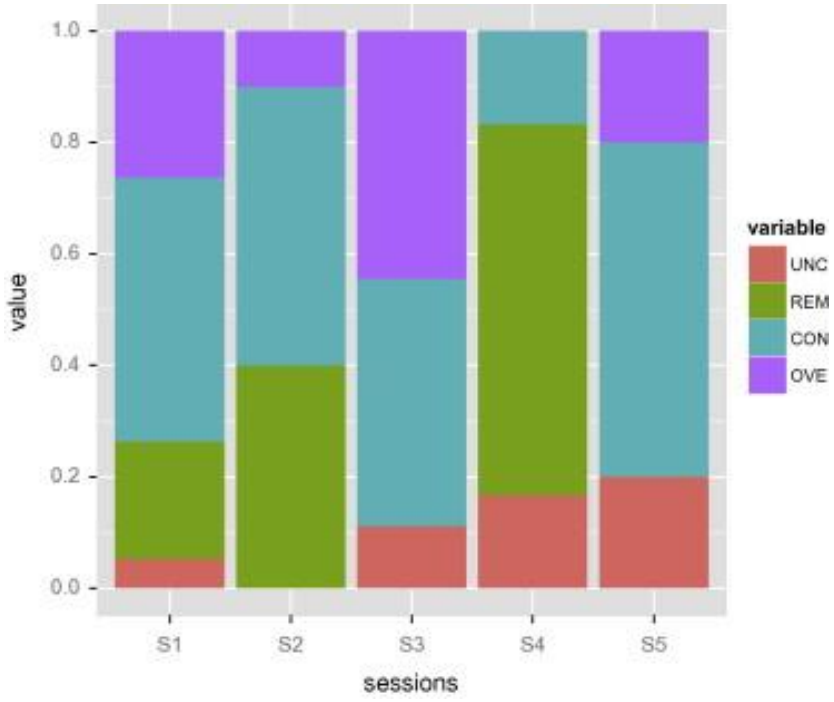

Figure 2: Tactics Used by VI Web Surfers (Vigo & Harper, 2014)

Inclusion

Inclusion not only refers to physical integration in the relevant learning environment, but it also encompasses the provision of supportive systems, a welcoming culture, as well as an accepting atmosphere (Bodaghi, Cheong & Zainab, 2016). Hence, depending on the beliefs, experiences, and perceptions towards the policies of the said environment, students with special needs may or may not decide to include themselves in a community. Notably, a VI student's sense of belonging positively impacts life in general, including, perceptions, relationships, motivation, and the learning process (Bodaghi et al., 2016). The sense of belonging is one of the major psychological needs that a person has, and is not limited to circumstances in life, culture or age. Effective inclusion in the learning environment hinges upon the sense of belonging that it develops in learners, based on the latter's feeling, perception and experience of their integration into society. Therefore, students with special learning needs wish to be valued, connected, supported, and accepted in inclusive classrooms, and feel that they fit with the system because they belong (Bodaghi et al., 2016).

Important factors in helping students with special learning needs to avoid feelings of isolation in an education system are acceptance, respect and a sense of welcome derived

from teachers and peers (Bodaghi et al., 2016). Previous studies indicate that students with special learning needs do not fully feel that they belong through physical inclusion only (Bodaghi et al., 2016). They require networks of support as well as supportive technologies in order to enhance this feeling of belonging. In addition to these, students with special learning needs require accurate and timely feedback from their teachers and, provided constructively, this feedback enhances self-esteem as well as the sense of inclusion. In relation to these, the most effective strategies in promoting inclusion of students with special learning needs are conducive, positive classroom environments, as well as competent and empathetic practitioners (Bodaghi et al., 2016). In other words, attitudes that teachers, librarians and other school personnel exhibit, including friendliness, supportiveness and empathy, play key roles in inclusion. However, the literature suggests that these attitudes are not consistently present in school environments (Bodaghi et al., 2016). Therefore, full inclusion is an issue that impacts students with special learning needs, including VI students.

In light of the aforementioned, inclusion may be considered as a commitment to educate each learner through various services as well as tools and supports, to the maximum extent possible, whether in the classroom or any learning environment (Ajuwon, Sarraj, Griffin-Shirley, Lechtenberger & Zhou, 2015). Inclusion is also considered as reforming, supporting and welcoming diversity among all learners. Within an inclusive learning environment, students, including those who have special learning needs such as VI, are also provided with ample opportunities to engage with their peers in ways that are not practiced in non-inclusive settings. It cannot be overstated that inclusive learning environments can enhance academic motivation and self-esteem for all learners aside from fostering a sense of belonging for those students with learning needs (Ajuwon et al., 2015; Bodaghi et al., 2016). However, a problem at hand is that, for VI students, inclusion is not easily achieved - mostly because teachers often contend with large and diverse caseloads, depending on a service delivery model that “favors itinerant and teaching consultant approaches that do not allow adequate instruction in the specialized competencies” (Bodaghi et al., 2016, p. 132).

From another perspective, into the 21st century, emerging new technologies have totally transformed many sectors of society, including education (Bodaghi et al., 2016). Based on

this, there are expectations that academic institutions, and particularly teachers, develop and hone competencies related to technologies in order to meet new demands in new contexts (Bodaghi et al., 2016). Examples of these technologies are forms of information sharing including blogs, wikis, podcasts, and Web 2.0 technologies, including virtual reality (Second Life), and social networks (Facebook and Twitter). Notably, these new technologies translate into innovativeness and creativeness that encourage learners to engage deeper with learning according to new virtual and physical contexts. However, in spite of the progress made by some academic institutions and teachers in the adoption and application of emerging and new technologies in the learning environment, a pressing issue is the lack of competencies among teachers when it comes to harnessing said technologies to facilitate learning (Bodaghi et al., 2016). Questions have also been raised regarding the levels of empathy practitioners have towards their students. Is the empathy sufficient enough to discern whether the learning needs of students are being met? These issues impact inclusion because, as mentioned earlier, an inclusive learning environment provides appropriate tools to facilitate learning for students who have special needs. This relates to the next subsection, which pertains to challenges VI students have in interacting with English teachers.

Challenges in interacting with teachers

Teachers are expected to consider different types of learners (Kocyigit & Artar, 2015). The relationship between learning and vision highlights the challenges as well as the deficiencies confronting learners. Objectively speaking, the lack of vision makes them different from their sighted peers to the extent that many of them require special education (Kocyigit & Artar, 2015). This reality greatly impacts teachers, and, as Kocyigit and Artar (2015) state, this is because, from the teachers' point of view, having VI students in the classroom is demanding, especially for inexperienced practitioners. It is important to note that people learn by the use of multiple senses, although there is emphasis on the two dominant senses of hearing and seeing. In ESL, the majority of learners rely on their visual and auditory senses (Kocyigit & Artar, 2015). The role of the visual and audio materials in EFL is evident but when a student does not have one or both senses, the tendency is for them to replace it with another sense (Kocyigit & Artar, 2015).

Effective teachers are aware of this and address this challenge through the use of appropriate processes, tools and approaches.

Teachers need to understand the significance of multisensory as well as multiple intelligence learning processes because these can help VI students improve their learning (Kocyigit & Artar, 2015). Because students with VI constitute a minority in the classroom, there is the risk that teachers might be unintentionally or intentionally ignoring their learning needs and performance. However, VI students themselves may harness their strengths with regard to their learning and consequently perform well academically. It cannot be overstated that VI students can be successful language learners (Kocyigit & Artar, 2015). Therefore, it is crucial that teachers discover their own strengths to facilitate EFL. Nevertheless, undeniably, many teachers are not cognisant or knowledgeable about the needs of their VI students (Kocyigit & Artar, 2015). In most instances, these are sighted teachers who are unfamiliar with the equivalent competencies and resources that VI students need and use in order to learn. As a result, many teachers tend to use uniform activities in the classroom such that the learning needs of VI students are not met at all. Studies show that many EFL teachers follow suit by practicing the same teaching style (Kocyigit & Artar, 2015). Such teachers tend to employ techniques and materials that are designed for sighted students, thereby contradicting recommendations made by researchers.

Of utmost importance there are the differences in the social behaviour and learning styles of VI students (Kocyigit & Artar, 2015). The failure to consider differences between VI students and their sighted peers in this context will lead to poor performance for the former. Thus, EFL teachers need to vary classroom tasks and activities according to the needs of VI students. Usually, VI students benefit from exercises combining words with activities because, in doing so, they learn to associate language with body movement experience (Kocyigit & Artar, 2015). Moreover, studies indicate that there are distinctive ways through which VI students interact with their teachers and classmates in the learning environment (Kocyigit & Artar, 2015). These interactions impact VI students' learning experiences.

VI Students Learning EFL

This subsection discusses VI students in the context of learning EFL.

Key concepts

The acquisition of L1 as a child is dramatically different from EFL acquisition after a person has already formed conceptions about phenomena (Guinan, 1997). According to scholars, the younger a child, the less need there is for structured EFL interventions (Chomsky, 1965). Indeed, young children are innately equipped for the acquisition of language codes. While older students may not have the same access to the "language-acquisition device" that Chomsky (1965, p. 32) hypothesised for young children, older students have the benefit of being able to tap into their own cognitive network of concepts, schemata, memory, and acquired knowledge in order to facilitate learning, and small children have not yet developed these.

L1 and L2

L1 is acquired "whole", while L2 is typically acquired after the language-acquisition device expires when a person is between ages twelve and fourteen years. An L2 may, however, be mastered through combined conscious and unconscious strategies. To simplify matters, it would suffice to say that conscious strategies compose learning while unconscious strategies comprise acquisition (Norman, Degani & Peleg, 2016; Sorenson, Duncan & Paradis, 2016). Because of these two perspectives, within the fields of ESL, ELL, or EFL, there are proponents of the learning view as well as of the acquisition-like view.

Meanwhile, in young VI individuals, L1 acquisition has been widely studied. Warren (1994) synthesises seminal study findings on L1 acquisition among VI children, and explains that:

I. VI does not adversely impact the development of fundamental interpersonal communicative skills.
II. Vision problems can influence the social use of language such that a VI person cannot determine if his or her conversational partner is attentive or not, initiate

conversations, discern the level of interest of a conversation partner, and acceptable manners of interrupting.

III. Among sighted children, the meaning of words is richer because vision enables children to make generalisations and expand semantic associations.

IV. It is extremely difficult to separate language formation from formation of cognitive concepts because language is the medium of thought; positional, spatial, classification, association, and even body concepts emerge as a function of language.

CALP and BICS

Cummins' scholarship (1981, 1984, 1989) has critical implications for effective EFL instruction for VI students. Cummins (1981) states that there are three factors that significantly impact bilingual education. First, there is a basic difference between communicative ability and the type of language skills required for effective functioning in schools. This is the Cognitive-Academic Language Proficiency (CALP) model, which holds that successful academic performance hinges upon an individual's ability to use language that most school tasks require rather than basic interpersonal communication skills (BICS) (Cummins, 1981). Teachers, examinations and textbooks use language that is "cognitively demanding" and "context-reduced" (Cummins, 1981, pp. 25-30). At the other end of the spectrum, interpersonal communication abilities are not relevant to skills required for succeeding academically.

According to Cummins (1981), effective classroom placements are not based on random and perfunctory verbal interviews. Students who cannot speak English proficiently but can undertake the social functions of language may give the impression that they are much more proficient than they actually are. Hence, EFL teachers have to remember that while BICS can develop to age appropriate levels in two years' time, CALP takes roughly five to seven years to develop (Cummins, 1981).

Second, Cummins (1984) notes that activities facilitating the development of proficiency in the stronger language can also facilitate proficiency in L2. This conception by Cummins (1984) underpins the call for bilingual instruction. Cummins (1984) substantiates this with his third conception, also referred to as the threshold hypothesis. According to Cummins (1984), an individual first has to be proficient in the L1 before he or she can benefit from

bilingual education. Here, teachers of VI students need to know that the threshold hypothesis represents crucial EFL background information. There is little possibility that an older learner will be more proficient in EFL as compared to his or her proficiency in L1 (Cummins, 1984). Applied to the VI student, it may be said that an individual cannot function visually beyond his or her cognitive level. This insight is particularly important, especially when establishing language competencies for VI students.

Current state of discussions

The past two decades have seen an increase in the numbers of people, both adults and children, who are English learners in the United States (Topor & Rosenblum, 2013). Indeed, at least 10.8% of the total child population of the United States is enrolled in an English language proficiency class. The U.S. states with the highest representation of EFL are California, Texas, Florida, New York, Illinois, Arizona, and North Carolina, from where 68% of the population of students learning English come (Topor & Rosenblum, 2013). Spanish is the language most often reported as the home language of these students, and between 2007 to 2008, 400 languages were spoken in the homes of these children (Ramsey & O'Day, 2010). From 1989 to 2000, the population of ELLs in the United States grew at a rate of 105%, compared to general population growth of 12% (Topor & Rosenblum, 2013). The diversity of American society at this point in time has been attributed to the consistently growing immigration population in the country (Kashdan, Barnes & Walsh, 2005).

The majority of new VI immigrants to the United States "have little or no previous experience living independently with their disabilities" (Kashdan et al., 2005). In the majority of countries outside North America, Europe, Australia and New Zealand, "assistive supports for people with disabilities are minimal or non-existent" (Kashdan et al., 2005). Consequently, a good number of EFL learners, e.g. VI immigrants, have not developed skills in living independently in their adopted countries, have little experience on their own, and very little knowledge about how they can best adapt to opportunities to be found in their immediate environments. For instance, many of the new VI immigrants to the United States who had been resourceful enough to develop independent living skills in their homelands were not able to apply the same strategies in

their adopted countries because of the lack of ability to speak English, as well as a lack of supportive services and tools. The lack of support does not apply only to VI immigrants but also to other types of EFL students, as the following subsection will show.

Students who are VI in inclusive classrooms are often not provided with all the necessary resources and support that would facilitate their progression towards academic achievement to the same level as their sighted peers (Giesen et al., 2012; Whitburn 2014). These supports are important because VI students usually have special instructional needs so that they can understand their lessons - including academic supports as well as special curricula. Nevertheless, VI students do have the potential to attain academic achievements "on a par with their non-disabled peers" provided that they are given opportunities for meaningful engagement in classes, instruction from well-trained tutors, and appropriate assistive visual supports (Giesen et al., 2012, p. 19). For instance, Corn, Wall and Bell (2000) conducted a study whereby VI students who were significantly lagging behind their sighted peers were provided with optical devices so they could read magnified texts. The study found that, although comprehension and reading rates were not greatly changed, the gap in reading speed narrowed after using the devices for a number of months. It is important to note here that these VI students were provided with no literacy instruction with regards to the use of the devices. Interventions to address literacy and reading speeds as well as increase in stamina may yield even better results in improving skills to enable levels akin to sighted peers in employment and academic contexts, where high rates of literacy competence are required. The aforementioned studies are worth discussing because of findings related to self-efficacy, which is the main variable in this dissertation. In terms of self-efficacy, the study found that after using the optical devices for a number of months, the expectations of these students increased. The authors attribute this increase in their expectations of themselves as bound up with their ability to increase the number of tasks they were able to perform independently. Speed is an important factor for VI students in classroom contexts.

Adequate supports for VI students are not always readily available (Mason, Davidson, & McNerney, 2000) despite the fact that VI students require special instructional support to access academic subjects, including academic supports and specialised curricula

(American Foundation for the Blind, 2015). For instance, VI students' dependence on Braille as an instrument for acquiring reading and vocabulary skills contributes to their lagging behind their sighted peers (Dawn, 2011). Mohammed and Omar (2011) found, similarly, that VI students who use devices such as refreshable Braille displays or large print output have much lower reading rates than their sighted counterparts. They argue that such students require more time to understand information, in particular during study and in examinations. This is because learning the Braille system takes time as VI learners have to memorise and become familiar with the number and arrangement of dots. Those who learn the Braille system quickly are able to more quickly catch up with their peers but there are others whose learning will not accelerate as quickly. As such, their entry to regular classes will also be hampered. Dawn (2011, p. 81) also cites other researchers in stating that vision is a critical foundation for learning, organising and synthesising information and "incidental causal learning primarily comes from vision." Moreover, Koenig (1992) states that VI students regularly face a barrier to accessing course books, and the majority of printed materials for the courses they are enrolled in. Therefore, students with vision impairment may understandably lag behind their peers due to the limited support received. It is important to note that the effectiveness of teachers of VI students should also be considered (Topor & Rosenblum, 2013). The following section discusses teaching strategies.

Teaching strategies

Numerous studies have been undertaken in order to determine the best teaching strategies for facilitating learning for VI students of EFL. This subsection discusses some of these strategies, selected for this literature review because they provide multiple opportunities to interact in English in non-stressful environments (Conroy, 2005). These teaching strategies may be readily adapted for VI students of EFL.

Cooperative learning is achieved through a set of strategies by which students interact with one another to accomplish a shared goal of completing an assigned task (Gibbons, 1993). The teacher structures the task in such a way that each group member has a given activity to accomplish. At the heart of cooperative learning is structure, which differentiates the technique from ordinary group work. The assignment of specific

activities to complete the collective task forms the structure of this approach. The teacher ensures that student participation is according to level of capability, and that the learners have the materials that the collective task requires. VI students should be encouraged to participate in such groups as the teacher's individualised planning encompasses the provision of materials in large print, accessible electronic text, and Braille, if needed (Fraser & Maguvhe, 2008; George & Duquette, 2006; Roe, 2018).

Another example is the interactive-read-aloud which requires students to read given texts aloud, with expression, varying voices for different characters, and gestures (Barrentine, 1996). The listeners actively participate in the reading through plot predictions, and discussions, as well as asking questions for better understanding. Verbally, the readers show how they derive meaning from the assigned texts. Through this strategy, the teacher has a strong English-language model that reduces anxiety because students may listen and understand through the use of voices. For VI students, this teaching technique is beneficial because they gain the opportunity to identify the characters being impersonated by the reader through tone of voice – an auditory clue – instead of depending on picture cues.

The writing workshop is another example through which learners can select the topic on which they want to write, draft, edit, and publish, just as if they were professional writers (Graves, 1983). The teacher can turn this into a fun activity, or even a profound experience through the introduction of themes on which students may peg their chosen topics. The writing workshop supports EFL because it encourages learners to reflect, brainstorm with their classmates, collaborate with a peer or group, and verbally interact with others during the editing process. The show of support for one another's work reduces anxiety while motivating learners to write.

As has been discussed thus far in this literature review, VI students are at risk of lagging behind their sighted peers, particularly in learning English, reading fluency, vocabulary, and concept development (O'Donnell & Perla, 1998; Emerson et al., 2009; Tobin & Hill, 2012). The fact that many of these students lag behind their sighted peers means that such students may feel overwhelmed by having to adjust to college education, as well as experiencing extreme feelings of frustration, depression, and the desire to leave school

(Hutto & Thompson, 1995). As has also been raised, a good number of VI students struggle with the use of conventional educational materials, (Lewis et al., 2003; Hersch & Johnson, 2008). Extant literature contains numerous studies discussing frameworks relevant to vision impairment and also emphasises the multiple challenges vision impaired students face in terms of college education attainment, including accessing information as well as inclusion in the educational setting (Hersch & Johnson, 2008; Ketterlin-Geller & Tindal, 2007; Leventhal, 2008; Sapp, 2009; Babu & Singh, 2013). Previous research also points to the daily and long-range challenges confronting vision-impaired students because of inadequate access to appropriate technologies (Zhou et al., 2011; Siekierska et al., 2003). However, VI students can address these issues through the use of inclusive technologies to enhance learning experiences (Penrod, Corbett & Blasch, 2005). This chapter now turns to methods in EFL important for the focus of this thesis.

EFL Methods

Through the years, the field of EFL has undergone significant development such that different types of EFL methods have emerged. One of the earliest EFL methods is Grammar-Translation, which has been in practice since the turn of the 19th century (Intarapanich, 2013). With Grammar-Translation, the approach used is memorization of lists of isolated vocabulary words. This means to say that this method does not emphasize oral communication and aural comprehension. Hence, learning English does not necessarily entail speaking, pronouncing or even understanding the target language. Since the target language is taught in the students' native language, students may have been studying it for years but have not even used the target language even in the simplest conversation. However, more recently, the Grammar-Translation method has been focusing on the development of learners' appreciation of the target language's literature aside from teaching the language (Intarapanich, 2013). Students are asked to read target-language reading texts and then answer questions asked by the teacher. However, the problem with this method is that it is not consistently applied by teachers in different countries. Therefore, while students may be able to read and write English well, because they have no experience or practice speaking or listening to the target language, they might not perform well in this regard.

Another method is called the Direct Method (Intarapanich, 2013). Considered as the first theory-driven method, this was developed in response to the weaknesses of the Grammar-Translation method. The Direct Method (TDM) allows learners to perceive meaning directly through the target language taught from the beginning mainly because translations are not permitted (Intarapanich, 2013). Teachers use tools such as visual aids and other learning materials such as books in order to establish the meanings of vocabulary items as well as concepts in real life language. As seen here, the goal of TDM are both speaking and listening comprehension, rather than translation. Consequently, vocabulary is typically introduced through context as well as demonstrations and pictures. Attention is given to appropriate usage and pronunciation. Students learn to write using the target language through dictation.

Another example of an EFL method is the Audiolingual Method (ALM) (Intarapanich, 2013). Unlike the TDM, ALM is based on the behaviourist rationale that in order to properly learn language, one must acquire the requisite set of correct language habits (Intarapanich, 2013). To achieve this, the student is asked to repeat patterns until he or she is able to spontaneously pronounce them. Because this method is behaviourist, each time the learner provides the correct response to teacher prompts, a reward is given thereby promoting the formation of good speaking habits. On the other hand, if they provide the wrong response, they do not receive rewards such that wrong responses are repressed. Through these processes, fluency may be achieved.

The fourth EFL method is Communicative Language Teaching (CLT), which stresses the need to teach students communicative competence rather than linguistic competence (Intarapanich, 2013). Therefore, emphasis is more on functions rather than forms. Usually, learners are divided into small groups so that they can work with authentic materials on communicative activities. On the other hand, the Community Language Learning (CLL) method brings psychological counselling techniques to learning and is underpinning by Counselling-Learning theory (Intarapanich, 2013). Due to its psychological perspective, CLL eliminates hierarchical relationships between teacher and students. Instead, a relationship comparable to that of counsellor-client is used. Based on this method, learners are considered as vulnerable to risks such that when the counsellor-client relationship is used, they will feel less vulnerable such that they are theoretically

liberated from constraints that could prevent barriers to learning a second language. Taking on the role like that of a counsellor, the teacher empathetically translates and facilitates learning activities.

Yet another EFL method is known as the Suggestopedia (Intarapanich, 2013). This method is based on Lozanov's theory holding that in relaxed states, the mind and body are able to absorb knowledge easily. This method eliminates psychological barriers to learning. Students are taught to undertake dialogues to the accompaniment of music in order to help students relax (Intarapanich, 2013). Adult learners are also welcome in these classes, and they are asked to behave like suggestible young people and to regard the instructor as a parental figure. Learning environments are equipped with imagery, dim lighting and comfortable seats.

The Silent Way is grounded upon Gattegno's theory that teaching should take a secondary role to learning (Intarapanich, 2013). Hence, because they are at the centre of their own learning, students are required to establish their own inner criteria for success. From the onset, all target language skills are learned, namely, reading, writing, speaking, and listening. It is important to note that the Silent Way is based on learning and teaching theory rather than language theory (Intarapanich, 2013). Here, the goal of this method is to achieve automatic learning by encouraging students to explore instead of memorising, lexicon as well as prescriptive rules of the target language. The teacher plays the role of facilitator who steers students along the right course so that they do not stray from learning the target language.

Meanwhile, Total Physical Response (TPR) is an offshoot of TDM (Intarapanich, 2013). This is based on Asher's hypothesis that because children, in learning their native language, listen more than they speak and typically respond physically to speech, then EFL learners should also learn their target language using the same approach. The TPR usually starts by emphasizing the significance of learning comprehension, and then follows the early stages of native language acquisition until the student can progress to speaking, reading, and writing (Intarapanich, 2013). A weakness of this method is that it is more effective for small chunks of knowledge only, such as commands and instructions, especially if the student has no knowledge regarding the target language.

Affordances of Technologies

Since the present study is interested in what happens when VI students are provided with an accessible Ebook, the concept of affordances is relevant to this thesis and, as such, is now discussed. Often used in educational technology contexts, the term affordance may be defined as an element that "provides or furnishes, either for good or ill … It implies the complementarity of the animal and the environment" (Bower & Sturman, 2015; p. 3433). Based on this definition, an affordance is in existence for as long as an individual is capable of undertaking actions needed to use it. A variation of the term affordance is that it implies how an object or subject may be used. It pertains to "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used" (Bower & Sturman, 2015; p. 3433). For instance, a chair provides the affordance of sitting. This second definition is useful for this study on VI EFL students because the success through which technologies are harnessed for learning and teaching hinges upon the teacher's ability to appreciate the requirements within the learning context (Bower & Sturman, 2015). Based on this, the teacher selects and uses technologies in manners that fulfill the learning needs of students. It must be noted that not all technologies being used for educational purposes were intended for learning and teaching. In light of this, the teacher should be able to effectively explore the affordances and limitations of these said technologies so that ultimately, it becomes possible to creatively adapt them to educational contexts (Bower & Sturman, 2015). An essential aspect of affordances underlying the technologies is that they permit analyses on the part of educational designers so that technologies may be adapted to learning contexts (Bower & Sturman, 2015). Due to the rapid evolutions in technology, there is a need to shift from a pure comprehension of specific tools in order to consider investigations about the educational value of new technologies according to their capabilities. From this perspective, teachers are able to select technologies according to the learning needs of students instead of on pure intuition or no rationale at all.

To date, educational researchers have taken a number of attempts to categorise affordances for technologies. For instance, there have been researchers who sought to define affordances of mobile technologies (Bower & Sturman, 2015). Other researchers have also developed frameworks conceptualising affordances of information and

communication technologies from a broader perspective (Bower & Sturman, 2015). A shared characteristic of these frameworks is that they are difficult in terms of ontological consistency so that (a) variables being described or defined are related to similar constructs, and (b) where limits of an affordance are drawn , such as for example, the functionality of a specific instrument as opposed to potential impacts of using them (Bower & Sturman, 2015). Because of these challenges, it is not unlikely that ambiguities would exist so that incongruities between frameworks may emerge even though they are seeking to analyse the same phenomenon.

In literature, there are three types of affordances relevant to education: (a) technological based on their usability; (b) social; and (c) educational affordances. Technological and educational affordances are attributes of a technological or educational, respectively, affordance that suggest if and how a particular learning behaviour may be achieved within a given context (Bower & Sturman, 2015). In contrast, social affordances refer to factors within the learning environment that provide social-contextual facilitation relevant to the learner's social interactions (Bower & Sturman, 2015).

Combining the three, affordances can be defined for specialised technologies, including, blogs and 3D virtual worlds (Bower & Sturman, 2015). Technological affordances relevant to VI students may be derived from assistive technologies and inclusive technologies. Specifically, these affordances include access to in-situ information, recording and feedback, communication and distribution of resources, hands-free access and first-person view, simulation through re-enactment and increased engagement and presence through immersion (Bower & Sturman, 2015).

Inclusive technologies and The Literature on E-books

A key aspect of the intervention designed for this thesis is an accessible ebook and, moreover, an ebook that can be accessed and successfully used on technology that VI individuals already possess. As such, it is beneficial in terms of the design of the intervention and the research context to now undertake a discussion of inclusive technology, beginning with how the term is defined.

Inclusive technologies are defined as “both software and hardware which is accessible to all students regardless of technological competence, confidence or disability” (Newland, Boyd & Ball, 2009, p. 1). These include mainstream software programmes, including the Mac operating system with built in Voiceover and Magnification, and the Windows operating system, that have been created with various flexible functions related to navigation preferences such as the Magnifier facility and the Narrator, (Newland, et al., 2009; Waller, Bradley, Hosking, & Clarkson, 2015). The most important advantage of using inclusive technologies is that disabled people can use them without being judged in terms of their disability because many other people are using them. Notably, technology that non-disabled people use is often associated with competence, belongingness, freedom and independence (Soderstrom & Ytterhus, 2010). In contrast, assistive technologies tend to be associated with restriction, difference and dependency (Soderstrom & Ytterhus, 2010). Therefore, inclusive technologies embrace disabled people rather than discretely identifying them as being different or disadvantaged. Hence, one of the aims of this study is to provide the course book and all supplemental materials for the VI students in their 1st year 3rd level English course in a format that allow them to fully interact in the course by using the inclusive technologies they own. iPhone, iPad, Android phones/tablets and Mac OS X / Windows 10 OS laptops are examples of such inclusive technology since all these devices include built-in accessibility features that people with vision impairment can use.

Many studies attest the benefits that assistive technology provides to VI learners (Allen et al., 2008; Hersch& Johnson, 2008; Hemmingsson et al.,2009; Orsini-Jones, 2009). This is because assistive technologies provide adaptations and modifications so that the VI students may be fully integrated into regular classrooms. However, an ongoing shift has been taking place in the realm of education for disabled students, including those with vision impairments. Some scholars have been promoting the use of inclusive technologies due to seemingly shortcomings associated with assistive technologies. As Foley and Ferri (2012) explain, instead of depending on “static and outdated definitions of disability and technology or conflating disability with assistive technology,” there is a need to consider disability and technology “more fluidly and responsively” (Foley & Ferri, 2012, p. 198). The main difference between inclusive technology and assistive technology is that the

former is grounded upon a “vision of accessible technology” that is “technology for people rather than for disability” (Foley & Ferri, 2012, p. 198). As seen here, this revolutionary approach to technology in the context of disabled learners represent a “global, accessible and inclusive concept, not one that requires a qualifier based on who it is for” (Foley & Ferri, 2012, p. 198). Therefore, inclusive technology is based on the rationale that no technology should be designed only for certain people while another form of technology should be redesigned or reworked so that they are accessible to the rest.

Through their study, Feeney and Trief (2003) demonstrate the importance of assistive technology for VI students. They found that VI college graduates consider the most essential skills to acquire before entering college are skills in assistive technology and social skills/ self-confidence. Such a precollege curriculum is undoubtedly useful, but a nurturing high school environment, where family are often influential in a school's decision to seek the necessary funding for accommodation for students with disabilities, is not the same as the college environment. In the latter, even students without disabilities can be easily overwhelmed by the sheer number of students and the often impersonal structure of lectures and tutorials where they are one of hundreds of students, none of whom are necessarily familiar with the instructors.

This section now turns to a review of the literature on E-books relevant to this study.

The electronic book (E-book) is regarded as one of the most important developments in the world of literature and reading since the Gutenberg press in the fifteenth century (Cull, 2011; Epstein, 2008). From the moment E-books were first released, it was believed that they would transform the reading habits of many (Hoang & Nguyen, 2018; Rao, 2003). Clearly, prior to the existence of E-books, people were limited to reading printed materials. This meant that, for every book, the individual would have to physically carry the printed item in order to read. This changed when the digitisation of content became the latest mode of making reading materials available to people. Essentially, an E-book is an attempt to digitally recreate the reading experience of traditional reading. Initially, the intention behind E-books was to replicate the reading experience, or, at least, the endeavour started out with the intention of recreating the experience of reading a paper

book. Then, as technology evolved, the concept of E-books also developed to include multimedia, containing other elements or links to material elsewhere in the book or even external to it (Vassiliou & Rowley, 2008).

Technological drivers, including digitisation, the Internet, and advances in computer hardware and software, have facilitated the rapid development of E-books in the global market. An E-book is defined as "a digital object with textual and/or other content, which arises as a result of integrating the familiar concept of a book with features that can be provided in an electronic environment" (Hoang & Nguyen, 2018, p. 568). In other words, an E-book is analogous to a physical book but is in digital form to be displayed on a computer screen/other hand-held device, or, is a book that has been converted to digital form and can be read on a tablet, smart phone or computer. It may expand the functionality of print media through the addition of hypertext links, search and cross-reference functions, and multimedia (Slater, 2010; Vassiliou & Rowley, 2008).

The current rapid digital revolution allows for a wider variety of electronic content to be made available in a cost-effective and convenient fashion for VI students instead of providing educational content in Braille or in talking books (audio tapes/CDs), options which are time-consuming and more expensive (McNaught & Alexander, 2014).

E-books have several advantages that are inherent in the format of electronic devices, particularly in terms of the level of features and flexibility that are unthinkable in traditionally printed books. For example, once published, the E-book has the potential for instant worldwide distribution over the Internet and can be accessed from virtually any location, without risk of damage, unlike with printed copy. It is also easy to integrate the available list of E-books into a library's online catalogue; a reader does not have to physically visit a library to read these publications. Moreover, a single E-book reader can contain as many texts as would be found in a small library. The reader can "carry" as many books as allowed for their reading device. This could mean having hundreds or thousands of E-books on one electronic device, ready to be accessed anywhere at any time (Rao, 2004; Ernst & Velde, 2009).

The E-book format also offers economic advantages because overhead publication and distribution costs are naturally significantly lower than for the printed format. Since it is

paperless, the creation of the E-book format is naturally minimal, which also translates to a lower selling price, which, in turn, means greater affordability and availability for readers from all walks of life. Many businesses also use E-books for manuals to eliminate costs related to creating, copying and disposing of thousands of pages, as well as by changing distribution from expensive courier services to instant downloads via the Internet (Rao, 2003). It is also environmentally friendly because, in contrast with traditionally printed books, not a single tree is cut down for the production of an E-book. Even for academic publications, such as journals, the electronic format means that more people are able to access these academic resources without paying for every article or journal released but, instead, subscribing to a library that carries copies of electronic journals (Wu & Chen, 2011).

In spite of their benefits, E-books also have a number of disadvantages. Arguably chief among these is the limited availability of titles in E-book formats (Chen, Hu & Smith, 2019). In addition, and relevant to this study, a person who is technologically challenged may not find E-books easy to access because this may involve using the internet to buy books from an online store. This challenge can be particularly applicable to senior citizens and some VI people (Crossland, Silva & Macedo, 2014; Olphert & Damodaran, 2013).

When digital content arrived, with it came DAISY (Digital Accessible Information SYstem). The first DAISY prototype was introduced in 1994 (Lundh & Johnson, 2015). Since then, people with print disabilities have been able to access previously elusive text features that are taken for granted by the majority of people who read, for example, easy navigation through books (Lundh & Johnson, 2015). The Swedish Library of Talking Books and Braille (TPB), a national library responsible for producing accessible media for print-disabled people in Sweden, developed and launched the first DAISY format (Lundh & Johnson, 2015). The DAISY standard has been further developed by the DAISY Consortium, formed in 1996 by governmental and non-profit talking book agencies from several countries. The DAISY standard permits six levels of heading markup, aside from page-level navigation, movement according to pre-defined phrases, as well as text and full audio synchronisation (Danielsen, Taylor & Majerus, 2011). By synchronising full text with audio, the reader can listen to a recorded narrator read a book while reading along

in Braille or listen to recorded text and stop to analyse the text section of the book to learn about spelling or find a certain section in the book using the table of contents.

DAISY solved some of the problems set out above by facilitating the division of books into elements that, when put together, resemble the reading experience that somebody would have reading a paper book – skimming is possible with DAISY, just as it is with a traditional book, for example. Readers can look at headings, sections, and subsections, and skim through those quickly in DAISY just as with traditional reading. This seems like the ideal situation for an accessible book for a VI reader, but I need to point out that books that are produced in accordance with the DAISY specification are not widely available. This is a logistical challenge. My personal view in the matter is that the idea behind DAISY, when it emerged in the early 2000s, was that it would be a format that was not going to be restricted solely to the context of accessibility; it was meant to be a universal format with the added advantage that accessibility would be front and centre in the design. As is already known, that did not happen.

In light of the above, it is important to note that neither the introduction of Braille nor the creation of talking books have been able to provide blind readers with full access to the range of printed material available to the rest of the general public (Danielsen, Taylor & Majerus, 2011). It was thought that these shortcomings would be addressed by E-books that allow VI people to fully access the printed word. However, this can only be achieved if E-books and E-readers are well designed, if public and private institutions demand accessibility for E-books, and if public policies affirm the right of the vision impaired to have full and equal access by promoting universal accessible standards for E-book creation (Ibid.).

There are two general types of E-books: hardware dependent, such as the Amazon Kindle or similar E-readers, and hardware independent, which are accessible through the Internet and on specific software installed on one's PC or mobile device. This means that E-books can be widely used by almost everyone. This is especially vital for, and much appreciated by, anyone who is not able to access print books, such as the vision-impaired, especially for educational needs (Bartalesi & Leporini, 2015). However, many available E-

books do not allow VI readers to read the text content via screen-readers in a suitable way because the E-book content is usually not accessibly designed (Ibid.).

What is the definition of an accessible E-book? The easiest way to develop a response is to address the question within the context of legal definitions of accessible documents that are used in the European Union and the U.S. Such legal instruments simply define accessible documents as those documents that comply with WCAG 2.0 (Web content Accessible Guidelines 2.0, put out by the World Wide Web Consortium W3C). This is essentially the strict standard-based definition of an accessible document and, by definition, an accessible E-book.

In light of the aforementioned, it is important to define accessibility as applied to E-books. Technology is a tool that fosters equality, particularly in the forms of assistive, adaptive and rehabilitative devices for people with disabilities (Eligi & Mwantimwa, 2017). Through the years, many assistive technologies have been developed and these have been used by vision-impaired people to advance their independence and increase access to learning and education. Examples of such assistive technologies are the Kurzweil Reading Machine and software, computers, screen-readers, video chatting platforms, the Internet, Braille translation software, Braille writing equipment, Braille embossers, scanners, and optical character recognition (Lucky & Achebe 2013; Eligi & Mwantimwa, 2017).

Technologies such as those mentioned above could be powerful tools that provide people with disabilities simplified access to, and sharing of, the same information as their able-bodied counterparts (Eligi & Mwantimwa, 2017). Indeed, the said technologies help reduce discrimination while enhancing open access to knowledge in extraordinary ways. Overall, these technologies can also potentially improve the quality of life of blind and visually-impaired individuals by enhancing efficiency and effectiveness in various socio-economic spheres that impact learning and information sharing. E-books can potentially provide numerous benefits to VI individuals, although it is clear that much work still needs to be done in relation to their accessibility.

Accessibility and the challenges of E-books

Let us take a historical view and put the matter of accessibility into perspective. When people started recording books for VI students, the challenges that were inherent in them related to presenting the content in a linear manner. When a blind student heard a book on tape or on CD, they could not move from one page to another, nor could they go from one chapter to another. The VI reader had to listen to the whole tape to get to the desired chapter. I consider that the best way to understand the challenges that VI people face when accessing E-books is to group them into three categories of challenge: legal, technical and logistical. These three challenges are discussed in more detail below.

E-books can allow users to change the layout of the text, such as font size and line spacing, modify colour and contrast levels, and, have text read aloud by means of assistive technologies or displayed as Braille (James, Draffan & Wald, 2017). However, a challenge to accessibility in relation to E-books is that even though the standards are defined for what an accessible book is or should be, the technologies are wide-ranging and often incompatible. In other words, the technical standards are defined, but the storage, formatting and retrieval standards are many. There is PDF, XPS, EPUB, DAISY, the Kindle format from Amazon, the iBook format from Apple, and so on, and there are so many others that have come and gone. There are different accessibility standards and guidelines for digital materials, including those of Adobe Acrobat for its Portable Document Format (PDF), and those of the International Digital Publishing Forum (IDPF) for electronic publication (EPUB) (James, Draffan & Wald, 2017).

In addition to these, the W3C Web Accessibility Initiative (WAI) has also published its Web Content Accessibility Guidelines 2.0, written for a broad audience, encompassing “[w]eb designers and developers, policy makers, purchasing agents, teachers, and students” (James, Draffan & Wald, 2017, p. 970). However, these guidelines do not sufficiently establish whether VI individuals would be able to access and utilise E-books. Therefore, the problem we currently have is that we have several E-book standards. We do not have a specific single E-book standard into which accessibility can be built. VI students’ lack of familiarity with the different technologies is a barrier to reading E-books. This is a technical challenge that VI people have to deal with. Any VI student has to have a certain

level of familiarity and comfort with technology. Put very bluntly, if you do not know how to use a computer, the most accessible E-Book is not going to do you any good.

Another hurdle that VI readers need to overcome is the logistical challenges of E-books. The lack of availability of many educational titles sometimes puts VI individuals at a disadvantage, even with the standards that are designed for accessibility or that lend themselves to accessibility, say, EPUB (which is a universal standard but has accessibility built into it). The number of books that are available in certain standards is very limited. For instance, the textbook that the study participants are supposed to have for the ENGLISH 103 course was not accessibly available for the VI students.

After shedding light on both the technical and logistical challenges of accessing E-books for VI people, the legal challenges are still limiting to a certain extent for VI people in particular geographical locations. The Marrakesh Treaty is an international agreement on copyright exceptions and limitations which is intended to address the legal challenges affecting the accessibility of E-books. The main goal of the Marrakech Treaty is to facilitate the cross-border exchange of accessible format copies of books for vision-impaired people (Zemer & Gaon, 2015). VI people have, over a long period of time, asked the international community for a means of increasing the number of accessible books. After thirty years of negotiations and many meetings between member state representatives, negotiators and non-profit organisations, the World Intellectual Property Organization (WIPO) adopted the VI people's Treaty on the 27th of June, 2013, in Marrakech, Morocco, and it came into force on the 30th September, 2016 (Olwan, 2017). Nevertheless, in spite of this advance, not all countries have ratified the Treaty, though it should be noted that the Marrakech treaty does not eliminate the technical challenges that VI readers may encounter when needing to read a book.

Legal challenges have existed for years. When Amazon introduced Text to Speech to their Kindle a while ago, many of the publishers actually objected. They specifically asked Amazon to turn that feature off. The Authors' Guild refused to accept text-to-speech even in the context of accessibility (see Armstrong 2011 for more details).

Another accessibility challenge related to the E-book is that, in schools, there are shortcomings in resources, particularly as regards E-book readers that could help VI

students to use E-materials (Babalola & Haliso, 2011). There are also many teachers and curriculum developers who do not promote the accessibility of E-books (Calabrò, Contini & Leporini, 2009; Larson, 2012). Additionally, it cannot be overstated that many teachers are not fully aware of the need for, and the potential of, learning technologies such as E-books in enhancing learning, particularly for disabled individuals. This is all the more astonishing given that there is a wide array of such products on the market that are designed electronically to meet the needs of these students.

There are other obstacles to the accessibility of E-books. For example, researchers have shown that there is a lack of teachers and curriculum developers who are trained in specialised, disabled-friendly teacher competencies. There is limited flexibility in training options for students with disabilities, and restricted availability of specialist disabled-friendly hardware and software due to financial constraints. There is a lack of formal involvement of governmental organisations in providing the appropriate support structure for the disabled, and, moreover, there still remain negative attitudes towards people with disabilities, and insufficient disabled-friendly policies and the unsatisfactory implementation thereof (Akpan & Beard, 2013; Ostrowski, 2016; Eligi & Mwantimwa, 2017).

Bartalesi and Leporini (2015) highlight three of the most common problems with E-book accessibility: 1) images do not have alternative descriptions explaining what an image includes for screen-reader users; 2) the table of contents is usually not available or, if it is available, it is usually not well-structured; 3) the organisation of the E-book into chapters, sections and sub-sections is not properly formatted to allow convenient and accurate interaction via screen-readers, and, in particular, on touchscreen devices such as the iPad and iPhone.

Everything that has been discussed in this literature review will be applied to a specific geographical setting for this study. This is EFL education in the Kingdom of Saudi Arabia, which will be discussed in the next section.

Study Setting: The Kingdom of Saudi Arabia

In the Kingdom of Saudi Arabia (KSA), VI special education programmes have been established for VI students. In the past, none of the Arabic countries had schools for VI students. The majority of VI individuals did not attend school and generally stayed at home. However, some form of tutorial might have been available to VI persons, through which they learned religious teachings as well as studied the Qur'an (Alotaibi, 2006). These tutorials are generally conducted by private arrangement with instructors specialising in the field and are conducted in the home environment.

KSA special education dates back to 1958 when a blind man, Mr. Alghanem, studied the Braille system of reading and writing and introduced it to his fellow blind men (Safhi, 2009). By 1960, the government opened its first training institute for blind male students called the Al-Noor Institute in Riyadh, the capital of KSA. It is not uncommon for researchers to herald the opening of the Al-Noor as the first step towards special education for blind people who were not allowed in regular classrooms and thus could not attend regular schools. The turning point for the education of VI learners was in the mid-1990s, when the said students were no longer limited to government-operated institutions if they wanted to obtain an education. Instead, schools established their individual special education programmes, which had their own resource rooms, self-contained classrooms, trained teachers, as well as consultations. The establishment of these special programmes in schools did not mean that institutions closed down. Instead, the government changed the goals of these institutions so that they could provide (i) in-service training centres, (ii) information and support service centres, and (iii) alternative service delivery models for multiple handicapped students not served in regular schools due to the severity and complexity of conditions (Alotaibi, 2006).

In regular schools' special education programmes, students were integrated into the school environment, but in special classrooms. The Ministry of Education classified them according to three groups based on visual acuity. The first comprised of VI students with a Visual Acuity of 6/24 with correction; the second was for those with a Visual Acuity of 6/24-6/60 with correction; the third was for those who have a Visual Acuity of less than 6/60 with correction (Alotaibi, 2006). As of the mid-2000s, there were more than 111

integration programmes in various regular schools in KSA. Many universities have also established courses on special education so that teachers may be educated and subsequently trained (Safhi, 2009). For instance, established in 2006, Taif University provides programmes in visual impairment, hearing impairment, developmental delay, autism, learning disabilities, and emotional and behavioural disorders (Safhi, 2009). Taif University's vision impairment programme has a similar curriculum to that of King Saud University (Safhi, 2009).

As already discussed, self-efficacy refers to a person's beliefs regarding his or her capability to successfully achieve a task at a specific level. Studies have shown that self-efficacy beliefs are strongly associated with the successful learning of English as a second language. Notably, learners that have strong self-efficacy beliefs do not allow barriers to impede them from achieving their goals regardless of the level of difficulty. Self-efficacy has been described as an agentic concept, indicating that it is linked to a person's ability to coordinate learning skills, emotions and motivation so that goals may be attained. This means that self-efficacy is at the heart of human agency because an individual has to first believe that he or she has the ability to produce desired effects and eradicate undesirable ones before the motivation to act enters the picture. In light of this, the relationship between self-efficacy and agency can affect performance as a result of the motivation to act. In the event that the individual has strong self-efficacy and human agency, then good performance may reasonably be expected because of the resultant high motivation to act.

Students harness different skills, strategies and processes in order to learn. The strategies that students use are impacted by socio-cognitive influences that can help determine their academic performance. To note, the approaches that students use in order to learn may be partly or wholly based on their self-efficacy beliefs.

Meanwhile, among VI students, persistent challenges prevent many of them from performing optimally in learning English, reading fluency, vocabulary, and concept development. Due to these challenges, many VI students have found the need to use assistive technologies in order to make learning more efficient and effective. However, fairly recently, we have seen a paradigm shift, and there has been increasing recognition

of the merits of inclusive technologies vis-a-vis assistive technologies. This is based on the rationale that inclusive technologies address the shortcomings of assistive technologies especially when it comes to equal accessibility. Based on these concepts and the interrelationships between them, this study seeks to address a gap in the literature pertaining to the impacts of inclusive technology on the self-efficacy beliefs of college-level, VI EFL students.

Chapter 4: Methodology

Introduction

This chapter discusses the methodology used in this study. It begins with a reiteration of the research questions, and how the current study is intended to answer them. Then, this chapter provides an overview and explanation of the research approach selected to explore the self-efficacy beliefs of VI freshmen who are taking mandatory English language courses in their preparatory year, i.e., the first year of university where they take four levels of English. The method chosen for this project is predominantly qualitative. Quantitative data in this study will complement the qualitative results by providing VI students' self-efficacy beliefs scores in both pre- and post-intervention ENGLISH 103 self-efficacy questionnaires.

The impact of the introduction of accessible materials and technology on the self-efficacy beliefs of VI EFL/ESL adult learners and the introduction of accessible materials and technology is relatively unexplored territory in empirical investigations. This study aims to fill that gap by using mixed methods, through predominantly a qualitative approach, using interviews and focus group discussion. The QUALITATIVE[4] and quantitative data are blended in order to provide "a stronger understanding of the problem or question than either by itself" (Creswell, 2014, p. 215). As such, through the mixed methods research methodology, the researcher is able to acquire a rich perspective of the phenomenon being investigated.

The concept of self-efficacy of the VI students in the context of this study involves their beliefs, attitudes, motivation and behaviour towards technology and learning English. It seeks to provide a robust and an elaborative description of how the introduction of an accessible English language course is perceived by the participants and how it could impact their self-efficacy beliefs.

[4] According to Creswell (2014: 229) capitalisation indicates that an approach or method is emphasised. Lowercase indicates lesser priority or emphasis on the method.

This chapter explains the research context, participants and research instruments chosen for the study. Finally, the ethical procedures followed during the data collection and analysis are set out, as well as the potential limitations of the current study. It should be noted that the limited number of participants and the individuality of the VI learners and their relationship to learning English and the use of technology might confine the extent to which the findings can be generalised to the wider population. Nevertheless, I hope, by providing sufficient detail and rich analysis in the final account, some of the individual situations of the participants can be of practical use for other researchers, and can be employed in the many other college, university and school contexts where VI students are learning English as a second language.

Research questions

The primary goals for this study are to obtain VI students' perspectives and attitudes about learning English and the use of accessible technology as a tool for learning. Moreover, it is also intended to contribute to the pool of special education research by enriching the field with data about a particular group (VI adult English learners) and a particular intervention in an educational setting in Saudi Arabia. It is important to note that there are several challenges regarding the setting in the context of VI students. For instance, according to Benabid and Zuhair (2015), there is inadequate adaptation and availability of assistive tools in Saudi Arabia for supporting VI students. There are researchers and information technologists based in the country that seek to develop assistive devices including those for VI individuals, but actual use of these technologies in classroom is not widespread (Benabid & Zuhair, 2015).

Apart from this, along with the low adoption rates of assistive technologies in the classroom, researchers have also noted that teachers lack the essential training for the use of accessible devices (Subihi, 2013). Special education teachers do not attend specialist courses or training for assistive technologies (Subihi, 2013). Lastly, another challenge pertaining to the adoption of assistive technologies in KSA is that most of the devices that are communication-based use mostly English or Spanish languages (Alquraini, 2011). Accessible devices and software that have been adapted to the Arabic language are usually over-priced compared to the already costly English ones, thereby limiting the number of learners that can obtain them (Alquraini, 2011). However, with the

rapid development of technology and the popularity of open source development, inclusive and universally accessible software and devices that support Arabic are gradually becoming available.

As mentioned in Chapter 1, the intervention will target the following objectives:

- The provision of a course book and all supplemental materials to vision-impaired students in their 1st year, 3rd level English course in a format that allows them to fully interact in the course by using the inclusive technologies they own, such as iPhone, iPad, Android phones/tablets and Mac OS X / Windows OS laptops, among others.
- An increased awareness of the current state of assistive technology, accessible eBooks, and how they can be effectively implemented for vision-impaired ESL/EFL learners.

The above-mentioned challenges and research objectives led to the formulation of the following research questions:

RQ1. What are the factors that determine self-efficacy beliefs among vision impaired college-level learners?

RQ2. To what extent are there equal EFL learning opportunities for vision impaired college-level learners in their 1st year mainstream EFL course when compared to their fully sighted counterparts?

RQ3. What are vision impaired college-level learners' perceptions regarding the implementation of electronic texts in their 1st year mainstream EFL course?

RQ4. How does the accessibility of electronic texts and technology impact the self-efficacy beliefs of vision impaired college-level learners?

RQ5. Is there a change in ENGLISH 103 vision impaired college-level learners' self-efficacy beliefs in the areas of listening, speaking, reading, writing, and grammar and vocabulary after the intervention?

Before providing the research context of the present thesis, it is beneficial to address the issue of how each of the above-mentioned questions will be answered. As for question number 1, which examines the factors that determine self-efficacy beliefs, these are

explored through students' responses to direct questions about themselves and their relationships with classmates and teachers, as well as the familial environment with regard to their interactions and performance in ENGLISH 103. All these aspects were addressed in the post-intervention interviews and are revisited in the post-interview focus group discussions.

Then, question 2, intended to investigate the impact of accessible technology on the participants' self-efficacy beliefs, is answered by investigating how the students' beliefs regarding their ability to perform tasks has changed (or not) before and after the intervention. This is directly answered through the participants' post-intervention interview responses, as well as the post-interview focus group discussions. Furthermore, the results from the pre- and post-intervention self-efficacy questionnaire responses supplement the qualitative data in answering this question by analysing and comparing the scores from the pre- and post-intervention questionnaires, and by linking the scores of each individual with the relevant qualitative responses.

Question 3 addresses whether VI learners think they are receiving equal learning opportunities at school and university levels. The interviews and focus group discussions are expected to reveal the participants' ideas when they talk about their prior experiences at school and the first semester at university. Furthermore, the current experience of the students while taking ENGLISH 103 during the intervention will shed light on some elements needed to answer this question.

The fourth question is oriented towards finding out the students' views on the use of the tool itself (the eTextbook and other supplemental materials for the ENGLISH 103) rather than reflecting their confidence or the ability to perform specific tasks in the ENGLISH 103 course. It is worth noting in this context that the post-intervention interview contains questions that directly investigate the participants' perceptions of the use of accessible technology and of the eTextbook on their learning. Additionally, the post-interview focus group discussion revisited this in a more in-depth fashion.

The last question, however, is answered by comparing VI learners' responses to the pre- and post-intervention ENGLISH 103 self-efficacy- beliefs instrument on a 10-point Likert-type scale from 0 to 100 in each of the language skills.

Research context

The setting chosen to undertake the fieldwork for this project is King Abdul Aziz University (KAU) in Jeddah, Saudi Arabia. KAU is one of the largest universities in Saudi Arabia with over 45,000 enrolled students. It also has a high number of VI students compared to other universities. Indeed, prior to choosing the setting for this project, a telephone contact at two other large universities in Saudi Arabia revealed that administrators had not been aware of any VI students for the schools in 2014. In contrast, KAU reported that they had over a hundred legally registered VI students enrolled in the institutions' various four-year undergraduate specialisations. KAU also provides dormitories to students who come from different parts of Saudi Arabia. This sort of convenience means the students in KAU represent all regions of Saudi Arabia unlike some other Saudi universities that mainly cater for local students. This diversity in the backgrounds of the VI students makes it an ideal context for the current study.

Another reason for the selection of this educational setting is that the researcher had earned his four-year bachelor's degree from the same university (KAU) as a VI student and, later, had the opportunity to teach there for two years. Having a sufficient degree of background knowledge about the setting and participants as a student and teacher will be helpful to speed up the process of arranging the research. This background also affords the researcher an enhanced understanding of college life for VI learners in general, and at this university in particular. Moreover, my role in the community of this university means that the current research is more readily accepted than that of another unknown researcher. For instance, access to the various buildings of this university for this research can easily be obtained through my direct contact with different university officials.

There are also socio-cultural challenges related to the education of VI students in the KSA. For instance, Saudi cultural values consider disabilities according to the teachings of the Quran and Sunnah (Alquraini, 2011). From the Islamic perspective, disability is perceived as a trial for disabled people and, if they are able to deal with their disability well, Allah rewards them accordingly (Alquraini, 2011). Some people believe that helping a disabled person will grant them rewards from God. Hence, there are teachers in the KSA who tend to hold negative attitudes and also treat VI students in an unequal manner, such as giving them extra, undeserved marks because of such societal values and beliefs.

During the fieldwork, I was given access to the computer lab in the Resource Centre for Students with Disabilities (RCSD) at the university, enabling convenient access to meet the participants at a mutually known place at a time of their convenience. Furthermore, the head of the RCSD introduced me to one of the senior VI students who personally knows all of the first year VI students at the university. This individual served as the initial point of contact with the participants in this study.

Initially, I faced some difficulties in arranging to meet with the participants. Several times, participants agreed times to meet, but did not turn up. They even stopped picking up the phone when I tried to rearrange further meetings. It should be noted that the head of the RCSD provided me with the mobile numbers of all the VI ENGLISH 103 students after they gave him permission to do so. Later, one of the participants told me "[w]e were not getting your phone calls because we blocked your number. We were afraid to participate in this study. We thought it would affect our marks in the English courses". I was able to meet with one of these participants who, at first, did not trust this person who came to do research with VI learners. I spent about 20 minutes with the participants to establish trust with them before starting the actual data collection. Once I was able to create a positive rapport with the first participant, he went on to encourage his other VI colleagues to take part in my research.

The curriculum and foundation year English levels

This section discusses the English language curriculum which is used for the ENGLISH 103 course. Enrolling in ENGLISH 103 requires successful completion of ENGLISH 102. ENGLISH 103 is a pre-intermediate level course. Successful completion of ENGLISH 103 and ENGLISH 104 makes students meet the English requirement for their Foundation year at the university. Taking the students' level of English competence into consideration, the coursebook which is taught to the participants in this study as a seven-week module is the "New Headway Plus, Pre-Intermediate level". As instructors are supposed to abide by the seven-week modular semester period for accreditation purposes, students are normally taught units 3-12 over the 7 week period. The meeting time per week for this course is eighteen hours. As such, in total, students meet for approximately 126 hours to complete the assigned requirements for ENGLISH 103.

Choosing the course material for ENGLISH 103 is motivated by the university's wish to improve the students' overall English language proficiency in the four language skills (listening, reading, writing and speaking). Through its contextualised topics and its focus on the real use of English in social life, "New Headway Plus" offers techniques for empowering the students' receptive and productive skills.

The book helps the students enhance their reading skills through exposure to a variety of texts – see appendix A for the sample of reading topics for ENGLISH 103. Furthermore, the coursebook, which incorporates short conversations, offers the students opportunities to participate effectively and be involved in short oral communications. In regards to writing skills, "New Headway Plus" aims to teach students how to produce coherent and cohesive paragraphs in a range of text types. The book also focuses on teaching the students a number of grammatical rules and structures useful for communication. Finally, by using the Headway CD-ROMs, students become more involved in the receptive skill of listening.

As far as the evaluation for the students' performance over the seven-week period of teaching the "New Headway Plus2 is concerned, 20% of the mark is allocated to the midterm exam, which usually takes place in a computer-based format and only includes multiple choice questions. 40% of the mark is allocated to the final exam which also takes place in a computer-based format and only includes multiple choice questions. Writing and speaking on the final exam are both allocated 10% weighting. The remaining 20% of marks are usually distributed according to the following allocations:

- 5% for three speaking quizzes
- 5% for grammar and vocabulary quizzes
- 5% for (2 or 3) reading quizzes
- 5% for writing drafts

All writing exams are handwritten. As mentioned earlier, VI students are not tested on writing as their sighted peers are. The VI students are just given double marks for the speaking tests. Somehow, this is consider a fair substitution for the writing tests.

Research design

The methods used in the current study are pre- and post-intervention semi-structured interviews, a focus group discussion 3 months post-intervention, and pre- and post-intervention self-efficacy beliefs questionnaires. Mixed methods enquiry involves qualitative and quantitative data collection and analysis methods, paradigms and techniques (Belk, 2007; Hesse-Biber, 2010). For this study, QUALITATIVE data come from the results of pre- and post-intervention interviews, and a post-interview focus group discussion, while the quantitative data take the form of pre- and post-intervention self-efficacy questionnaire results.

This study has a stronger qualitative rather than quantitative component. Notably, the majority of self-efficacy studies use quantitative methods (see for example Joët, Usher & Bressoux 2011; Mills, 2009; Caprara et al. 2008; Usher, & Pajares 2008; Pajares, Mills & Herron 2007; Klassen, 2004; Lent, Lopez, Brown & Gore 1996). To recall, one of the aims of this research is to contribute to the areas of special education and EFL learning research, particularly in terms of self-efficacy beliefs through the use of inclusive technologies among adult VI English learners in Saudi universities. Mills (2009) established that there is a dearth of qualitative studies on self-efficacy. Hence, this study with its prominent qualitative aspect can potentially provide a detailed, more descriptive and wide-ranging understanding of the study context and the subject-specific self-efficacy research.

Pajares (1997) states that it would be especially useful to gain qualitative insights about students' self-efficacy beliefs. He suggested that direct involvement in discussions about the students' self-reported experiences would increase researchers' knowledge about the students' "rules for action", a term that he borrows from Peirce (1878). In that sense, Pajares writes that "quantitative efforts will have to be complemented by qualitative studies aimed at exploring how self-efficacy beliefs are developed … and how the beliefs influence choices, effort, persistence, perseverance, and resiliency" (p. 33). Along these lines, Ames (1992) called for paying more attention to exploring real classroom contexts and the network of relationships between self-efficacy beliefs and motivation constructs. Therefore, the present research aims to contribute to the qualitative enterprise of self-efficacy studies by developing detailed discussions around the self-reported experiences of the study's participants.

The qualitative data derived from interviews and focus group discussions conducted for this study provide insight into different participant views on the phenomenon being investigated. A distinct advantage of having a qualitative component in this study is that the researcher gains a deep understanding of the "complex picture" of the phenomenon (Creswell, 2005, p. 560). During data analysis, the researcher then merges qualitative and quantitative data so that the data analysis of one data set "informs the data collection of the other data set" (Creswell, 2014 p. 215). In this specific inquiry, quantitative data are scores that participants achieved in a survey questionnaire, while qualitative data come from interviews and focus group discussion with the participants.

A quantitative perspective is also necessary for this study because it evaluates the influence of the introduction of an accessible eTextbook and course materials on the VI students' listening, speaking, reading, writing, and grammar and vocabulary self-efficacy beliefs in ENGLISH 103. The quantitative method generates numerical data, for instance, scores on instruments, such as questionnaires similar to that used in this study, that permit statistical analysis in order to "produce results to assess the frequency and magnitude of trends" (Creswell 2005, p. 559). Moreover, a quantitative component is needed for this study because the researcher seeks to describe, explain or predict causal relationships between each individual participant and some of the variables in the qualitative data (Voils, Sandelowski, Barroso & Hasselblad 2008). For this study, these variables are self-efficacy beliefs and accessible technologies.

There are many benefits to having a clearly constructed research design. It aids the researcher to (i) easily manage and control the research process; and (ii) enhance the adequacy and validity of the findings of the research (McMillan, Schumacher & Singh 1993). Considering that this study has both quantitative and qualitative components, its research design is based on both the positivist and interpretivist paradigms. Positivism is used for identifying, exploring and describing pre-existing regularities, and promotes the empirical testing of theories so that the researcher better understands principles governing both the social and natural worlds. Positivism is associated with quantitative studies. According to Collins (2010: 38) positivism "is in accordance with the empiricist view that knowledge stems from human experience. It has an atomistic, ontological view of the world as comprising discrete, observable elements and events that interact in an observable, determined and regular manner"

On the other hand, interpretivism is based on the notion that reality is subjective. Interpretivists believe an understanding of the context in which any form of research is conducted is critical to the interpretation of data gathered (Willis, 2007: p.4). Thus, the researcher seeks to understand and interpret behaviours of social actors through the use of their personal beliefs and values. Interpretivism requires the researcher to interpret "the social world as culturally derived and historically situated" (Blaxter, Hughes & Tight 2010, p. 61). Interpretivism is associated with qualitative studies and is suitable if the researcher seeks to conduct in-depth analysis of a given phenomenon in ways that the quantitative method is not expected to achieve (Creswell, 2005). Therefore, an effective qualitative researcher generates findings that reveal participants' lived experiences, genuine thoughts and reflections (Creswell, 2005). It is important to focus on the study participants as individuals because the variables being investigated are deeply personal in nature. For instance, self-efficacy pertains to the judgment that an individual has regarding his or her capabilities to organise and execute tasks so that personal goals can be attained (Bandura, 1986). As can be discerned here, the beliefs that a person holds are a deeply personal matter and the most effective manner of probing these judgments is to allow the participant to voice them to the researcher. The main purpose of using the qualitative approach is to gain deep insight into the lived experiences of the participants through their narratives. It is through their experiences that the research aims and questions may be fully addressed.

The design of the intervention / the E-book itself

"New Headway Plus" is a pre-intermediate level textbook produced by Liz and John Soars. This book is published by Oxford University Press and it is the textbook assigned for ENGLISH 103. The VI students had no accessible version of this textbook. Essentially, VI students had no choice but to take this mandatory first-year course at the university without having access to the textbook. The VI students attend the first-year English classes relying on just what they hear in classes from instructors. The original E-book provided by the publisher for ENGLISH 103 is unreadable for these VI learners. The entire E-book is made up of images, which is of no benefit to VI students, even with the help of particular learning technologies. Initially, I contacted the publisher in an attempt to obtain an accessible version of the textbook that the VI students could read independently. It is unfortunate that the publisher was not able to provide an accessible copy of the textbook

for the students in a timely manner. However, they were aware of the inaccessibility of this E-book and they mentioned that they are already considering revising the E-book platform they currently use to offer an accessible version as soon as they are able to do so.

Since it was neither practical nor possible from a research perspective to wait for the publisher to generate an accessible version of the text, I sought external help. After some searching and reviewing of options, I found Bookshare.org, which offers a fast turnaround for the generation of good quality E-texts.

Bookshare.org created an accessible E-book for English 103 for the VI students. The book is in HTML format, which the VI students can open with their internet browser of choice. The E-Book is tagged for headings and subheadings which makes it easy for the VI students to navigate through the book by using shortcuts on their screen-reader of choice. For example, by pressing “Number 1”, they can move by heading level one, which enables them to cycle through the beginning of each chapter of the book.

The participants were given the E-book at the beginning of the semester. I provided them with a general explanation of how the E-book is designed, and showed them how they could navigate seamlessly through the E-book. I demonstrated to them how they can use the E-book on their iPhones, since all of the participants were using iPhones. I also showed them how to use the E-book on a laptop using NVDA. NVDA is an open source screen reader that is freely available for everyone. I made it clear to them that the same navigation shortcuts can be applied to other screen-readers as well e.g. pressing the letter “h” goes forward to the next heading while pressing the Shift key and “h” goes to the previous heading.

Two of the participants asked if they could use the E-book on their BrailleSense devices (Braille hardware that uses Windows CE OS). One of the participants had with him his BrailleSense, so I transferred the E-book via USB Flash Drive to his BrailleSense, and demonstrated how to use it. I aimed to remove any barriers the participants may have in using the E-book by ensuring that I showed them how to use it, and by answering all of their questions. I told them to feel free to contact me directly at any time on my phone if they have any questions related to the use of the E-book.

Participants in the study

The sampling method for the qualitative data collection for the current study was purposeful sampling. Homogenous purposeful sampling is a type of convenience sampling that is typically used when a researcher wants to recruit "information-rich cases for in-depth study" (Mills, 2010, p. 838). In spite of criticisms regarding the robustness of purposeful sampling, the use of this approach for this particular study enhances the richness, validity and quality of data collected. Hence, the sample population of this study was limited to 10 qualifying participants. These participants were recruited for their shared traits: (i) adults; and (ii) VI freshmen on ESL/EFL students at KAU. It should be noted that there were only 10 VI students enrolled in this course. This is considered to be a high number compared to all other colleges and ESL/EFL classes I contacted. KAU admits over eight-thousand students yearly and they are all required to pass the four levels of first year English courses.

The VI students participating in this study had just started the second semester of their first year at university during my data collection. They all have taken ENGLISH 101 and ENGLISH 102 (level 1 and 2 English courses – beginner and elementary levels) in their first semester, and had been enrolled in ENGLISH 103 (lower intermediate level) at the time the data collection for this study was undertaken. After successfully passing ENGLISH 103, learners must complete the last mandatory English course, ENGLISH 104 (intermediate level). Each of these courses is taught in seven weeks blocks with 18 hours of teaching in each week. Students in their first semester complete level 1 and 2. In the second semester, they take ENGLISH 103 and ENGLISH 104.

These 1st year undergraduate 3rd level English course students were provided in the first week of ENGLISH 103 with a course book and all supplementary materials in a format that allows them to fully interact in the course by using the inclusive technologies they already possessed, e.g., iPhone, iPad, Android phones/tablets and Mac OS X / Windows OS laptops, among others. Allowing for an accessible way for these VI students to access the course curriculum will empower them to experience learning independence. The VI learners will be able to read the textbook for themselves whenever and wherever they want. It is worth mentioning that when course materials are not accessible for the VI learners, they depend on other people to read for them at a time and place that might not be convenient for them. To be able to read the inaccessible textbook for instance,

they will have to accommodate the availability of other people to read for them rather than doing it independently at their own convenience.

Regarding the initial selection of learners participating in this study, participants were purposively selected on the basis of specific criteria. As made clear earlier in the study, the general population in this research, who willingly shared their reflections and experiences through questionnaires and interviews, consisted of vision-impaired students enrolled at KAU and who had just started the second semester of their first year. By the time of data collection, the study's participants had completed ENGLISH 101 and ENGLISH 102 courses and had been enrolled in their ENGLISH 103 course. The initial sample population was limited only to ten participants who had just started the second semester of their first year at university during data collection. Although data were collected from ten participants, four of these participants were "purposively" selected (Cohen, Manion & Morrison, 2007) for much more detailed analysis. Given the detailed accounts which I try to provide in my analysis and the focus on the participants as individuals whose reflections and genuine thoughts are crucial to the understanding of personal experiences, I wanted to focus my efforts on extracting as much value as possible and truly learning from the four participants I addressed in detail. The responses from the chosen four were very rich indeed. Furthermore, the four participants who were selected for detailed analysis were carefully chosen after consideration of the likelihood that they provide a representative sample, reflect as much variation as possible within the sample, and offer narratives that clearly provide richer educational experiences than those of participants that were not selected at this stage. The narrative accounts for these participants include an examination of their educational biographies and the individual circumstances they experienced during their 'learning journeys' (Jephcote, Salisbury & Rees, 2007).

In the current study it is important to focus on the study participants as individuals because the variables being investigated are deeply personal in nature, as previously mentioned earlier in this chapter. Next, the method used in this study is discussed in detail, including validity and reliability, pilot studies and data collection tools.

Two types of data collection are relevant here, each for the qualitative and quantitative components of the study. For the quantitative element, I used the self-efficacy

questionnaire for the ENGLISH 103 pre- and post-intervention, whereas, for the qualitative data, I used pre -and post-intervention interviews and post-interview focus group discussions. Once these steps were completed, I conducted a pilot study for reliability and validity purposes (see the next section for further details about reliability and validity).

Reliability and Validity

Since this research employed data collection methods from quantitative and qualitative approaches, establishing validity and reliability in this current study necessitates different measures from those used in a single-approach based study. For judging the quality of quantitative studies, researchers often suggest three standards, which are reliability, validity and objectivity (Mertens, 1998). Similarly, qualitative studies refer to other measures parallel to the ones in quantitative studies in judging the quality of qualitative studies. The often cited standards are dependability, credibility, and confirmability (Mertens, 1998).

Reliability is concerned with the degree to which data collection instruments are free from error, namely whether the same results could be produced under similar conditions with a similar group of participants (Mertens, 1998). Reliability is linked with the consistency between the measures of the same phenomenon. There are various ways suggested by scholars to increase the instrument reliability. In this study, for the purpose of increasing the reliability, for the questionnaire used, the factors that are claimed to enhance the reliability, such as adequate numbers of questionnaire items, quality of wording of the items, and time allowed and time needed, were taken into account, following Black's (1999) suggestion (for more details on the factors enhancing reliability, see p. 197-198).

Additionally, according to Cohen, Manion & Morrison (2007), reliability in quantitative research is viewed as a euphemism for consistency and replicability over time, over groups of participants and over data collection tools. In contrast, the criteria of reliability in qualitative studies is mostly concerned with "fidelity to real life, context and situation-specificity, authenticity, comprehensiveness, detail, honesty, depth of response and meaningfulness to the respondents" (Cohen et al., 2007, p. 120), to all of which particular

attention has been paid during the use of interviews and focus group discussions in the present research.

Validity, in scholarly writing, refers to the extent a research instrument actually measures what it is intended to measure (Mertens, 1998). It is also important to understand that the validity of a research instrument hinges largely on the honesty of the respondents because surveys mainly address individuals' self-reports of attitudes, views and actions. A deliberate attempt has been made in this study to increase its validity. For example, particular attention was paid to careful sampling, appropriate instrumentation, and appropriate statistical management of the data gathered.

For Cohen et al. (2007), validity in qualitative data can be addressed by means of several factors such as the honesty, depth, richness and scope of the data collected, the participants recruited, the extent of triangulation and the objectivity of the researcher during the design, collection and reporting of the results. To achieve a greater level of validity in the qualitative data collected through interviews and focus group discussions, various practical strategies were adopted, including minimising of the amount of bias as much as possible. As Hitchcock and Hughes (1989) argue, when the researcher is known to their participants, it is likely that reciprocity, i.e., a relation of mutual dependence, might emerge among participants and participants can tend to provide answers which they think will please the researcher or which the researcher would like to hear. To that end, different categories of validity played a vital role in this research: construct and content validity and internal and external validity.

Construct validity deals with the extent to which working concepts in a study agree with other constructions of the concept. One common way of ensuring construct validity is to ground the construction in a wide literature review in which different interpretations of the constructs used in a study are elaborated along with the constituent elements of these constructs (Cohen et al., 2007). With the aim of increasing the construct validity of this study, relevant concepts such as self-efficacy beliefs were widely discussed in the literature review of this thesis.

Regarding content validity, as Mertens (1998) asserts, it is imperative to review the items, tasks, or issues around the research topic in an attempt to present good coverage of the elements of the main issue being investigated. Cohen et al. (2007) also argue the

importance of addressing the elements chosen for the research sample in depth and breadth. Typically, what is needed to enhance content validity is to use validated scales. Another option is to obtain expert judgment on the measurement instrument to determine the degree to which the instruments can cover the areas to be investigated. Enhancement of the content validity of the ENGLISH 103 self-efficacy beliefs questionnaire was established by adapting a validated scale and obtaining the feedback of experts on the instrument (for more in-depth detail, see below for the development of the self-efficacy beliefs instrument).

Internal validity indicates that the explanation of a certain issue, event, or set of data provided through a piece of research can actually be sustained by the data. In other words, it would be fair to say that internal validity seeks accuracy to some degree in the data and its analysis, and this kind of validity can apply both to quantitative and qualitative research. According to this, the findings of a study are to precisely describe the research phenomenon under investigation so that the findings can be only ascribed to the data itself rather than other external factors (Cohen et al., 2007). Particularly, in the analysis section, detailed exploration and description of the research topic, as well as the data and data analysis will be provided.

In contrast, external validity is concerned with the generalisability of the results to the wider population, cases or events, particularly in quantitative research. However, in qualitative research, as Schofield (1993) maintains, what is imperative is to provide a clear, detailed and in-depth description of the study so that other researchers can determine to what extent the findings of a particular study may resonate with theirs, namely in other situations. Richards (2003) avoids using the term *generalisability*, as it recalls the quantitative paradigm, and thus prefers the term ‘resonance’ over generalisability in qualitative research. For the sake of resonance in this study, a detailed account of the research procedures are given in respect to data collection, analysis and interpretation.

Piloting the questionnaire

A pilot study was initially conducted with five Saudi students in their first year of university to complete the Arabic version of the questionnaire. Comments were solicited from them to determine their observations while reading the questionnaire items, e.g.,

did you fully understand the statement? Was it easy to understand from the first read? After checking their responses in Arabic, a few more changes had to be made to the word choice in some of the items in the questionnaire to ascertain that its Arabic version was clear.

To illustrate some of the changes that have been made, let us look at the following statements from the first version that was provided to the participants in the pilot study:

- Item 47 (Grammar/ Vocab Section) appeared as: أستطيع فهم معاني الأسماء المركبة باللغة الإنجليزية
  /astati' fahm ma'ani al-asma'a al-murakabah bl-loghahti al-ingliziah/.
  Translation: I can understand compound nouns in English.
- Item 28 (Reading Section) appeared as: أستطيع قراءة مقالة ما بطريقة مسحية سريعة لأحدد موضوعها
  /astati' qira'ata maqala maa bi tariqa mashiyyah saria'a li-ohadida mawdoa'ha/
  Translation: I skim an article to identify its topic.

These two statements included the two specialised Arabic terminologies (al-asma'a al-murakabah and tariqa mashiyyah) which caused confusion for some of the participants, who were unfamiliar with the terms in Arabic. As a result, the researcher opted to change the two previous statements through adding the English equivalent of the abovementioned terms between parentheses (i.e., noun-verb collocates and skimming), terms which are frequently used in the ENGLISH 103 course. This final version of the Arabic questionnaire was the one given to all participants during the pre- and post-intervention.

Qualitative Data Collection

The instruments used for the qualitative component of the study were the pre- and post-intervention semi-structured interview and the post-interview focus group discussion. These are discussed in detail in the coming two sections.

Interviews

The interview, as a research method, is defined as a "verbal interchange, often face to face in which an interviewer tries to elicit information, beliefs or opinions from another person" (Burns, 2000, p. 423). For some researchers, it is a social encounter (Rapley,

2001), or social event (Hammersley & Atkinson, 1995), where the researcher and participant collaboratively produce knowledge about the topics under discussion. Semi-structured interviews lie between two extremes, namely structured and unstructured interview types. The structured type does not allow the researcher to deviate from a set of pre-determined questions. On the other hand, unstructured interviews have to be undertaken freely without a guide, and this might result in interviewees talking about irrelevant issues that do not serve the purpose of the research (see Verma & Mallick, 1999). The choice of semi-structured interviews in this study was made based on the following reasons. Firstly, they afford some control to the researcher over the interview, for instance, by changing the order and wording of questions or by adding new or skipping existing questions to obtain more extensive follow-up responses on the relevant issues (McDonough & McDonough, 1997). Furthermore, the researcher can take control of the direction of the interview and immediately intervene if the interviewee departs from the main topics of discussion to return to the topic under focus. According to Nunan (1992), the semi-structured interview offers the interviewee a degree of power and control.

To investigate the effects of the introduction of inclusive technology via universally accessible textbooks on vision impaired students' self-efficacy beliefs and language learning, post-intervention semi-structured interviews were conducted following the ENGLISH 103 post-intervention self-efficacy beliefs questionnaire. Moreover, pre-intervention interviews were conducted to ascertain, in-depth, the prior learning experiences and the needs of the vision-impaired students (See Appendix H). While the questions in the post-interview focused on the sources of self-efficacy (vicarious experience, mastery, etc.), they also checked the students' experience of the intervention and the eBook (See Appendix J). Furthermore, the interviews provided both the researcher and the participants with an opportunity to expand on some of the intervention issues in more detail. In comparison to other data collection instruments (e.g. quantitative questionnaires) that do not yield detailed accounts of research phenomena, "interviews give the research more of an insight into the meaning and significance of what is happening" (Wilkinson & Birmingham, 2003, p. 44). That is, interviews provide the researcher with in-depth information concerning the research elements.

The questions for the pre- and post-intervention interviews were developed in line with the research questions. Thus, they had predetermined themes and they contributed to answering my research questions. Semi-structured interviews were used because they offer the flexibility needed in this study to ask about things that emerged during the interviews. For example, in the pre-intervention interview, the first question was a general question asking the students to talk about their prior experience at school (intermediate and secondary school). Depending on their responses, the participants could be asked to provide additional information, elaborate more, or be asked specific questions about their classes e.g. were you taught English in a mixed class (with sighted students) or just with VI students? How many were in the class?, and so on. While conducting the interviews, I was open to emergent themes. The main aims for the pre-intervention interview are to identify students' needs, and explore their prior learning experiences both at school and in their first semester at the university. The aims for the post-intervention interview are to learn from the students about their sources of self-efficacy (mastery experiences, vicarious experiences, verbal persuasions, etc.) as well as their experience of the consequences of self-efficacy (effort, persistence, etc.). Furthermore, there is the opportunity to ask questions about the eTextbook supplied to the learners: Useful or not? How accessible is it? Was it effective or not?

All interviews took place in the computer lab next to the resource room for students with disabilities. The lab was suitable for conducting the interviews because it is easy to reach and very quiet and convenient for the VI students. Both of the pre- and post- intervention interviews were audio-recorded using a portable Olympus recorder as the main recording device, and an iPhone 6s as a backup recording device. Each time, before starting recording, every participant was reminded that any recorded material would remain confidential and would be stored safely with the researcher. The average duration of each interview was about twenty-five minutes for the pre-intervention interviews, and thirty-five minutes for the post-intervention interviews.

Each of these interviews was transcribed in Arabic since all the interviews were conducted in Arabic. The justification behind deciding to use Arabic during the interviews lies in the fact that the study participants are beginner EFL learners of English. Thus, interviewing them in English would present a real challenge that might directly affect their responses. Additionally, the participants of the study are first-year foundation

students that will eventually choose a major within the Humanities Faculty, meaning that not all of them will choose to specialise in English. In essence, using Arabic would make the participants feel comfortable and increase their fluency in describing their personal experiences and perceptions.

It should be noted that researchers draw attention to some limitations of interviews when used as a data collection method. One commonly cited problem is the issue of research bias on the part of the researcher and participants (Opie, 2004). There might be some cases where the interviewee might give answers that do not reflect their real views, beliefs, opinions or experiences, but, instead, might be thought to please the researcher. This kind of bias is known as social desirability bias (Oppenheim, 1992). Moreover, in contrast to survey questionnaires, the interviews take longer time and require robust planning and organisation. There is also the limitation that whatever is said by interviewees does not constitute the whole picture. The relationship between the researcher and participants may create problems at times as well. This is because, based on the roles and power balances between them, the formulations, contents and types of questions may be influenced (McDonough & McDonough, 1997).

Certain procedures were deployed in an attempt to dispel the aforementioned concerns. First of all, a pilot version of the pre- and post- interviews was trialled with five Saudi PhD researchers, and with five undergraduate students from King Abdul Aziz University (KAU). Each interviewee was asked for his/her comments on the way the interview was conducted and on the issues addressed. The main purpose was to get feedback from the participants so the researcher could make sure that, when he conducted the interviews with the main participants for this study, the design would have the minimum possible undesirable influence on responses. The reason for piloting with these PhD researchers was to gain valuable comments from their experience, since all of them recently used interviews as a part of their research with participants that share some of the background of the researcher's main participants. The purpose for piloting with students from KAU was to obtain feedback from students who share similar backgrounds and experiences with the participants in this study.

Furthermore, I sought to apply several strategies to assist in the enhancement of the effectiveness of the interviews. First of all, good rapport was established with participants

so that they were able to present themselves and their responses naturally. Additionally, after realising that some of the participants still had some fears and concerns, participants who were very cooperative were asked to respond first and to talk with the other students about their experience in the interview. Assurances were given that everything would be confidential, and no instructors or anyone from KAU directly or indirectly had any relationship with the current research. Then, by the time the pre-interviews were completed, all participants became less anxious, and all the fears they initially had were allayed. I also made sure to allocate participants enough time to respond to each question in the interviews. Taking such precautionary steps helped to significantly lessen the abovementioned concerns.

Focus Group

The other data collection tool used in this work is the focus group, a qualitative interview type grounded in interaction, usually in the form of a discussion within a small group. The chief purpose of the focus group discussion is "to elicit participants' feelings, attitudes and perceptions about a particular topic through conversations" (Puchta & Potter, 2004, p. 2). There seems to be a broad consensus on this firm objective of focus groups (e.g. Barbour, 2008; Gibbs, 1997). Researchers term the conversation produced through focus group discussion as research conversations made about specific questions, topics, or themes proposed by the researcher (Moyle, 2006). The specific focus of this method is on "the collective experience of group brainstorming, that is, participants thinking together, inspiring and challenging each other, and reacting to emerging issues and points" (Dörnyei, 2007, p. 144).

The reason why this method serves the purpose of the study well lies in the fact that human inclinations such as attitudes and perceptions are not often treated as static, but dynamic entities, and "are developed in part by interaction with other people" (Kruger, 1994, p. 10). Furthermore, Kruger (1994) and Wilkinson (1998) underscore the role of focus groups in demonstrating how people might form and/or modify their views by listening to others' opinions and comments, or just the contrary, firmly defend and hold their own viewpoints and arguments by challenging others' views during the course of a discussion.

In this study, the focus group is used for wide-ranging reasons. Firstly, it complements the interview method by exploring group interaction occurring in a more natural environment where group members have the potential to influence others and be influenced by them, as in real life discussions (Kruger, 1994; Wilkinson, 1998). Secondly, it holds a range of specific merits, including rich data generation, high participation, ease of administration, and a lesser amount of time compared to multiple individual interviews (Dörnyei, 2007; Payne, 1994). Lastly, and most importantly, as Barbour (2008) notes, participants can be prompted "to 'problematize' taken-for-granted assumptions" during discussions (p. 134).

However, it is important to be aware of the potential weaknesses of focus groups, which might, in return, cause discomfort to the researcher during the pre- and post-administration process. Among the weaknesses affecting researchers are: having less control, asking fewer questions, difficulty of assembling the group, and high preparative demands as compared to one-to-one interviews (Dörnyei, 2007; Kruger, 1994; Payne, 1994). On the other hand, data-related weaknesses are mainly concerned with the difficulty of data collection and analysis (e.g. set-up, transcription and coding); keeping the discussion on track by averting group members from talking about unimportant matters via side-tracks; trouble discerning individual perspectives; dealing with rather inarticulate or vocal participants; and the compelling need for posing effective probing questions that will generate the desired answers (Dörnyei, 2007; Moyle, 2006; Gibbs, 1997; Kruger, 1994; Payne, 1994).

One way of compensating for the aforementioned weaknesses is a well-organised plan, and preparation, which may include, but is not limited to, receiving practical training (e.g. on qualitative data analysis and interview skills), forming homogeneous groups on the basis of commonality, and encouraging participants with self-disclosure, with participation in the discussions on an equal footing. After considerations of the pros and cons, it was determined that the merits of focus groups far outweigh their limitations for my purposes, specifically once they are exploited in combination with other research methods.

The post-interview focus group discussions revisited issues discussed in the interviews in order to compare and evaluate the responses of some of the participants as an individual and among their peers. Additionally, it was possible to learn from the participants what

can be improved in their current study to ensure better English learning for VI first year university learners in the future.

All the ten VI students were invited to join the focus group discussion which took place three months after the main intervention. Only four VI students were able to join the focus group. Two of these students used the eText extensively, and the other two did not use the eText, or scarcely used it. This sort of diverse experience with the intervention added richness to the data collected.

The focus group discussion took place three months after the intervention to leave enough gap time after the post-intervention interviews. The main purpose of the delayed focus group discussion was to compare the VI students' reactions and responses to the intervention with the post interviews, which took place directly after the intervention. Moreover, since all the participants who passed ENGLISH 103 in this study would continue to take ENGLISH 104, it would be valuable for the study to ascertain the experience of the students and their opinions in taking an "inaccessible" ENGLISH 104 class after the experience of the accessible eBook that they had in ENGLISH 103.

Quantitative Data Collection

Questionnaires are frequently used in second and foreign language research (Brown, 2001; Cohen et al. 2007). The instrument used for the quantitative component of the study was a questionnaire that was modelled on the following instruments: Self-Efficacy in the Standards for Foreign Language Learning (Mills, 2009) and the French Self-Efficacy Scale in Reading and Listening (Mills, Pajares & Herron, 2006). Both these scales have been validated through previous studies, thereby making them suitable guides for the development of the questionnaire used for this investigation (Mills & Peron, 2008; Mills, 2009). These two scales served merely as guides for the development of the actual survey questionnaire that was developed for this study. The Self-Efficacy questionnaire for ENGLISH 103 is provided for scrutiny in Appendix B. The self-efficacy questionnaire will assist in evaluating the influence of the introduction of universally accessible textbooks while promoting inclusive technology on the VI students' self-efficacy beliefs in ENGLISH 103.

According to Pajares and Miller (1995), who have undertaken a series of studies on the construct in the context of language learning and self-efficacy, explain that the relationship between variables and effect sizes are enhanced when self-efficacy instruments and performance measures are closely matched. Therefore, it was necessary to develop an entirely new scale for ENGLISH 103 containing self-efficacy type statements that would effectively address course objective and aims for ENGLISH 103 while closely following the models of the two self-efficacy questionnaires mentioned above.

Development of the self-efficacy questionnaire.

It cannot be emphasised enough that no self-efficacy questionnaire can be wholly adopted from a specific study and then be used for this investigation on VI EFL students. This is because every self-efficacy questionnaire is likely to have been designed specifically for the context in which it will be used. To recall, the context for this investigation on VI EFL learners is the 3rd level of English for first year students (ENGLISH 103) in King Abdul Aziz University, KSA. The development of my questionnaire involved three important steps. The first crucial step in the development of the current self-efficacy questionnaire used for this study was to study the curriculum in use for this particular course at KAU, and the syllabus, as well as the course objectives and outcomes.

After the researcher had studied these documents and had become familiarised with their contents, the second step was to search for validated scales on self-efficacy beliefs in the literature. The selected scales were then used as guide in the designing of the items in order to achieve a suitable fit with this investigation's participants, taking into consideration the learning goals and objectives established for ENGLISH 103. These two instruments were adapted so that the self-efficacy judgments could be specifically tailored to the performance outcomes in the EFL context of this study. Thus, careful evaluation was undertaken on the goals of the EFL course with respect to key skills (listening, speaking, writing, reading, grammar and vocabulary) by creating items that closely match those goals.

The third step was to further review the resultant ENGLISH 103 Questionnaire to ascertain that items it contained could effectively address the research aims and objectives of this study. Face validity for this instrument was established through a review of the questionnaire by an expert in academic self-efficacy research, the English language

coordinator for first year English foundation at KAU, and the instructor of ENGLISH 103. In the context, Radhakrishna pointed out that "validity is established using a panel of experts" (2007, p. 4). As a result of expert comments, the questionnaire items were reorganised, and some were re-worded in order to be more focused, particularly those on writing and reading. The researcher then asked three PhD-qualified scholars in Linguistics, who are native speakers of Arabic working in the same department, to translate the ENGLISH 103 self-efficacy questionnaire to Arabic.

The ENGLISH 103 Questionnaire, seen in Appendix B, included 50 items evaluating students' self-efficacy beliefs in the areas of speaking (16 items), listening (6 items), reading (8 items), writing (10 items), grammar (5 items) and vocabulary (5 items). Participants responded to the questionnaire using a 10-point Likert-type scale from zero (not confident at all) to one hundred (completely confident). According to Pajares, Hartley and Valiante (2001), a self-efficacy scale with a zero to one hundred response format is psychometrically stronger than one with a traditional Likert format (2001). It also makes more sense to the students in this study to give a score out of one hundred compared to, say, a scale from one to six since they are accustomed to receiving their results out of one hundred. Therefore, I adopted this scale for the ENGLISH 103 self-efficacy beliefs questionnaire.

Data analysis

This section presents the data analysis process used to analyse the qualitative and quantitative data and how the analysis happened. After designing the methodological instruments that best support the purpose of the current study and the collected data, determining how to analyse this data becomes all important. The purpose of data analysis is to facilitate a good grasp of the collected data to help in answering the research questions (Yin, 2011). The data analysis software tools that were used to process both qualitative and quantitative data are Microsoft Word and Excel. For the analysis of quantitative data, firstly, data were entered into Excel to initiate the statistical analysis. Descriptive statistics such as mean scores, standard deviations, and standard error of means were generated to examine participants' answers to pre- and post-intervention self-efficacy questionnaires. Qualitative data is the main source of data collection and analysis, and quantitative data are then used to reinforce results found in the qualitative

data. Quantitative data further provides some background information about the research topic and participants, which in turn will allow for a better understanding and interpretation of the qualitative data.

Qualitative data analysis is an on-going process that requires continual interpretation and reflection (Dörnyei, 2007). For the current intervention, qualitative content analysis was employed to find commonalities and themes to investigate more fully the relationship of the pre- and post- interviews and focus group discussion findings with the quantitative data collected. Permission was sought from participants for their interviews to be recorded. After transcribing the interview responses, coding was undertaken in order to discern similarities, differences, frequencies, sequences, correspondences, or causations (Saldana, 2008, p. 5). From the codes, the interview responses and focus group discussion were analysed again in order to extract themes from them.

Some researchers suggest that content analysis can be done at two levels: manifest level and latent level analysis (Dörnyei, 2007; Elo & Kyngäs, 2007; Shannon & Hsieh, 2005). The manifest level deals with the "…descriptive account of the surface meaning of the data" (Dörnyei, 2007, p. 245) while the latent level "…concerns a second-level, interpretative analysis of the underlying deeper meaning of the data" (p. 246). In this context, Maykut and Morehouse (1994) remind us that the outcome of descriptive studies "is not the generalization of results, but a deeper understanding of experience from the perspective of the participants selected for study" (p. 75). Schreier (2012) further refines this by stating, "[t]he focus of QCA is on latent meaning, meaning that is not immediately obvious, whereas quantitative content analysis focuses on manifest, literal meaning" (p. 15).

Taking Schreier's (2012) elaboration into consideration, in my analysis, I will strive to detect the latent meaning, i.e. the underlying meaning of the content through close reading of participants' perceptions and opinions. To accomplish this, it is crucial that the analysis should go through certain stages, with specific tasks in each stage. Dörnyei (2007) proposes four steps to be followed during the analytical process: (i) transcribing the data, (ii) pre-coding and coding, (iii) growing ideas, (iv) interpreting the data and drawing conclusions (see pp. 246-257).

Adhering to the steps identified above, I firstly transformed the audio recorded data made up of interviews and focus group discussions into a written form. I fully transcribed the data very soon after collecting it to avoid losing any relevant observations that the researcher took note of during the interviewing process. The data was transcribed in Arabic as it was the language used for the interviews and focus group discussions.

Having completed the transcriptions and organised them in a Microsoft Word Document file for each participant to store and facilitate the analysis, I moved on to the next steps in data analysis: reading through all data and coding it, which corresponds to Dörnyei's (2007) pre-coding and coding stage. Dörnyei (2007) emphasises that "qualitative data analysis invariably starts with coding", and coding has proved to be useful for "reducing or simplifying the data while highlighting special features of certain data segments in order to link them to broader topics or concepts" (p. 250).

The stage of initial coding and reading through the participants' responses increased my familiarity and engagement with the data but also helped me think about how I could code it. The main coding was constructed by means of identifying pre-determined and emergent codes. The pre-determined codes were generated from the research questions and the key topics that the interviews address. The main goal of coding was to be able to generate a set of labels from which categories/themes related to the research focus can be created.

After following the aforementioned steps, I requested from a friend of mine, who is trained in discourse and qualitative content analysis, to be a second coder, and asked him to code two interviews and the focus group discussion to ascertain the reliability of the coding. Our codings were then compared and reviewed for consistency. There were no great differences between the two coders. Furthermore, these codes were checked frequently with the relevant extracts with the help of the second coder to ensure interrater reliability with the main themes. The final codes were then grouped together in categories in terms of their relevance to the topics in the semi-structured interviews and focus group discussion. Finally, these categories were joint under twelve main inclusive themes, which are:

1. Personal efforts
    a) + Positive

   b) – Negative
2. Teacher practices
   a) + Positive
   b) - Negative
3. Learning environment (Environmental barriers)
   a) Exam set up
   b) Accessible services
   c) Classroom set up
   d) Instructors
4. Peers' attitudes/practices
   a) + Positive
   b) – Negative
5. Computer proficiency/skills
6. Basics learnt in early school stages
7. Classroom engagement
   a) Language Used (native language vs. Target Language)
   b) Interaction with classmates
   c) Classroom participation
8. Textbook-related issues
   a) Availability
   b) Format
9. Evaluation and marking criteria
10. Attitudes
    a) Learner's attitudes
    b) Peers' attitudes
11. Extra-curricular learning activity practices
12. Physiological factors
    a) Personal related

Moreover, I developed five main comprehensive themes based on the data collected from the participants which include their understanding of what accessible learning

means to them, what the advantages are, the challenges they encountered and their view of the future of accessible learning in general, and in Saudi Arabia in particular. The main themes 'Accessible Learning Experience', 'Deployment / Implementation and Support', and 'E-Book Accessibility' emerged from the advantages and challenges perceived by the VI participants during the course of enrolment in ENGLISH 103.

A note on triangulation: the literature on research methods informs us that the notion of triangulation in the qualitative paradigm is mostly associated with integrating multiple methods. However, one has to be cautious about claims of validity when triangulating methods of inquiry. Here, it is noted that there is an urgency to suggest that combining different methods produces definite and true conclusions about the subject matter. Silverman (2014) points out that while this might make sense in, for example, natural sciences fields of research, it hardly applies to cultural research, where social realities differ when taken from different perspectives. Therefore, while using multiple means of inquiry may add richness and complexity when discussing a subject matter, this should not be a justification to claim the existence of one “true” reading or, in other words, a single constructed reality. Silverman (2014) reminds us that “the major problem with triangulation as a test of validity is that, by counterposing different contexts, it ignores the context-bound and skilful character of social interaction and assumes that members are ‘cultural dopes’, who need a social scientist to dispel their illusions” (p. 371)..

Limitations

It appears vital to have further studies on self-efficacy beliefs of vision-impaired students based on other research paradigms such as ethnographic analysis and constructivism. As expressed by Pring (2000), the issue of understanding human beings as subjects, particularly with respect to their behaviours and cognitions, calls for different methods.

Owing to the nature of the research, it would be methodologically appropriate to run a short-term study, which might, however, limit the quality of the data collected. Perhaps, it might have been better to adopt a longitudinal approach to be able to obtain a fuller picture of the development of these students during their study. Nonetheless, due to the time restriction and conducting the field work as a single researcher, it was not feasible to carry out longitudinal research. Moreover, this initial study serves as a stepping-stone to

highlight interesting questions for further research which could inform the effective design of a longitudinal project.

Despite the fact that it was not in the scope of this research, it would be relevant to identify and investigate the self-efficacy beliefs of other vision impaired students at different levels of education so as to have a broader and more complete picture of the self-efficacy beliefs of the VI students in this particular context (KSA). Lastly, due to the limited number of participants in the study, most of the findings of the quantitative data could not be analysed by means of inferential statistics, which enables the researcher to draw generalisations about the sample characteristics of the whole population from which the sample was taken (Opie, 2004). Therefore, the quantitative data could only be treated using descriptive statistics available on the statistical software (Excel) for this study.

Ethical considerations

Ethics is a crucial component of research (Tracy, 2010; Creswell, 2005). This study adheres to the highest ethical standards. This was achieved by asking participants to complete informed consent forms prior to data collection. Moreover, participants were fully informed about the purposes of the study, and the significance of their participation. During the study, the participants were not exposed to risks of any kind, and were not exposed to discomfort or inconvenience, even after their participation. All of the interviews were conducted only after permission had been given for the participants' responses to be recorded. Participants were informed that they can withdraw from the study at any time they wish. Strict confidentiality of participant identities will be upheld, with the questionnaire not requesting identifying information. All of the data collected, as well as the resulting transcripts and equipment used for the data collection, are stored in a secure manner.

Reflexivity and my role as a researcher

It is undeniable that no matter how hard people, researchers in this context, endeavour or seek to eliminate their personal preferences/interests/biases in their research, research work is always going to be influenced in some way or another by one's own views, experiences and beliefs. Thus, it is crucial for scholars to account for the possible

influences on their research by reflecting on their own “positioning and subjectivity” in their research by providing “an explicit, situated account of their own role in the project and its influences over the findings" (Starfield, 2010, p. 54). In research terms, this process is known as reflexivity. According to Etherington (2004), reflexivity challenges researchers to strive to be more fully aware of their own ideology, and perceptions of their participants and their audience. It is further debated that, for research to be rigorous, worthwhile, valid, and high quality, the researcher has to be reflexive regardless of what methods and perspectives they use (Etherington, 2004; Gilgun, 2010; Guillemin & Gillam, 2004). By being reflexive in this investigation, I aim to account for how I experienced my participants and myself as a researcher and how my participants experienced me as the researcher. More notably, in this particular context, I explore how I experienced my participants and myself as a vision-impaired researcher and how my VI participants experienced me as a VI researcher, i.e., how the participants viewed my role throughout the data collection process.

Reflexivity as a process is generally practised among qualitatively-oriented scholars. They should commonly engage in and account for its intricacy. As Gilgun (2010) puts it, "we often are unaware of what we think and believe and the implications of our interactions until we write about them and discuss them with others" (p. 7). I experienced this when I received feedback from the PhD researchers and the undergraduate students who were my pilot-study participants on the first draft of the pre- and post- interview questions. They advised that I avoid asking leading questions which may channel my participants towards a particular direction of responding. For instance, the question: /Hl sahm alkitab alelictroni fi ta’alomek lel loghah al-ingliziah am lm yosahem?/ (Did the E-book contribute to learning the English language or did it not?). They noted that such wording of the question may hint to the participant that the researcher is looking for the positive answer since the question started by asking about the positive contribution. Thus, such questions were reworded by trying to give equal emphasis to a positive or a negative answer. The aforementioned question was changed to become /Hl sahm am lm yosahem alkitab alelictroni fi ta’alomek lel loghah al-ingliziah?/ (Did the E-book contribute or not contribute to learning the English language?).

During the pre-interviews and questionnaire study, where I had my first encounter with the participants, I made sure, as Adler and Adler (1994) advised, to introduce myself as a

complete outsider who had no connection whatsoever with their course instructors and with anyone who works at their university. My outsider-status, i.e. disconnection with instructors and the institution, proved to be advantageous. It was helpful in obtaining objective and more sincere responses from participants since they could respond to questions based on their own views and perspectives rather than giving answers that would be viewed favourably by their institution. Since this gave the participants a sense of security and protection, they were willing to talk to me candidly and at length about their experience concerning English language teaching at the university. Being a researcher who is also VI like the participants of this study, I believe, has provided additional benefits as well, resulting in interviews that were mostly informal and longer. I felt that my researcher identity and role contributed to this study with raw data that are authentic and rich.

I have never known the world as a person without disability. I was born vision impaired. I perceive my vision-impairment as a strength which might be rarely appreciated as such by other VI people. However, I am also aware of all the privileges and opportunities that I experience as a widely travelled, independent and well-educated person coming from a family that encourages my autonomy. I write this thesis and access journals and articles to cite in this work through screen readers on various devices. As a result of using screen-readers, many text elements such as those that indicate headings and quotations are invisible to me. In other words, screen-readers used by VI people have no peripheral vision; they can only focus on one element of text at a time. With this in mind, I had to consider whether a participant may feel obliged to respond in a favourable way (and likely less honestly) to me knowing that I am a VI researcher. As such, it was of great importance to me that this investigation was carried out with the VI students fully participating collaboratively and frankly. I took every step to make sure that, during data collection and analysis, my own views and opinions were not expressed to the participants, and were not imposed on the analysis. This guaranteed that meaning could emerge from the data rather than having a particular interpretation imposed on it, which would not have reflected the true participant accounts. I, thus, carefully considered my awareness of my own 'position' by being reflexive to ensure that the data collected was trustworthy (Finlay, 2008).

Summary

In order to answer the research questions in this study, a mixed methods research methodology was used, which means that this investigation has both QUALITATIVE and quantitative components. The main strength of the mixed methods design is in the process of blending data through which QUALITATIVE and quantitative methods are mixed to facilitate analysis. The quantitative component of the study uses an ENGLISH 103 self-efficacy beliefs questionnaire, which has been pilot-tested on five mock study participants. On the other hand, the qualitative methods consisted of interviews and focus group discussion in order to help answer the research questions. Data collection took two forms based on the qualitative and quantitative components of this study. In order to analyse data collected, permissions were sought for the interviews to be recorded. On the other hand, quantitative data collection was in the form of a post- and pre-intervention of the self-efficacy questionnaire. The analysis of quantitative data was facilitated by the use of statistical tools such as those found in Microsoft Excel. Meanwhile, data analysis for the qualitative component was in the form of content analysis, achieved by extracting relevant themes from the interviews and the focus group discussion. Finally, the chapter closed with a short reflection on my own situation within the research process.

Chapter 5: Analysis

In this chapter, I critically discuss the findings from the pre-intervention and post-intervention interviews conducted with the vision-impaired students who participated in this study. The responses from the interviews are analysed recognising the need to explore relations between the three pillars of Bandura's social cognitive theory: the person, environment and behaviour. Analyses in this chapter benefit from cognitive constructs adopted from Bandura's social cognitive theory, for example, the self-regulatory mechanisms which are important to explore aspects of learning and changes in behaviour. The students' past experiences across different phases of learning (school and university) are highlighted in this chapter to explore how they affect whether a student will engage in a particular behaviour or change of behaviour, and whether or not these facilitate adjustment to vision impairment. Salient aspects of Bandura's social cognitive theory are detailed below before presenting the participant analysis.

This study concerns self-efficacy. For this reason, this study is based on Bandura's social cognitive theory (1977; 1986; 1997), which not only explores how effective students perceive themselves to be but also relates to their reactions to their surrounding environment. At the heart of this social cognitive theory is the belief that learning means acquiring knowledge through cognitive processing of new information and integrating this with existing information. The social aspect of the name relates to the idea that learning takes place in social contexts and is affected by society, while the cognitive aspect is linked to the idea that thought processing (part of which are expectancy, self-confidence, and attitudes towards learning) also contributes to learning. To remind the reader, social cognitive theory (discussed in 3.2 of the literature review chapter) is a school of thought that appeared in the 1960s and was led by the Canadian-American psychologist Albert Bandura of the University of Stanford who theorised that the learning process occurs within a social context. He highlighted the importance of three pillars: the person, environment and behaviour. Separating himself from the American behaviourist approaches, Bandura's social cognitive theory puts emphasis on social and cognitive elements. McCormick and Martinko (2004) outline the following three basic assumptions of Bandura's theory:

1) people can learn by observing, as in the vicarious experience for instance.

2) learning is an internal process that might or might not lead to behavioural change.
3) learning can happen without a reflection in the form of a change in behaviour, as in the case of noticing change without deciding to act upon it.

Social cognitive theory also pays attention to learners' past experiences, which, in Bandura's view, influences the reinforcement of processes, expectations, and expectancies, which together affect whether or not a person will engage in a particular behaviour. Benefiting from the basic principles of this social cognitive theory and its explanatory power, this research explains how participants in this study manage their behaviour and go about learning to achieve academic goals. In addition to self-efficacy beliefs, which is part of Bandura's social cognitive theoretical framework and is most relevant to this study, this research benefits from Bandura's other five constructs (summarised below), which also guide the interpretation of my findings.

Reciprocal Determinism: this means that an individual's personal behaviour can influence and be influenced by personal and environmental factors. In my analysis, I relate to the concept of reciprocal determinism which is fundamental to Bandura's social cognitive theory. Analytically, it is crucial to look for a triadic relation and interaction between the person (individual's learnt experiences), environment (external social context), and behaviour (responses to stimuli to accomplish goals). In other words, I analyse the relation between the individual and his learned experiences, the external social context affecting these experiences and, finally, the individual's response to stimuli that aims to change behaviour and achieve goals. This is achieved by interviewing participants about their schooling and educational environments, and conducting detailed qualitative analysis of the resulting data.

Behavioural capability: For Bandura, behaviour comprises of opportunity, motivation and capability. Capability refers to the ability of an individual to perform a behaviour through possessing essential skills and knowledge and to engage in a particular behaviour. In order to successfully perform a behaviour, the student must know what to do and how to do it. In the interviews, students were asked 'what' and 'how' questions to shed light on their actual ability to perform a learning skill. These questions were designed to ascertain whether students possess the essential skills for learning within their given environment.

Such skills might be independence, proactivity, or knowing how to profit from accessible resources.

Observational learning: According to Bandura (1989), learners possess "an advanced capacity for observational learning that enables them to expand their knowledge and skills on the basis of information conveyed by modelling influences" (p. 21). In this study, the ten VI students are asked questions about their classroom relations with their VI and sighted peers to explore whether the academic behaviours displayed by others were produced by the participating students. In other words, it was important to see if the students in this study benefited from others around them through modelling. If, for instance, a student sees successful demonstration of a behaviour, s/he can also complete the behaviour successfully - this is the influence of vicarious experiences.

Reinforcement: The penultimate construct in Bandura's social cognitive theory concerns the internal and external responses to a learner's academic behaviour and the role these responses play in deciding whether the learner will continue or discontinue performing a certain academic behaviour. Although Bandura agrees with some central ideas in behaviourism, he deviates from them in two ways. He claims that there are mediating processes intervening between stimuli and response, and that behaviour is either learned from the environment through observational learning or is self-initiated. That is to say, Bandura takes into account that we are human beings rather than rats in a laboratory. Therefore, in the pre- and post- interviews, a number of questions focused on the internal and external responses to the VI students' academic behaviour, especially inside the classroom (for example, the attitudes of their peers or teachers toward their participation which, sometimes were positive but other times were negative). Because of the emphasis this construct places on internal as well as external responses to learners' behaviours, it relates closely to the first 'reciprocal determinism' construct which highlights the relation between behaviour and environment.

Expectations: Bandura (1989) argues that outcome expectations remain one of the sources of incentive needed to continue successful learning. Put simply, students predict the consequences of their academic behaviours before performing them, and these expectations about the consequences can affect the degree of success in performing a certain behaviour. Bandura claims that expectations are largely derived from past

experiences, which is an area that received much attention when preparing the interview questions for this study in order to elicit as much information as possible about the relations between learning in the past and experiences taking place at the time of the study, especially for the pre- and post- intervention period.

Analysis of Participants' Responses

As detailed in the methodology chapter, each participant was assigned a pseudonym to ensure anonymity. All participants completed both questionnaires pre- and post-intervention, and underwent pre- and post-intervention interviews. Four of the participants took part in the focus group discussion which took place two months after the intervention. For the analysis of both pre- and post-intervention self-efficacy questionnaires, students' responses to each item of the questionnaire were entered into a Microsoft Excel spreadsheet. Then, the percentage of change for the self-efficacy beliefs for each language skill (speaking, listening, reading, writing, grammar and vocabulary) were calculated before and after the intervention. Overall changes in self-efficacy beliefs were then calculated. This calculation measures change in a participant's results depending on the level of his self-efficacy beliefs (which is supported by the qualitative data), whether positive or negative. To obtain the percentage of change for the self-efficacy beliefs for each language skill, the scores for each skill pre- and post-intervention were multiplied, yielding a total score for each skill. Then, the differences in each skill between the total pre- and the post-questionnaire scores were calculated. Finally, the difference between both scores was divided by the full mark of the self-efficacy beliefs test and was multiplied by one hundred. This formula measures the percentage of change for each language skill for each student.

Regarding the analysis of the interview data, it is important to stress the challenges of translating interview material from the participant's native language (Arabic) to English. In terms of studies that depend on the translation of participants' responses, I have to acknowledge that the translation task remains one of the central challenges of doing such research. There is always a potential for mistranslation, or for the imposition of meanings that are not there in the source text. In this study, and before starting with the analysis phase, I had the task of translating and establishing comparisons between the Arabic originals and their corresponding English translations (upon which the analysis was

undertaken). Catford (1965), cited in Mossop (1983), was among the first to acknowledge the difficulties facing researchers regarding translation, claiming that "the central problem of translation practice is that of finding Target Language equivalents" and that "a central task of translation theory is that of defining the nature and conditions of translation equivalence" (p. 21). Regarding the tasks of translation and finding equivalence, Baker (1992) suggested that, although optimum equivalence of the source language is close to impossible, "equivalence can be obtained to some extent" and it is usually "influenced by a variety of linguistic and cultural factors and is therefore relative" (p. 5). For the purpose of obtaining the best possible translation and equivalence for the Arabic originals, I used both my own knowledge of the two languages (English and Arabic), but also referred the translations to three of my colleagues who either work in the (Arabic-English) translation field, or possess sufficient knowledge of the two languages. Any differences in each translation was thoroughly debated to achieve consensus on a version satisfying all, and one which reflects a reproduction of the participant's original text rather than a new text authored by us. Finally, a native English speaker specialising in linguistics was involved in reviewing the translated data to ensure that the translated quotations were as meaningful in English as in Arabic, i.e., a translation could make sense grammatically but may have lost its original meaning. Thus, the native English speaker was asked to check whether the meaning of the translated data was clear while the fluent Arabic-English speakers made sure that there is no distortion of meaning that occurred during the translation process.

ZS

Introduction

ZS, like all other participants, is a foundation year student at a large University in Saudi Arabia that has approximately forty thousand students. All participants were enrolled in English 103 (they all completed English 101 and English 102 in their first semester in the university) during the data collection. However, prior to university, ZS studied at a mainstream school in a big Saudi city that teaches both sighted and blind students. ZS completed both questionnaires and took part in the interviews (pre- and post-intervention). He was also one of the participants who joined the focus group discussion.

Below is an analysis of ZS' pre-/post-intervention self-efficacy beliefs questionnaires and his pre-/post-intervention interviews.

Analysis of pre- and post-intervention self-efficacy questionnaires

The changes in ZS' self-efficacy beliefs from the pre- and post-intervention self-efficacy questionnaires were calculated in the manner described above (See Appendix C). For example, ZS achieved 600 out of 1000 as the total in the pre-test for the writing skill. Then, in the post-test, he scored 960 out of 1000. Therefore, the percentage of change in his self-efficacy beliefs in writing is 36 % i.e. ((960-600)/1000)*100 = 36 where (1000) is the total full score for the ten writing self-efficacy beliefs statements in the questionnaire.

Comparing the responses of ZS in the pre- and post- intervention self-efficacy questionnaires shows that his self-efficacy beliefs have positively improved after the intervention. To be precise, his speaking self-efficacy belief has increased by 21%, listening by 22%, reading by 30%, writing 36%, grammar and vocabulary by 15%. His reading and writing self-efficacy beliefs were noticeably higher than for the other skills. As mentioned in 1.5, the VI students did not attend the reading and writing classes on the previous courses because they were not required to sit the writing and reading exams. In other words, they were given double marks for both listening and speaking to make up for the intentionally neglected writing and reading examinations. For ZS, the lowest increase in self-efficacy belief was in grammar and vocabulary. These results carry no meaning without pinpointing the cause of such changes from the qualitative data, as noted above. The qualitative data should provide a possible explanation for this increase in self-efficacy for ZS. See figure 3 below for a chart illustrating the change in self-efficacy beliefs for ZS.

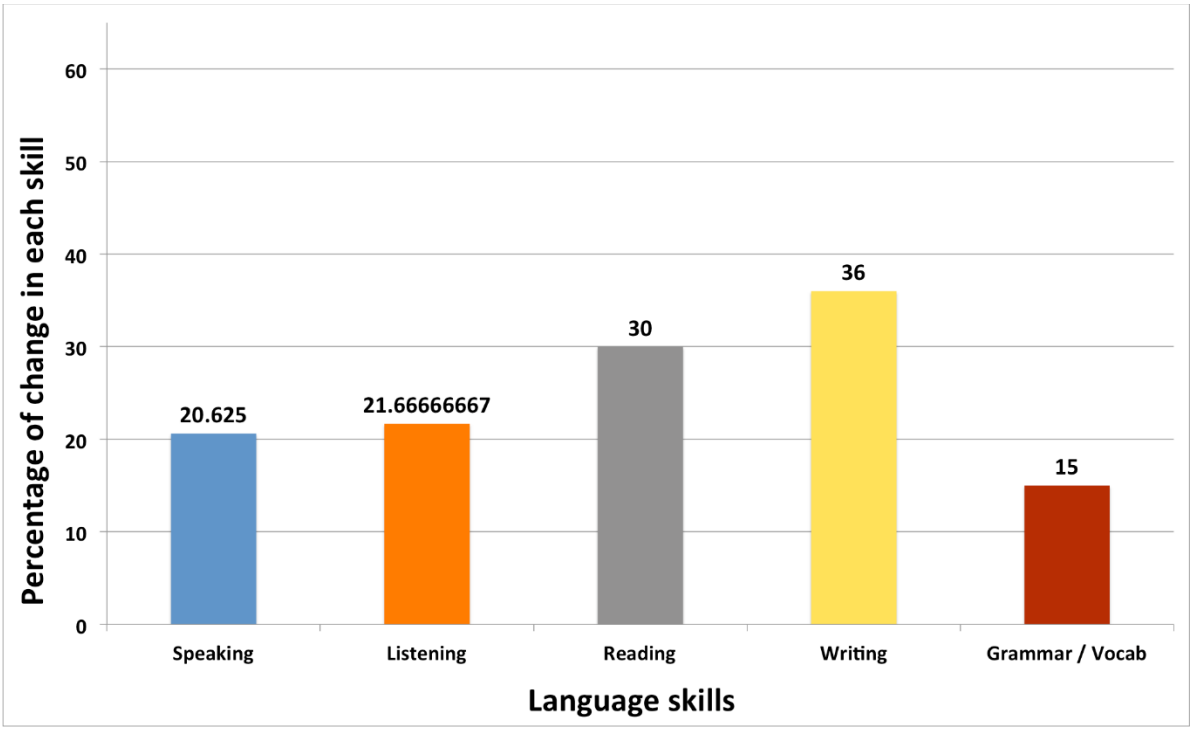

Figure 3 The percentage of change in each skill in the post-intervention questionnaire

Analysis of the Pre-intervention Interview

Before joining the university, ZS, and other participants, studied English for 7 years at school. They started taking English classes in grade six. ZS divided his English learning experience in these seven years into two stages. The first stage, which ran from Grade 6-9, was characterised by ZS as exhibiting "inactivity, lethargy, and monotony." At ZS' school, VI learners were segregated into special rooms for teaching English to blind students. However, other subjects such as Arabic language and literature were taught with both sighted and blind students in the same class.

Reflecting on his *personal efforts* to learn English, ZS stressed the importance of exerting personal effort when learning English as a foreign language. He said, "[s]ome students exerted more effort and depended on themselves to improve their language skills, while others were helpless because of their weak basic knowledge in English." ZS thinks he had an advantage by having a blind sister who was older than him and went through the same experience when learning the language. His sister played an active role by teaching him the English alphabet in Braille before he started to study English at school (i.e. in year 6). "My sister taught me all the English letters in Braille during the summer holidays before I

started year 6". This additional support may have been perceived as personal effort and may have created an increased sense of confidence also.

ZS also put special effort into learning the language by practising spoken English with an English teacher in high school. He said proudly:

> I decided to break the ice of deficiency and stepped out. So, I began to enhance my linguistic competence and thus academic progress by talking with one of my teachers in English and when I was stuck, I tried to paraphrase my intention. Actually, I was ridiculed by some of my classmates because I talked in English with an Arabic speaking teacher, however, I am making progress while they are still cemented in their places.

ZS' efforts extended beyond the confines of his family and school, and he reached out to native English speakers from the UK and USA. ZS indicated that he used to converse with people he met online from English speaking countries: "I was lucky because I had a computer and used to chat with English native speakers - either American or British". Griffiths (2008) argues that successful language learners find their own way and take control of their learning. He also believes that successful learners choose the options that suit them best as individual learners and organise their study of language accordingly.

Later in the interview, discussing factors that benefit ZS in learning English outside the university, he stated that he made friends from America and Britain, saying: "I spend most of my day talking and learning from them." Even though it appears that ZS was highly motivated to put in extra effort to learn English, his personal efforts were sometimes negatively impacted whenever he felt his efforts were not acknowledged by the teacher. ZS affirms "I didn't read any book or anything related to English whenever I felt my efforts were ignored by the teacher."

The practices and personal efforts employed by ZS to enhance learning indicate a mechanism of self-regulation, which Zeidner, Boekaerts and Pintrich (2000) define as "a systematic process of human behaviour that involves setting personal goals and steering behaviour toward the achievement of established goals" (p. 751). One can claim that a reciprocal relationship exists between self-regulation and self-efficacy. Self-regulation leads to achieving academic goals and adds to the feeling of success. Success affects

students' judgments about their capabilities and this, in turn, leads to a greater sense of self-efficacy. Zimmerman and Bandura (1994) studied the relationship between self-regulation and self-efficacy, confirming that a solid positive correlation exists between the two. In terms of analysis, my study focuses on the relationship between self-efficacy and self-regulation but also explores whether or not students have used self-regulation effectively to reach goals and enhance academic performance. This is important because, as Creer (2000) points out, students' awareness of self-regulation as a skill does not guarantee it will be utilised effectively to enhance achievement. Creer's point brings to light the need for differentiating between possessing and applying self-regulatory knowledge. In relation to this, Caprara et al. (2008) establish that, while self-regulation is the key to determination about learning, it is useless if not applied "in the face of difficulties, stressors, and competing attractions" (p. 526). ZS' decision to apply self-regulatory techniques (for example, contacting native speakers online) whenever he felt his "efforts were ignored by the teacher" shows awareness that he self-regulated his learning and reflects his ability to apply these skills in the face of difficulties.

As far as *teacher practices* were concerned, ZS identified certain practices which he regarded as positive and others which he thought were negative in both the school and university periods. In this respect, ZS recalled some of his teachers at school and the following statement indicates ZS' opinion of how a positive teacher practice could have an impact on learners: "So, for example, if the teacher is inspirational, serious and motivated to teach, most likely students will take the course more seriously."

ZS also recalled his first teacher who taught him in year 6 (his first year of English) at primary school and another teacher who taught him in year 10 at high school. Both were serious when dealing with the students and were very enthusiastic from ZS' point of view. They had a positive impact on ZS' learning and he mentioned that he learnt a great deal from them. On the other hand, ZS, while talking about his experiences in English classes in year 7-9, indicated some negative teacher practices which he thought had negatively affected his seriousness about learning English at school. He recounted: "To the extent that sometimes we ditched the English class in favour of having some fun at the sports room."

ZS' positive experience continued at the university level where, in the first level of English 101, ZS felt the instructor was enthusiastic and succeeded in making him participate during classes. ZS said, "[h]e (the instructor) treated me just like my sighted classmates." Conversely, another comment that shows the effect of negative teacher practices on ZS' learning process is as follows:

> At the University, level 2 was the worst ever, though it is simple but it depends completely on the professor[5], who intentionally neglected me and gave me low marks. I have lodged a formal complaint to English the Language Institute but in vain.

The quotes above explain how teachers' practices (positive and negative) helped or hindered ZS in achieving his academic goals. They highlight the value that ZS could have gained from a teacher who was aware of the needs of a vision-impaired student. However, teachers are not expected to revolutionise the system. From my perspective, it is the role of the institution (the university) to make sure that teachers' practices are equally supportive for vision-impaired and non-VI students alike. However, individual teachers who take seriously the practice of effective teaching may reasonably be expected to take on such responsibilities.

According to ZS, the instructor who taught him at level two did not consider his existence in the class or his needs as a VI learner, venturing "[p]erhaps the professor never saw or taught in his life any blind people". I asked him, in reply to his claim, "How come he did not consider your existence and needs?" ZS said that he was never asked to answer a question during the classes, and that the instructor never explained what he was writing on the blackboard, which formed the basis for his conclusions.

The *Learning Environment* is another aspect that impacts how ZS perceives his experience as a student. Based on his comments, it is clear that he believes that different factors in the learning environment - for example, exam set-up, the availability of accessible services, and the classroom set-up - are all major contributors to the learning process. Given that ZS reported a number of issues regarding the difficulty of engaging with the current learning environments, he suggests in one of his answers that the university

[5] Participants use the word professor regardless of an instructor's actual academic position.

should allocate a special hall for blind students featuring all the necessary equipment for students with sight loss. Another concern in relation to the learning environment in general was ZS' frustration about the recurring replacement of teachers, which, according to him, had a negative effect:

> But unfortunately, our basic knowledge was not solid enough. This was basically because of the recurrent replacement of teachers. Teachers at school were replaced three times in one of the years, almost every semester. Since each of them has his own method of teaching, the students had been affected negatively.

In this context, ZS also reports that such a failing led some students to believe that the institution was not serious about teaching them English. He indicates that as a result "I used to, just like everybody around, speak about football matches." This clearly reflects a difference in priorities according to ZS, as the learning environment failed to offer stability as a result of recurring teacher replacements. The repeated teacher replacements at ZS' school happened only for the VI students because this was not the case for the other students in the same school – as mentioned earlier, VI students in this mainstream school had their own English teacher. This could be considered as a kind of institutional discrimination. Institutional discrimination is a theme that deserves thorough attention in future research.

Another key theme from this interview is *peer attitude*. Peer effects are influences of an individual's peers on learning behaviour. Thus, peer attitudes and practices play an important role in one's learning environment. Many studies have examined the effects of peers in the classroom, for example Zimmer and Toma (2000), Zimmer (2003) and Kang (2007). ZS' view on the influence of his peers on his English learning process appears to indicate that he was influenced by his peers during his school period. In the following example, ZS explains that he experienced negative attitudes from his peers for trying to use English as a medium of conversation with his English teacher:

> Actually, I was ridiculed by my classmates because I talked in English with an Arabic speaking teacher, however, I am making progress while they are still cemented in their places.

In another statement, ZS made a connection between his peers' attitudes and the academic achievement within the classroom. It was made clear that, while he wanted to learn more, this was not possible because his colleagues "did not want to be assigned any homework or research." This is obviously an administrative and pedagogical problem which the teacher could, or should, have remedied.

Regarding *the availability and format of textbooks,* VI students need to use the Braille system to facilitate reading school textbooks. Braille is widely used in schools for VI students but is not used after high school when students enter university. For VI students, the availability of Braille textbooks is a fundamental resource in the teaching and learning process. They are, however, costly, which may be the reason why universities do not acquire them. Although ZS used Braille, he encountered a problem because of the use of Arabic in English braille textbooks:

> Unfortunately, our English books were brailled in Arabic! The description of any photo in the book (for example there is a tree beside so and so) was transcribed in Arabic language. I do not know if this method is still implemented or not, but it was implemented in the syllabus of both primary and intermediate stages.

Arabic texts are read from right to left, but Arabic Braille is read from left to right, regardless of the language, creating further potential for confusion. Even though Braille books are used in schools, they are often distributed to the VI students a few weeks after the school year has started. This is due to the longer time and investment it takes to print Braille books. This again disadvantages VI students in their learning.

While enquiring about Braille, I asked ZS about *his computer proficiency skills*, which are needed to use Braille displays. ZS answered that he was well aware of how to use such systems: "I used to depend on English brailed books or Braille display when books were delayed." ZS' positive attitude towards the subject of using computers in his learning of English encouraged me to probe further about whether using computers offered him other means of learning. ZS indicated that "[i]n fact, my computer helped me greatly in doing writing assignments. I was lucky because I had a computer and used to chat with English native speakers - either American or British". ZS' attitude is in line with the claim

by Bocconi et al. that VI students "could highly benefit from using ICT for educational purposes" (2007, p. 500).

Along with the problem that some English Braille textbooks use Arabic, ZS also complained about some teachers' use of Arabic as a medium of learning and instruction in English language classes in the first stage – a general pedagogical issue that is not specific to students with vision impairment. ZS explained:

> Teachers used Arabic language to teach us English! They rarely talked in English. Most importantly, lack of practicing grammar and vocab was another remarkable factor of our less mastery of English. I am wondering how one can understand any language without practicing!

ZS criticises the lack of practice and considers it is very important to use English during English classes to offer students opportunities for language exposure and crucial input. This raises questions about language-of-instruction policies, issues which may be difficult to implement and monitor in academic institutions.

Language learners benefit when teachers make connections with their students to go beyond textbooks and examinations. According to Devlin and Samarawickrema (2010), effective learning inspires and engages learners. In the following statement, ZS compares and contrasts ENGLISH 101 and ENGLISH 102 in terms of *classroom engagement*:

> In level 1, I like that I used to participate in informative and beneficial competitions where the Professor divided the class into two groups, and provided some challenging and competitive questions to negotiate them. The professor also used to say the spelling of the new words he wrote in the blackboard, and he was reading out loud what was in the blackboard, and explaining verbally any pictures in the book. In contrast, in level 2 I did not get any benefit at all from my attendance.

In this comment, ZS criticises the lack of classroom engagement at level 2 by stating that he did not benefit at all from attending the class. It is the duty of the teacher to create an environment where students find themselves involved in a setting that facilitates

participation and engagement. In fact, it can be said that failing to do this for all VI students is a serious form of discrimination.

Regarding the *learner's attitude* towards learning, it is obvious that ZS cultivated a keen interest in learning English, which led to a positive attitude towards learning and made him passionate about improvement. ZS indicates that "Teacher X was enthusiastic about teaching and so was I about learning."

A solid knowledge of the *basic language skills learnt at early stages* is another factor that ZS thinks is essential for effective learning. However, he believes that not all students are equipped with that knowledge and this, in return, can be challenging for the teacher as well as the students themselves. ZS explained:

> Students' multiple levels of understanding, for example, some students were little slow while others were not as they already had some basic knowledge of English (such as the alphabet), and this actually led to a problematic situation where teachers got confused.

ZS indicated that it was difficult for the teacher to help students who lacked literacy skills or familiarity with English, thus reinforcing gaps in learning opportunities among students in the same class. ZS clarified that comment by saying:

> He (the teacher) was serious in teaching us but unfortunately our basic knowledge was not solid enough. Some students exerted more efforts and depended on themselves to improve their language skills, while others were helpless because of their weak basic knowledge.

The following statement also elaborated on ZS' view of the difficulties that teachers are faced with because of disparities in students' levels:

> Some of my classmates did not even know how to write the alphabet, and the teacher was shocked by their low level of performance…Some of my classmates did not know how to write their names in English and our teacher was shocked to learn that.

Not only was the lack of using English a source of problems, but so were a lack of proper evaluation and marking criteria. It should be remembered that all students in this class were VI students. ZS described the situation saying:

> We used to speak about football matches during the class and speak about things other than the material. However, when it comes to tests and marking it was all up to the teacher and some teachers used to let things pass smoothly.

ZS added, "[t]here was a noticeable disparity in marking – many students used to take high marks and others were pushed to pass. At the end of the day no one fails during the school years."

ZS also mentions that he did not do any homework at level 1 and 2 (ENGLISH 101 and ENGLISH 102) even though the other students on these courses were set homework. I asked him, "[w]hy did not you do homework in ENGLISH 101 and ENGLISH 102?". ZS replied by saying, "the professors did not care; I was hoping someone can read the homework for me and point out my mistakes so I can learn".

I do not think that it was just that the professors "did not care". In the course of personal conversations with instructors who were teaching English at the foundation level, it became clear to me that some of the instructors had simply never encountered any VI students before, so they were not aware of how they should deal with them in real life. My impression was that these teachers thought they should teach VI students in the same way as they teach sighted students, except that they should take accessibility into account. Some of the instructors had the rather simplistic idea that if the student was blind, he/she could not read or write independently. The teachers knew nothing about the accessible/usable facilities and technologies that are available to VI people. The issue seemed to be one of ignorance and inexperience rather than a lack of care or interest. ZS' associating not giving him homework in ENGLISH 101 and ENGLISH 102 with the instructor not caring enough about teaching him might be the most obvious interpretation from the student's point of view, but certainly, the issue runs much deeper than this. Clearly, the university needs to provide training and have a list of guidelines for how to deal with such students and what to do when having students with any sort of special 'ability'.

I asked all of the interviewees at the end of the interview, "What are your suggestions to improve learning English at the university in the foundation year?" ZS made several important suggestions. The first thing he mentioned was having the textbook in an accessible format, so he could read it on his own. After we concluded the pre-intervention interview, I told ZS that he would have this opportunity in ENGLISH 103 (the current level 3 English course he is enrolled in). He also suggested that the university website should have all available resources for blind students in an easily accessible format. Regarding the instructors who taught him English in the foundation year, he said "professors should be well-trained in dealing with blind students because some professors get shocked when they see a blind student in their class". It seems not having the chance to do writing homework and examinations had an impact on ZS. Among the list of suggestions he put forward to improve English teaching in the foundation year was, "[u]sing writing exercises as a criterion for evaluating the blind students, and there are several ways to do this either by using Microsoft Word with any screen-reader, Braille Note Taker, or Perkins Braille typewriters. It is a real injustice to prevent blind students from improving their writing skills." I would suggest that the Enabling Centre at the university should provide accessible textbooks for their students and should cater to the different requirements that students have.

Post-intervention interview analysis

The intention behind the post-intervention interviews was to access participants' views about their experiences with ENGLISH 103. I wanted it to be taught using accessible tools such as an eTextbook (and other supplementary materials). The aim of the interviews was to establish the effect of using these tools on the students' learning process and to determine whether their self-efficacy beliefs changed in the process. In addition to this, I wanted to find out how student learning was influenced by their relationship with classmates and teachers, as well as a familial environment. In the next section, I present the analysis of the post-intervention interview with ZS.

To make teaching effective, not only creating interest in learning but also in *classroom engagement* is essential. Liu (2003) demonstrates that effective teachers are enthusiastic, open, and energetic, and know how to increase student involvement and participation.

The following comment by ZS illustrates the relationship between his interest to learn and the instructor's efforts to involve him as much as his sighted peers in ENGLISH 103:

> With having the book with me in all classes, he (the professor) used to ask me to write in the classroom and read stories with my other colleagues. He also used to ask us questions; I started to feel that I do participate as much as my sighted peers.

Feeling that he was totally involved in the learning process is a factor that kept ZS attentive and genuinely interested in learning. This could have enhanced his self-efficacy beliefs regarding his learning ability. Likewise, the teacher's way of teaching is considered an important practice according to ZS, "[h]e is so helpful and always providing me with information either related to the syllabus or not."

Tam, Heng and Jiang (2009) claim that students attach importance to teaching approaches in which the teacher keeps evaluating students' performance effectively. Explicit and constructive feedback on a student's knowledge and skills can be an opportunity for improvement. Hattie and Timperley (2007) point out that such feedback encourages students' efforts towards goal attainment. However, continuous praising without enough feedback can be damaging. Therefore, a balance between praise and constructive feedback is required.

ZS noticed a clear difference between this instructor's engagement with him in ENGLISH 103 in comparison to the previous two English courses (ENGLISH 101 and ENGLISH 102). He said, "[t]he professor treated me like my sighted classmates because I have the textbook with me, and I can follow with him in my book."

When ZS was asked about his first impressions of having an *accessible book* during the ENGLISH 103 course, he enthusiastically replied: "[a]t first I was shocked and surprised to know that an accessible book is available for the course. But I was so happy and satisfied with this perfect organisation. It provided a lot of fascinating features which I really need to get better marks and enhance my participation in the class."

ZS' response implied great enthusiasm about the book. He also added, "[n]ow I am a participant instead of being a receiver." The intervention and the accessible book motivated ZS to strive for improvement. They helped him to engage better and

participate more in the classroom. In another comment, ZS reaffirmed that the accessible book did contribute positively to his learning of English, "[a]t least I become aware of the main objectives that I can achieve through this book. It provided me with a clear outline to follow." Furthermore, ZS added, "[t]his is the best way to learn I have ever dreamed of."

It is evident from ZS' responses that having an accessible book was very helpful because it solved the problem of having to ask for help from a human reader (which was needed due to the absence of accessible books), and saved him from wasting time on dictating and asking others to read materials or exercises. Providing VI students with books in an accessible format is a tool for equality which the educational institution should provide for all students that need them.

With regard to how much time ZS spent reading the accessible book, he confirmed that he used it to study ENGLISH 103 for at least one hour a day. He also seemed happy that he was the one to choose when to study or revise for his class, noting "[n]ow I can revise my lesson without needing the help of anybody. Moreover, I depend on myself and open my book by myself just like my sighted classmates."

ZS also confirmed that he would make use of the textbook during the ENGLISH 103 classes, and that he was able to open the page that the course instructor asked the students to open. ZS mentioned that he, at no time during the intervention, needed any additional help when using the book.

When I asked ZS whether the book did or did not become a substitute for the help offered by classmates and others, ZS replied that he felt "it really did because the book is completely tailored to the needs of blind students". ZS also made it clear that the book enhanced his independent learning and that he did not need the help of his classmates with the new book:

> "Of course [it enhanced my independent learning], I make use of Screen-Reader and Braille Sense. I like to be independent, read whenever I want."

In answering another question about what, if any, advantages the accessible book provided to him, it was noticeable that ZS made a direct connection between his ability to

read the book on his own however he wanted and his self-confidence in his learning abilities. He said, “[m]y confidence increased and now I can review any information at any time I want.” He later added that, “[m]y English competence was good, but it contributed greatly, and immeasurably helped in enhancing my language.”

When ZS was asked whether he thought the book did or did not enable him to study and practice English language better than before, ZS responded, "[s]ure, now I can revise my lesson without needing the help of anybody. Moreover, I depend on myself and access my book by myself at home and in the class just like anyone else in my class". ZS also stated that the current intervention positively contributed to his learning and to having a positive attitude towards learning English.

To compare the experience of the current intervention in ENGLISH 103 with the previous experiences on the earlier English courses, the VI students were asked: if such accessible books had been available before, would it have helped…more when learning English? ZS responded to this question by stating “[o]f course, it would have helped me greatly to get better marks.” To show his real interest in the intervention, ZS even demanded that I, the researcher, should advocate for the creation of accessible books at the university for all other courses.

Before completing the questions about the textbook, I asked ZS whether the book was easy to navigate, and if he had any suggestions for future improvement. ZS provided very valuable feedback in this regard. Although ZS confirmed that reading the book was an easy and straightforward process, he suggested that the book needed more internal organisation in terms of headings and subheadings, and that photos need to be described. In addition, ZS expressed worries about what would happen if the course syllabus changed, as it would be difficult to reflect modifications within his version of the book. I then asked him if he could suggest a better way to read the book. ZS said, "[t]his is the best way I’ve ever dreamt of.”

In terms of computer proficiency skills, which are essential to using the accessible book, ZS was able to use technology for educational purposes. ZS answered ‘yes’ to the question of whether he could browse the internet comfortably and navigate a webpage easily. ZS also indicated that using a software Screen-Reader or a device like Braille-Sense enhanced his independent learning skills. He added “I like to be independent, read

whenever I want." In this, ZS reflects current pedagogical ideas on the importance of computer literacy for all. Since the evolution of computers, educators have used them to facilitate teaching and learning. Nowadays, computer literacy is a valuable skill essential for all students. Bandura (2001) highlights the role that appropriate technology can play in providing maximum mastery experience to the learner.

Having discussed ZS' views on using the accessible textbook during his ENGLISH 103 course, I now turn to another factor which the post interview targeted: *classroom engagement*. Some questions in the post-interview aimed to uncover whether the accessible book assisted in making the participants more engaged in classroom participation and interactions with classmates. Previous literature on the participatory behaviour of learners with disabilities provides evidence of a correlation between classroom engagement and academic success in general. For example, when researching students with mild disabilities, Sindelar et al. (1986) claimed that learners with more academic engagement achieved greater academic gains than their less engaged counterparts. Similarly, Bulgren and Carta (1992) studied the academic achievement of learners with disabilities in standardised tests and claimed that the quality and frequency of participation are positively correlated with achievement. Following Salvia and Yesseldyke (2001), who believe that self-reporting is a commonly used approach in measuring components of academic behaviour, a number of questions were dedicated to the subject of self-reporting and revealed the participants' attitudes towards their own engagement following the intervention.

When asked to report on his experience with the accessible book and whether it affected his engagement in the classroom, ZS confirmed that the book encouraged him to become an active participant in class discussions and also helped him to engage in interactive tasks. After indicating that I also wanted to explore whether ZS' engagement in the classroom was restricted with his vision-impaired classmates, I asked him "[d]id the book help you to enhance your participation with your sighted classmates?" He answered "Yeah. I read and participate more with them and we helped each other and cooperated in answering the assigned exercises." ZS' answer implied a confidence in interacting with his sighted peers during the intervention. He even said that he was seriously considering majoring in English in the next semester after completing the foundation year requirements (all students choose their subject major after passing the foundation year).

This chapter now turns to the next participant, MM.

MM

Introduction

Another participant in this study, who was given the pseudonym MM, was also a foundation year student at the university. Similar to ZS, MM studied at a public school but in a different city. MM also reported that English classes at his school were taught in blind segregated classes while other subjects were taught for both sighted and VI students together. In this section, I discuss and analyse the findings for participant MM. MM, like all participants in this study, completed both the pre-intervention and the post-intervention questionnaires and interviews. He was also one of the attendees at the focus group discussion. There now follows an analysis of MM's pre- and post-intervention self-efficacy questionnaires and pre- and post-intervention interviews.

Analysis of Pre- and Post-intervention Self-efficacy Questionnaires

MM achieved 570 out of 1000 in total for the pre-test for the writing skill (See Appendix D). Then, in the post-test, he achieved 810 out of 1000. Therefore, the percentage change in his writing is 24%, i.e., ((810-570)/1000)*100 = 24.

Looking at the responses of MM in the pre- and post- intervention self-efficacy questionnaire, there can be seen a positive improvement in his self-efficacy beliefs post-intervention. There is an increase of 29% in his speaking self-efficacy belief, 35% for listening, 40% for reading, 24% for writing, and a 26% increase for grammar and vocabulary. Interestingly, it is worth noting that MM's reading self-efficacy belief was substantially higher than his self-efficacy beliefs for the other skills. This impressive increase is plausible, however, because beliefs are merely beliefs, and self-efficacy beliefs do not represent actual improvements in skills which, of course, would be much harder (though not impossible) to accomplish in a short time period such as the duration of this intervention.

As mentioned in the methodology chapter, the questionnaire was read to the VI students out loud, and their responses were marked down. Occasionally, the participant mentioned something, or made an additional verbal comment when responding to the statements in the self-efficacy beliefs questionnaire. I made sure to note down any such

comments in case they later proved to be useful. Thus, it is worth noting at this stage that MM did make an insightful comment in the post-intervention questionnaire. While MM was responding to the self-efficacy beliefs statements in the English 103 self-efficacy beliefs test, under the reading section, when the statement "I can read a medium-length general interest article" was read to him, before scoring himself, he, with what sounded like a clear tone of enthusiasm, stated, “[t]his was great, the great feeling of reading the book for the course on my own and with ease” [cannot be put into words/la yomkeno wasfo sho’ori bi alkalam/].

As mentioned previously, VI students did not attend the reading and writing classes for the previous English courses at the university. This circumstance should be taken into account when interpreting the results of the self-efficacy beliefs questionnaire for the different language learning skills. These results yield an incomplete picture without analysing the possible reasons for such changes from the qualitative data. The qualitative data provides a rich explanation for the varied increase in MM’s self-efficacy beliefs. For now, see figure 4 below for a graph demonstrating the change in MM’s self-efficacy beliefs.

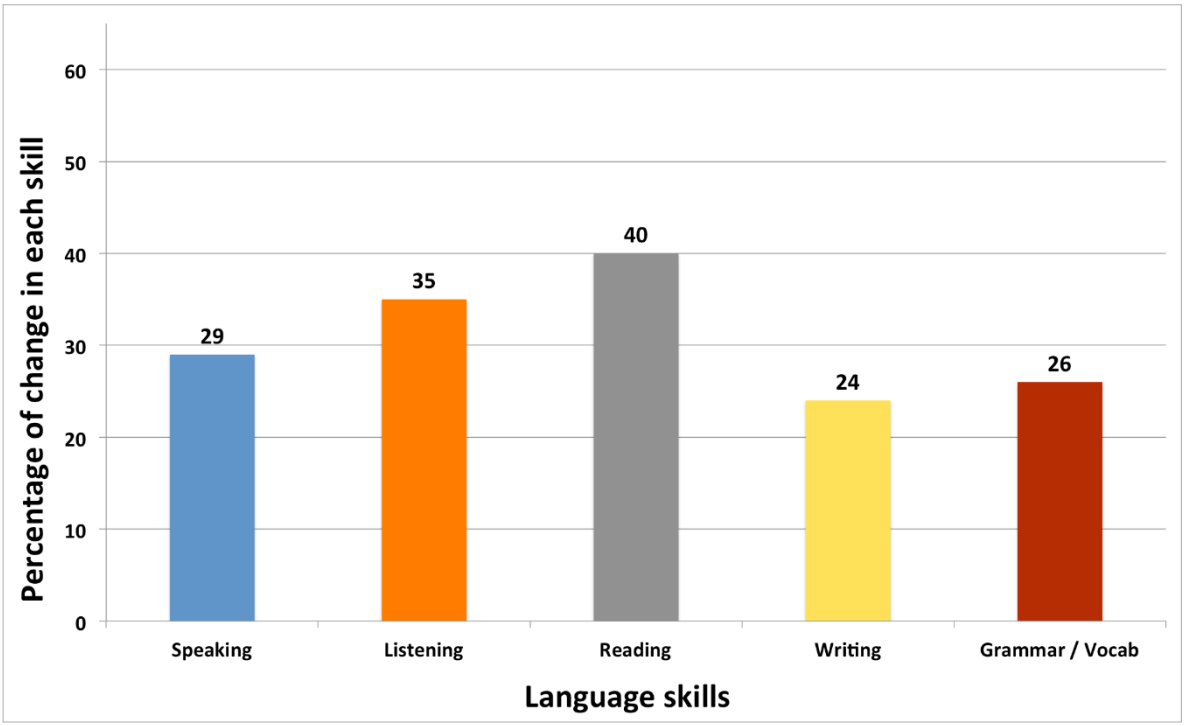

Figure 4: The percentage of change for each skill in the post-questionnaire.

Analysis of the Pre-intervention Interview

MM, like all other participants in this study, is a foundation year student at a large University which has approximately forty thousand students. Prior to university, MM studied at a public school in a big Saudi city – a school that teaches both sighted and blind students. MM was accompanied by 6 other VI students during his school years. He was the only school student in this small group to enrol at this university, which is not in his home city. However, MM did study at a school in his home city. MM studied English for seven years. During the seven years at MM's school, VI students were segregated into special classrooms when taking English and science courses. At MM's school, other subjects such as Arabic language, history and literature were taught with both sighted and blind students in the same classroom. MM's experience of these "only blind" English classes at his school, however, was a positive one.

Academic debate has taken place amongst educators regarding the ideal educational setting for blind and vision-impaired students. Many researchers have attempted to question the effectiveness of inclusive settings in comparison to segregated settings. These are two differing views vital to debate on special educational needs in general, and vision impairment in particular. Advocates of inclusive education settings (for example, Christensen & Rizvi 1996) claim that inclusion is a civil right that should be appreciated and that any separation of the VI from their sighted counterparts damages the educational and social abilities of the individual. In the UK, protections for this are enshrined in law in the Equality Act, 2010. However, proponents of a segregation approach see matters from an educational efficiency perspective, claiming that learners must receive an effective education which is tailored towards their disabilities and requirements. Supporting this view, Liu (1995), for instance, claims that effective educational settings should be prioritised, claiming that inclusion can be damaging and counter-productive if the educational setting is not fully equipped and organised to serve the needs of students with SEN.

Undeniably, teachers play a vital role in their students' learning. The practices of a teacher can be either positive or negative. If students consider a practise to be negative, their learning may be impaired to some degree. On the other hand, if a student perceives his/her teacher's practices to be positive, that student will most likely be encouraged to learn, and, overall, will excel on the course with minimal problems and difficulties.

As regards *teacher practices*, according to MM, learning English at school was mainly a positive for him. When talking about his prior experience of learning English at school and on the previous two English courses at university, MM showed clear contentment in his learning experiences during his seven years at school. For instance, MM said, “[w]e had good grasp of the English language from the first year of English all the way to high school because we had our own teachers focusing on the seven of us to ensure that we can read and write English in Braille”. MM thought that having a special teacher teaching the VI students at his school had many advantages. The teacher taught them Braille in English and made them practice reading and writing. The teacher even used to dictate a summary of the English lessons to them, which the students would type using a Perkins Brailler - Perkins is a braille typewriter with nine keys: six corresponding to each of the six dots of the braille code, a backspace key, a space key, and a line space key. According to MM, the students mainly used to study from the summary, and they would only refer back to the Braille textbooks to do some of the exercises.

MM identified only one teacher practice that he considered having a negative effect on him during his time at the school. He said, “I struggled to read English written in contracted Braille, and, by the time I started university, I forgot all the English Braille contractions.” He remarked that it was unfortunate that English teachers did not take teaching them contracted Braille seriously.

Uncontracted Braille (sometimes called Grade 1 Braille) is much easier to learn than contracted (Grade 2) Braille – the differences are explained in greater detail below. Contracted Braille takes longer to learn and needs additional practice to acquire it. Anyone who has learned Braille will know uncontracted Braille, but not everyone will know the contracted Braille system. Hence, only the more experienced VI students who were taught contractions in Braille English are able to read grade 2 Braille. Grade 2 uses the same letters, numbers, and punctuation marks as grade 1 Braille. However, it also uses a contracted system where groups of letters may be combined into single or double Braille cells. For instance, there are single symbols that represent common words like "and, the, for". There are also symbols that occupy single or double Braille cells that represent common letter combinations such as "sh, ing, -ed and -ation". It is generally considered that it is faster to read and write in contracted Braille. It also takes up less space in Braille books.

When asking MM about how he was able to read the English school textbooks without learning and practising Grade 2 English Braille, he mentioned that the learners mainly depended on reading the summary of the English lessons, which their teacher dictated to them, especially during high school. The learners took down the dictated summary in grade 1 Braille. In addition, MM said that the English textbooks from the first three years of school contained no contracted Braille. Contracted Braille was gradually introduced in the English book from the 4th year of teaching English and through high school. For a VI student, it is possible to self-teach contracted Braille, but this requires continuous practice and, additionally, being an autonomous learner. It was apparent from MM's account of his English classes at school that he and his other VI classmates were dependent on their teacher to learn English. In other words, the students received a teacher-centred approach. Despite this fact, MM considered that the teaching practice and the English knowledge he acquired during his school years were mainly positive, and he spoke highly of his experiences.

Unfortunately, MM's positive experience did not continue at the university level, where, in the first and second levels – English 101 and English 102 - MM found his instructors to be boring. MM remarked, "I was sitting in the lecture hall every day of the week in English 101 and 102 doing nothing, except listening to the instructors talking, or listening to nothing while my classmates were writing or doing exercises from the textbook". MM reported that much of his English language learning on these two English courses involved passivity: just listening to lectures with very little interaction and no opportunity for reading or writing practice.

Another comment that shows the effect of negative teacher practices on MM's learning process is as follows:

> In English 101 and 102, I knew a good deal of what the instructors were teaching us from my basic background at high school, but I was not able to join in discussions because I had no access to the textbook. Regularly the instructor would write something on the blackboard and ask who can answer this without reading what 'this' is! Being just a listener made the classes felt very tedious.

The quote above describes how negative teacher practices contributed to hampering MM's progress in his learning of English and in achieving his academic goals. MM's experience on these two university courses shows the importance of having instructors who are aware of the needs of VI students. MM could have learnt more from these two English courses had he been exposed to a more positive teaching experience. Teaching staff at the university need appropriate and adequate training in how they should adapt their teaching to include VI students properly. It is the responsibility of the university to make sure that teachers' practices are equally supportive for and inclusive of VI students.

The *personal effort* exerted by students can be a major factor in the levels of learning and proficiency attained in a second language. Although class circumstances might appear very similar, some students become more skilled as a result of spending more time and effort on their own learning. Richards and Schmidt (2002, pp. 243-244) argue for a widely-cited connection between language learning, self-determination, and learners' willingness to expend effort in order to learn a second language. As far as MM's *personal effort* was concerned, he talked about the importance of expending personal effort when learning English as a foreign language. He addressed this by saying "[w]e exerted more efforts trying always to participate with the teacher. Our teacher was very nice and kind to us." By "we", MM was referring to himself and his other VI classmates. It seems like they, MM and the group of VI students in the same year as him, liked their English teacher at school. Exerting personal effort in learning English is referred to as the amount of energy expended on learning English. However, it also may include other factors that do not necessarily relate specifically to learning English such as the desire to please a teacher. It appears that part of MM's effort to learn English came from wanting to please his teacher.

MM also said, "I used to ask my teacher about the meanings of some Arabic words that I did not know the English equivalents of; I have always liked to learn new words." Furthermore, MM mentioned that he and his classmates used to compete in answering the exercises in the Braille textbook, "[w]e were very active in answering the exercises, and used to work very hard to get all answers correctly." MM took even further steps to learn the language by downloading English lessons from the BBC Arabic website to listen to them. He said, "[i]t was a personal effort /majhoudat shakhssiya menni/ from my side to download and listen to some English lessons available online." MM thought that his

pre-university experience in learning English - his personal efforts during his school years, and having good English teachers - helped him in passing the English 101 and 102 courses at university even though he was not able to read the textbooks, and study from them.

Answering another question later in the interview on factors that helped MM in learning English outside university, he mentioned that he sometimes used to listen to downloaded English materials: "[w]henever I had free time, I sometimes used to listen to some of the English audio lessons I had." Although it seems that MM was motivated to put in extra effort to learn English during his school years, being proactive did not generate any advantages in the classroom. MM stated, "I did not read anything related to English 101 and 102 because I was not required to write anything, and I did not have the textbook to read." It is apparent from MM's responses that his interest and the amount of personal effort he put into English 101 and 102 had dropped significantly compared to his school period. The *Learning Environment* was thus an important factor that impacted how MM viewed his experience as a student. Based on his comments, it was clear that MM believed that different factors in the learning environment (exam set-up, the availability of accessible services, and the classroom set-up) were all major contributors to the learning process. Given that MM reported a number of issues regarding the difficulty of engaging with the university learning environments as opposed to the school learning environment, MM suggested in one of his answers that the university should have the English textbooks recorded in audio format, and the exercises printed in Braille. MM explained:

> The best way is to have our textbooks in audio format, so that we can listen to them independently. Listening to the exercises of the textbooks in audio cause problems because of the difficulty in following and answering them. The best way is to print the exercises in Braille.

In this context, MM also reported that the exam set-ups at the university and the school were completely different. At his school, the students received all exams printed in Braille. Each student would receive a Braille copy of the exam. Then the students would read the questions and type the answer on a separate piece of paper on the Braille typewriter. When they had completed the exam, each student would give his Braille

answer sheet to the teacher. With such a set-up, all the VI students in the class were able to answer the exam questions at the same time. I was somewhat surprised to learn that, at MM's school, they were still using the Braille typewriter. I thought that most VI schools had moved towards the use of PCs with screen-readers for taking exams and writing homework. According to MM, however, he had no problem with the exam set-up at school.

However, at university, in English 101 and 102, the exam set-up was dependant on having the assistance of a reader. The exams are all computer mediated. The reader will read the question and put down the answer given by the VI student. VI students were exempted from sitting the writing component of the exams. MM found these exam set-ups to be inconvenient and unnecessary. He commented, saying, "[m]y high school was able to give us the exams written in Braille, the university is huge, and has much more resources than my high school, how come they are not able to give us exams in Braille, or in any other accessible way!"

Peer attitude is another theme that emerged from this interview. Peer effects are influences of an individual's peers on learning behaviour. Young (1994) supports this view, saying that "learner perceptions and experience of peer attitudes concerning school, education, foreign language learning in general or the learning of a particular language in question may exert considerable influence on the individual's own Foreign Language Learning orientation, attitudes and motivation" (p. 86). MM's view of the influence of his peers on his English learning process appeared to be a positive one during his school period. In the following example, we can see how MM and his classmates influenced each other in a positive way: "I used to compete with my classmates to see who gets more correct answers using textbook exercises" According to MM, this helped them in practising learning English in a positive environment.

Regarding *the availability and format of textbooks*, MM noted that they had Braille textbooks at school. The students used the textbooks mainly to answer some of the exercises to enhance their learning. They relied on the summary of the textbook that their teacher dictated to them. According to MM, the summary contained the main, important points from the textbooks. The students would typically type the summary in uncontracted English Braille, which led to MM not being fluent in reading contracted

English braille. As far as the availability and format of the textbooks at the university was concerned, MM had nothing to say about them because he had no access to them. MM said, “I did not read the textbooks for English 101 and 102 because they were not readable for me”. MM mentioned that he had no problem reading English uncontracted Braille.

My conversation with MM regarding Braille and textbooks headed smoothly towards a question about *his computer proficiency skills* which are needed to use screen-readers and Braille displays. MM answered that he was well aware of how to use them “I used to read online articles about learning English.” MM also said, “[m]y computer and iPhone helped me to develop and practice my English language.” It is apparent that MM has a positive attitude towards the use of computers for language learning purposes. His attitude towards the use of technology is in harmony with Bocconi et al.’s statement that VI students “could highly benefit from using ICT for educational purposes” (2007, p. 500).

Classroom engagement is another emergent theme in the current study. In language learning, teachers are required to make connections with their students to go beyond textbooks and examinations. Christenson, Reschly and Wylie (2012) stressed the important role of engagement for learning, “Student engagement drives learning; it requires energy and effort; is affected by multiple contextual influences; and can be achieved for all learners.” (p. 817). In the following statement, MM talked about classroom engagement at school and in ENGLISH 101 and ENGLISH 102:

> At school, I frequently participated in English classes. We also sometimes used to play some games related to the English lessons and have friendly competitions with my classmates. But, at university in English 101 and 102, I was just listening to lectures with no interaction.

This comment clearly showed MM’s disengagement in the university English classes, unlike his school experience where he was an enthusiastic participant. It is certainly the role of the teacher to create an environment where students find themselves involved in a setting that facilitates interaction and engagement. Skinner and Pitzer (2012) described engagement as

"constructive, enthusiastic, willing, emotionally positive and cognitively focused participation with learning activities in school" (p. 22).

The *learners' attitude* towards learning English is another prominent theme in the current study. Eagly and Chaiken (1993) defined attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). It is important to mention that, for the current research, attitude is defined as the VI learners' beliefs, perceptions and experiences of learning English as a foreign language (as far as it could be assessed through the VI learners' responses to the interviews). As far as learners' attitudes were concerned, it was noticeable that MM was motivated to learn English which led to a positive attitude towards learning and made him keen to improve. MM mentioned that "our English teacher was nice and kind to us and so we were full of energy /Konna mali'oun bi alnashat/ to learn English." MM believed that strong knowledge of the *basic language skills learnt at school* is the main ingredient for effective learning. He, on different occasions, alluded to the friendly rivalry between himself and his classmates at school, and stated that they regularly used to engage with each other by participating in the class. MM said:

> The seven of us had a good basic level of English from our first year at school. The teacher encouraged us to participate in the class, but I tried to do extra stuff and listen online to English lessons, so I can improve my English faster.

As can be inferred from the above comment, MM was conscious of the different resources available to him in order to improve his English. MM was aware that the only way to differentiate himself from his classmates was by undertaking extra independent activities at home related to his English classes. Like in most classrooms, there is a teacher teaching all students the same thing, but some students do exert more effort and depend on themselves to improve their language skills, while others find it sufficient to merely learn from the teacher.

MM reported that he used to get high marks in English at school. As mentioned earlier, all exams were taken in Braille, and the students type their answers in Braille as well. In addition, MM used to do homework for his school English classes. Unlike at school, MM was not given any homework to complete for ENGLISH 101 and ENGLISH 102. However,

sighted students on these courses were regularly assigned homework. I asked MM, "[w]hy do you think you were not given any homework for ENGLISH 101 and ENGLISH 102?" MM responded by saying, "[b]ecause VI students did not have the textbook, those at the university decided not to give us any homework". Maybe equipping the VI students with fully accessible English textbooks will change this practice. When asking MM about his overall experience in English 101 and 102, he said, "[t]hey are really perfect courses, intensive, and students can learn a lot from them. But they are only suited for sighted students". MM believed that substantial changes needed to be made so that VI students can benefit from these courses as much as other students do.

Before concluding the pre-intervention interviews, I asked all participants at the end, "[w]hat are your suggestions to improve learning English at the university in the foundation year?" MM put forward several suggestions. He firstly recommended having the textbook in Braille and audio. He also suggested that the university should place all blind students studying English in the same class and teach them using Braille. Furthermore, MM mentioned that, in this class, all facilities that VI students require should be available, for example, computers, Braille printers and Braille displays.

Post-intervention interview analysis.

This section is an analysis of the post-intervention interview with MM which took place after MM completed ENGLISH 103 during which he used the accessible textbook provided for the course. The section is intended to provide special insight into MM's opinions about this experience and the extent to which having accessible material contributed to his learning.

When MM was asked about his first impressions about having the *accessible book* during the ENGLISH 103 course, he responded by saying, "[t]his book was a gift from God /hadiyaa min Rab Alalamin/. I was so surprised at how it was easy and straightforward to deal with the book. Moving between paragraphs, pages, exercises and chapters was easy. Honestly, I did not think that such a book could exist." This response implied great satisfaction with and appreciation of the book. MM also added, "[t]his book gave me the courage to participate in English 103 classes." This response highlights one of the advantages that MM felt after having use of the accessible textbook for this course: it helped him to engage and participate in the classroom. Whenever I asked MM how he

found the accessible textbook, all his responses were unambiguously positive. For instance, MM confirmed that the accessible textbook had contributed positively to his learning of English, “I, for the first time at the university, could bring to the class my copy of the textbook. There is no difference between me and the sighted students. I can do the exercises in the book as smoothly as they can.”

It is apparent from MM’s responses that having an accessible book offered him an important tool throughout the intervention period. He underscored that the accessible textbook made his experience in English 103 a very positive one compared to the boredom he felt in attending English 101 and 102 classes.

When asked to compare the amount of time he spent studying during the intervention using the accessible textbook, MM indicated that his English studying hours have certainly increased as a result of having a book that can be easily accessed without the help of others. MM said, “I now spend between one and two hours reading through the book everyday as compared to no time in the past”.

MM acknowledged the particular significance of being independent when it comes to choosing the time and place of studying, and he viewed it favourably. He also expressed how he felt more confident to engage with his peers or even ask for assistance as a result of his first-hand experience of the book. Having said that, it becomes clear that MM’s perceptions of engagement inside the classroom have changed and he expressed a preference for discussing material that he read by himself over material read to him by an assistant, for example.

In relation to the discussion about engagement inside the classroom, MM made a link between having the new book and the dynamics of interaction with the teacher. MM emphasised the idea that he started to feel that he is now on the same page as the instructor, literally and metaphorically. MM stated that, “communications between the two of us (himself and the instructor) have increased, and I started to ask him more questions related to the content of the material.” MM also made a comparison in this regard between the current learning phase and previous levels when he had no access to an electronic book, saying “I started to ask about the material referring to specific page numbers rather than talking about things generally without any clue about where they exist in the book.” In his view, MM made the point that having the book seemed to relate

to how he viewed his agency inside the classroom. In the following statement, MM expressed that the instructor has become more attentive to his presence, "[e]ven the professor has now started to notice my existence. I feel he just started to direct some of his questions to me as much as he asks my sighted peers. While in the past, I used to sit silent most of the time, the professor has now begun to feel my existence." These statements suggest a shift in how MM views participation, perceiving it as a less difficult experience now, but, additionally, one that now affords him confidence that his teacher recognises his effort – something that may well affect self-efficacy beliefs.

Reflecting on *personal efforts* and *extracurricular activities* during the learning journey, unlike ZS who stressed the importance of exerting personal effort outside the classroom, MM showed less enthusiasm to exert such effort and expressed slightly different views, stating that, "I do not communicate with any English natives in person or online, nor do I read lots of materials written in English online or otherwise." That being said, it was clear that MM showed great excitement about the electronic book as one of the very few means he prefers for enhancing his learning of English because he spent a great deal of his time and energy reading the accessible resource. An agentic individual consciously tries to influence the course and functioning of their current circumstances (Bandura, 2006). It was a conscious decision by MM to put extra effort into interacting with the accessible textbook because that was what was available to him. Performance phase measures, e.g. good time management, avoiding distractions, and monitoring one's performance, are influenced by self-efficacy beliefs (Bandura, 1997).

This chapter now turns to the next participant, BJ.

BJ

Introduction

The third participant in this study was given the pseudonym BJ to preserve confidentiality. He is a foundation year student who studied for two years at a specialised institute for the blind before moving into a mainstream school to complete five years of intermediate and high school study. Unlike ZS and MM, who both studied in large schools in big Saudi cities, BJ comes from a small city in the South and studied at a small school where he was the only vision impaired student. At school, BJ reported that he was taught English individually. As was the case with other participants in this study, BJ completed both the

pre-intervention and the post-intervention questionnaires and interviews, and he was among the four who attended the focus group discussion.

Analysis of Pre- and Post-intervention Self-efficacy Questionnaires

The changes in BJ's self-efficacy beliefs between the pre- and post-intervention self-efficacy questionnaires were calculated in the same manner as with the other participants above (see Appendix E). BJ achieved 100 out of 1000 as the total in the pre-test for the writing skill. Then, in the post-test, he scored 120 out of 1000. Therefore, the percentage of change in his self-efficacy beliefs in writing is 2% i.e. ((100-120)/1000)*100 = 5 where (1000) is the total full score for the ten writing self-efficacy beliefs statements in the questionnaire.

Comparing the responses of BJ in the pre- and post- intervention self-efficacy questionnaires shows that his self-efficacy beliefs only changed marginally following the intervention. To be precise, BJ's speaking self-efficacy belief has increased by 5%, listening by 10%, reading by 0%, writing by 2 %, and grammar and vocabulary by 2%. BJ's listening self-efficacy beliefs were slightly higher than for the other skills. What is really noteworthy is that BJ did not use the accessible E-book for this English course. The reason for this is discussed in the coming sections. For BJ, the lowest change in self-efficacy belief was in reading, writing, and grammar and vocabulary. These low results carry no meaning without delving in depth into BJ's qualitative data which allow for a rich interpretation of his qualitative results. See the below figure for a chart illustrating the change in BJ's self-efficacy beliefs.

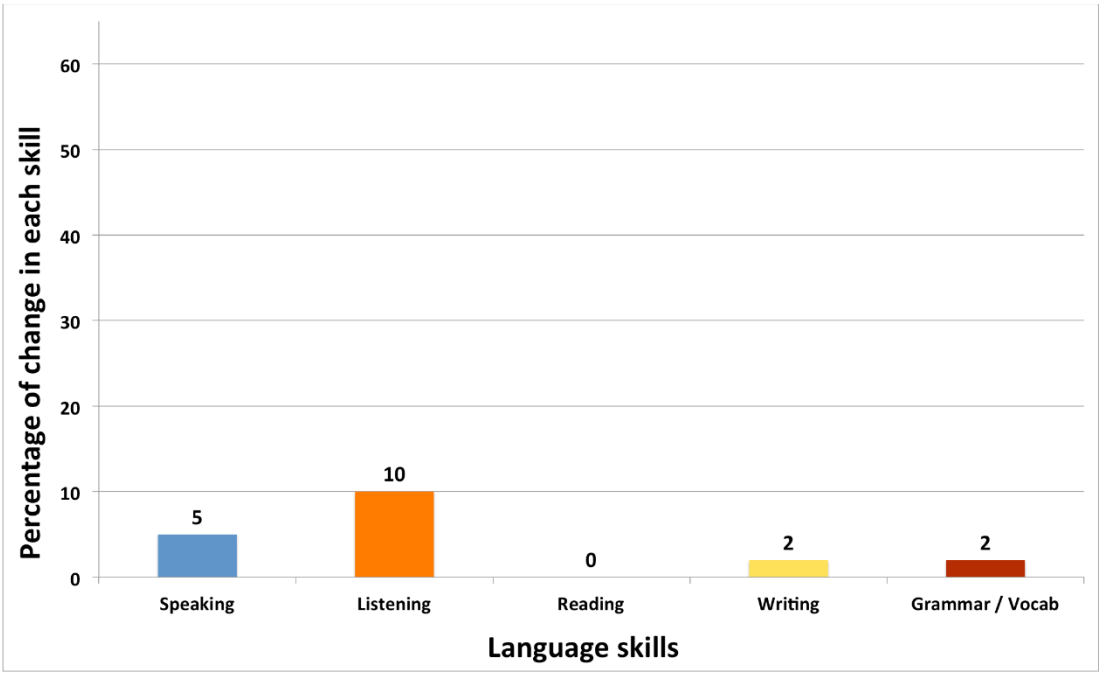

Figure 5: Percentage of change in Language Skills

Analysis of Pre-intervention Interview

Beginning with a question about BJ's experience of English starting from grade 6 at the specialised institution, BJ expressed satisfaction with his experience, describing it as "excellent", and wishing that such quality of teaching had continued later at the school. It became clear during the interview that BJ felt much better about his experience at the specialised institute compared to his later school experience.

To contextualise BJ's arguments about his support for segregated learning for the blind, I attempt to touch upon the complex picture and competing narratives surrounding inclusion of the blind in education. As discussed earlier, academic debate has taken place amongst educators regarding the ideal educational setting for blind and vision-impaired students. There are two existing views vital to debate on special educational needs in general, and vision impairment in particular. Many researchers have questioned the effectiveness of inclusive settings in comparison to segregated settings (Liu, 1995; Christensen & Rizvi, 1996; Rieser, 2012). Historically, from the nineteenth century, the practices and experiences of disabled students have shaped many of the current experiences, practices and policies. Treating disabled people as outcasts throughout the pre-industrialised period caused concerns about the social well-being of the blind and society at large (Rieser, 2012). Since then, a heated debate around inclusive education

has taken place in light of more complex understandings of disability and special educational needs. Oliver (1990) demonstrates that societies' need for a productive and competitive labour force resulted in segregating the disabled from mainstream society.

According to Rieser (2012), the end of the nineteenth century witnessed a rapid expansion of specialist educational units for the disabled within mainstream schools. However, more recently, the influence of post-structural debates around the segregation of the disabled and the need to consider the impairment dimensions of disability have engendered more complex understanding in the debate and have resulted in calls for "bringing the individual back in" and the development of the concepts necessary for more inclusive education. Theorists working on concepts of inclusive education, such as Liu (1995), as well as Christensen & Rizvi (1996), who attempted to highlight the need for more awareness of the relation between education and human rights, proposed that, for the educational system to be fully inclusive, educational institutions including schools are responsible for providing "education for all". Similarly, Ainscow, Booth and Dyson (2006) agreed that segregation in education creates injustices and deprives society of the benefits of diversity and pluralism.

It is evident in BJ's answers to certain questions that moving from a segregated, specialised institute for the blind into a mainstream school was a turning point in his journey of learning English. He compares and contrasts these two stages using emotional language:

> The specialised institute was much better, teaching was excellent and I still remember the teacher of English who was exceptional. I always wish him the best and wish that Allah grants him health and prosperity. I also wish I had continued being taught by him. Had this been the case, I am sure my English would now be more than excellent.

BJ also emphatically described his experiences of learning English at school, saying:

> Today we, the visually impaired, suffer as a result of our levels in English. Our English is very humble because of the poor basics we learnt at school and the lack of proper support. I believe teaching

> techniques are incorrect and merging the visually impaired with other students is the problem with our schools. We entered schools and graduated without learning anything.

Similarly, answering a different question, BJ claimed that "the decision to merge the visually impaired with their sighted peers is absolutely a mistake and a bad decision". BJ did, however, expand on this claim, saying that the idea itself might be good in other contexts where the process is well planned and meets the students' needs. However, according to BJ, the existing way of doing it "is not helpful and [is] unfair to the visually impaired". Throughout the data, there is evidence of contrastive comparisons between what BJ called "before and after merging the visually impaired with other students". BJ's answers to many questions reveal that his educational experience at school was full of difficulties. In comparison, however, the specialised institute offered him acceptance as a member of a group. It is clear throughout the interview that BJ's sense of self appears closely linked to his identity as a member of a vision-impaired group. This is evident in his use of the pronoun 'we' throughout the interview, as well as his perceptions of non-vision impaired peers and staff members.

BJ's use of language indicates a clear dissatisfaction with learning English at school. He was keen to emphasise his perception of the process following his move from the institute into mainstream schooling. For example, BJ used a number of evaluative terms including "my level declined", "my English deteriorated", and "my English is weak". In relation to this, BJ was very critical about the methods related to *teaching the basics of English at school* and believed that most of the challenges facing him at university are the direct result of a poor foundation learnt at school. He argued that:

> Today we are at the university and we came to study four levels of English but to be honest the basics learnt at school were not enough to be up to the level of courses we take here at university. And I think it is not the responsibility of universities to teach the basics. It is even impossible for students to start learning the basics now.

Referring to *teacher practices*, BJ stated clearly that his schoolteacher lacked essential confidence, knowledge and techniques for dealing with his situation. He said:

> There is a big difference. In the institute for the blind, teachers were specialists equipped with the right skills for dealing with our situation, but in the school the case was different – I was taught by a sighted teacher who was not aware of my needs and does not possess techniques for dealing with my situation. As a result, my level deteriorated and I am paying the price."

BJ also compared his schoolteacher and his way of teaching to those of two other teachers who taught him at the institute for the blind. His narratives of the two experiences demonstrate the benefits that he could have gained from a teacher who was aware of the needs of a vision-impaired student. BJ strongly held the idea that "there is a big difference between a specialist who is fully aware of our situation and a teacher lacking the skills for how to deal with us." It is clear that BJ is now used to a method of teaching that he is comfortable with and which he did not encounter at the university level. BJ praised two teachers who taught him at the institute for the blind for "using voice recordings" and for "translating content from English into Arabic." Although BJ believes that teachers at the institute for the blind used to "put more pressure" on the students to learn, he confirms that he is in agreement with such a level of pressure if it leads to "better learning and more benefits".

BJ's entirely positive descriptions of his time at the institute for the blind remained the same when I asked him about his participation during his years at the institute. He described *the classroom environment* there as "motivating and interactive". However, when asked about his engagement at the school, BJ expressed how much he suffered following the transition there from the institute. Despite some effort from several teachers, BJ does not believe the environment was motivating at all and seemed uncomfortable in participating or communicating. He stated that "[u]nfortunately the environment itself is not interactive and does not stimulate engagement and interaction; it rather causes frustration."

Reflecting on his *personal efforts* in learning, BJ appears to have been struggling because of a sense of isolation at school which influenced how much time he spent on learning English on his own. BJ confirmed that, while

he used to study at home and do homework assignments in his two years at the institute for the blind, he gave up studying alone outside the classroom when at the mainstream school. According to BJ, this happened partially as a result of not receiving any homework assignments to do. BJ had a powerful sense of his experience at the institute for the blind in this respect because of the "techniques of teaching", which he describes as "successful". The idea that the teacher used to tape record his voice explaining the English lessons, and then translate the entire lesson into Arabic was a good motivator for keeping BJ involved and interested in learning English.

According to BJ, another reason for not exerting more *personal efforts* to learn English was no longer having confidence about evaluation, marking criteria and the value of exams. While BJ expressed his satisfaction with his marks and the way he was evaluated in his first two years of learning at the institute for the blind, he described the situation in later stages at school saying:

> With regard to exams, schoolteachers who are aware of our situation used to sympathise with us, help us with marks, and let things pass smoothly. We used to answer questions orally with no exam for the writing skills. Depending on my answers solely, my mark would be very low – if I scored 9 out of 30, that would be very good. However, teachers are cooperative in this respect.

BJ believes that the exam set-up at university for the ENGLISH 101 and ENGLISH 102 courses was dependant on having the assistance of a reader. Exams are all computer-mediated, and a reader is needed to read the question, and write down answers. Moreover, as stated in the above quote, vision-impaired students are exempted from doing the writing part of the exams. This observation becomes interesting when we know that other participants in this study also indicated that they have been exempted from the writing part of their exams in an attempt to make the task easier in light of the students' visual impairment. However, this practice might have significant implications for the ability of students to access learning, and how much they can become independent in their education.

In terms of his educational journey at university, BJ highlighted a number of negative experiences which he believes are the consequence of the "bad education" he received at school. Although BJ believes that his English instructors were making "greater efforts in explaining and facilitating learning", he felt he was not able to cope with the level of teaching at university. BJ thinks that "if you are the product of public schooling, then you do not know much about the language. Later at university, you won't be able to communicate with the teacher, not even ask or answer questions. Of course, we are paying the price." BJ's reflections on his educational journey at university reveal many difficulties which led to a great deal of resentment and discontent with the current situation. BJ feels that:

> Nothing was offered to help us. You can see that students are trying their best but things are as they wish. It is really a big problem - an accumulation of no basics learnt at school which causes a gap at university. And the university itself does not teach the basics.

As far as grades are concerned, BJ reported that, although things were somewhat more serious because "some students failed and repeated courses", course instructors were cooperative in terms of marking and, as a student, "you had to score at least half of your mark so that teachers would become able to help". BJ believes that "[a]t the end of the day, university teachers are aware of the fact that we are the products of a weak schooling system, and thus remain helpful." So, for BJ, a helpful teacher at the university is a teacher who gives extra marks to the VI students to pass the course. It is really a very sensitive and complicated issue. Who is to be blamed? The VI student? The Ministry of Higher Education and universities? The Ministry of Education and public schools? The Teacher? Or all stakeholders to some degree?

One way out of this English learning "dilemma" from BJ's point of view is that the Ministry of Education "should provide specialised books including material books and dictionaries along with well-trained staff members who are aware of the challenges that face vision impaired students." BJ, more importantly, believes that "a truly competent teacher" is what he most needs to restore faith that he can learn good English. Another element which BJ believes might be helpful for vision-impaired students is to have more electronic equipment that delivers English material using Braille. However, it should be made clear

that BJ did not show much excitement for this idea because he believes that the electronic book has some disadvantages as a means for enhancing English learning. Unlike ZS and MM, who supported the introduction of the electronic book and believed in its ability to enhance their learning of English and empower them, BJ thinks that the electronic book privileges students who can read with Braille. He clarifies: "[t]he problem is that some students, especially those who studied previous stages within a sighted group, are not able to read and so would not benefit from this. BJ was nostalgic as regards his experience of listening to audio tapes of the English lessons 6-7 years ago at the institute for the blind: "I believe that recording the English curriculum at the university by an instructor who speaks Arabic will help me to understand more than reading the textbook". It is apparent that, due to BJ's past experiences, and his below average level of English, he is more interested in listening to audio of the English lessons explained in Arabic rather than using a screen-reader to read a textbook that is completely written in English.

Post interview analysis

BJ did not use the accessible E-book for English 103. He repeated this fact several times during the post-intervention interview, saying, "I know very little English, I understand nothing when I read the E-book". There is a tone of frustration each time BJ explains the reason for not using the E-book. Since BJ did not use the E-book, I was not able to ask him the specific questions that are directly related to the E-book and the experience of using it. Instead, I asked BJ general questions about his own thoughts regarding using the E-book if his English had been suitable for the level of the course. Surprisingly, BJ was supportive, and thought that the E-book is a great idea, and that it would be very useful. I questioned BJ, asking him how he was able to judge the usefulness of the E-book when he had not been able to use it. BJ responded by telling me about the other VI students who had used the E-book and how much they benefited from it, a kind of vicarious situation. BJ said of one of his VI friends in English 103,"he was sometimes reading the E-book on his iPhone while we were waiting in the resource room between lectures."

BJ was observing his VI peers and seeing first-hand how those who used the E-books were performing. Vicarious experiences are important here because they depend on the individual identifying with other students like him who fail or succeed. The observation

that these other VI students' circumstances and abilities are similar will lead to an increase in this person's self-efficacy belief when he sees them succeed. In other words, arguably, the self-efficacy beliefs of a VI student taking English 103 could be enhanced by perceiving another VI student in the same class who excels on the course and studies for the course independently.

BJ was very enthusiastic about the experience the other VI students had during this course. He discussed with me the possibility of having a similar E-book for other courses (Arabic courses) that he will study. BJ said, "[t]his is a very empowering experience to be able to control when and where I can study". He was already thinking ahead and told me "I go every weekend to my hometown by car. The drive is 5 hours each way. I can kill time in the car by studying for any of my courses on my iPhone". VI students often face a barrier to accessing course books, and the majority of printed materials for the courses they are enrolled in – this is particularly relevant for books in Arabic because, technically, they are very limited compared to books in English. Even if the Arabic book happened to be available in an electronic version, it is highly likely that it would be inaccessible for reading by screen-readers. Thus, students with vision impairment may justifiably lag behind their peers due to the limited support received.

This chapter now turns to the next participant, MS.

MS

Introduction

The fourth participant in this study, who was given the pseudonym MS for confidentiality, is also a foundation year student at the university who completed ENGLISH 101 and ENGLISH 102 and was enrolled in the ENGLISH 103 course. MS, who expressed his love for English from the very beginning of the interview, reported that he completed his pre-university education at a specialised institute for the blind located in a large Saudi city. As was the case for other participants in this study, MS completed both the pre-intervention and the post-intervention questionnaires and interviews. What follows is an analysis of MS's pre- and post-intervention self-efficacy questionnaires and pre- and post-intervention interviews.

Analysis of Pre- and Post-intervention Self-efficacy Questionnaires

MS achieved 270 out of 1000 in total for the pre-test for the writing skill (See Appendix F). Then, in the post-test, he achieved 530 out of 1000. Therefore, the percentage change in his writing is 26%, i.e., ((530-270)/1000)*100 = 26. Looking at the responses for MS in the pre- and post- intervention self-efficacy questionnaire, there can be seen a positive improvement in his self-efficacy beliefs post-intervention. There is an increase of 24% in his speaking self-efficacy belief, 35% for listening, 26% for reading, 26% for writing, and an 18% increase for grammar and vocabulary. Interestingly, it is worth noting that MS' listening self-efficacy belief was substantially higher than his self-efficacy beliefs for the other skills. This impressive increase is plausible, and is perhaps due to the personal preferences and learning style of MS. It should be noted that MS has a preference towards auditory learning, and he finds listening to lecture recordings helpful for his learning. The self-efficacy results yield an incomplete picture without meticulously analysing the possible reasons for such changes from the qualitative data. MS' qualitative data provide a rich explanation for the varied increase in MS' self-efficacy beliefs. For now, see figure 6 below for a graph demonstrating the change in MS' self-efficacy beliefs.

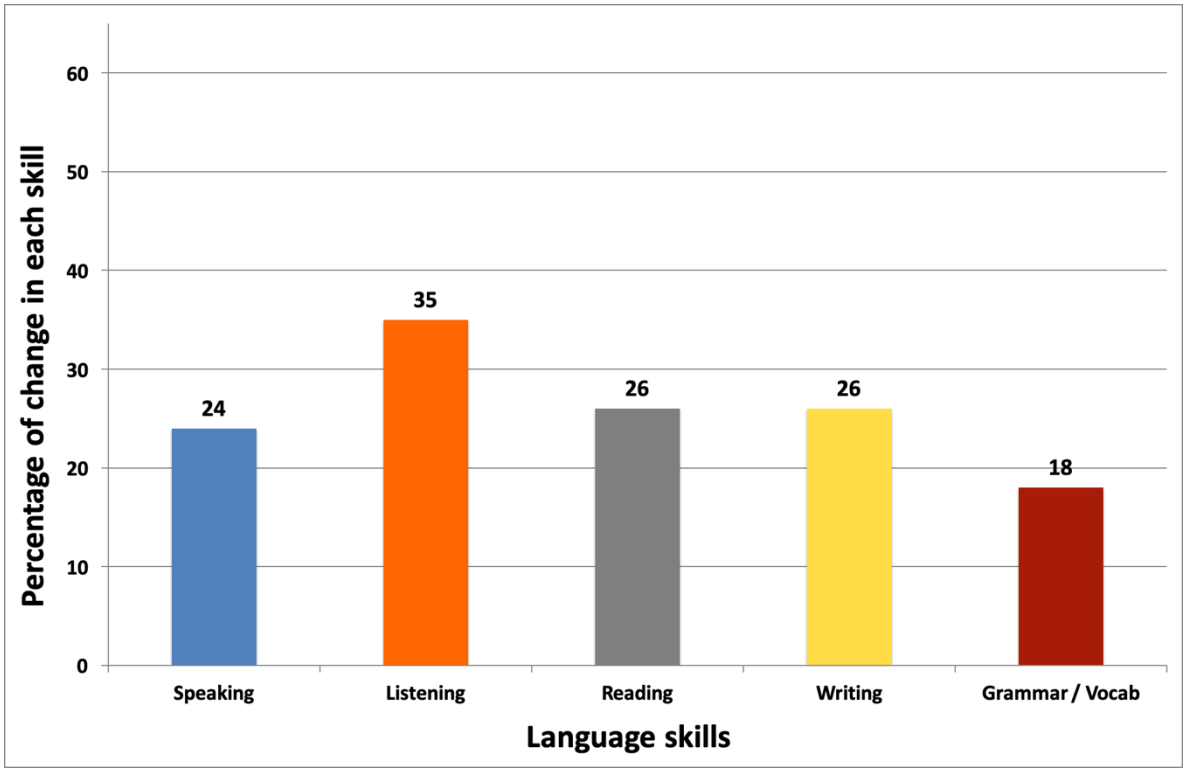

Figure 6 The percentage of change for each skill in the post-questionnaire

Analysis of Pre-intervention Interview

At the beginning of the interview, MS expressed his enthusiasm about the study of English. Talking about his prior experience of learning English at school, MS showed clear satisfaction about his school days. He began his answer to the first question about his experience at school saying, "I loved English during my school days. I learned Braille and I directly learned English". MS also reiterated this positive attitude towards learning English at the specialised institute for the blind, in another instance speaking about his classroom participation. He confirms "[h]onestly speaking, I used to participate enthusiastically because I loved the English class". However, similar to the attitudes expressed by BJ and contrary to those expressed by ZS, MS also remarked that it was unfortunate that his university experience was not a continuation of the style of teaching which he had enjoyed at the institute for the blind. Similar to BJ's attitudes, it became clear during the interview that MS felt much better about his experience at the specialised institute compared to his university experience later on. MS affirmed that in the first and second levels – English 101 and English 102 – he found the English classes to be boring in comparison to those he used to have previously at the institute for the blind. MS emphatically declared that:

> The comparison is a difficult one. There is no comparison between the two – the system is totally different. All that enthusiasm about learning English and participating during the classes turned into hesitation and inability to take part in classroom discussion.

Stressing his *personal efforts* to learn English, MS sees exerting personal efforts as a crucial step when learning English as a foreign language. He claims that, "good students are the ones who exerted more effort and depended on themselves in their journey of learning English." MS also thinks that he had a clear advantage in this regard because of learning and memorising the English letters early on before starting to learn English at the institute for the blind. He also had a blind sister who was older than him and went through the same experience when learning the English language. MS' story bears striking similarity to that of ZS in this regard, who highlighted the role that his sister played during the early stages of his learning the English alphabet. MS stressed the role of a family member who taught him English and, according to MS, also used to love English and

instilled the love of English in his heart. MS says “a family member was my great motivation for learning Braille and loving English.”

Furthermore, MS’ efforts to learn English continued beyond the borders of his family and the institute for the blind, reaching out to readings outside the curriculum he was taught at the institute. He says, “I was also lucky I used to read content not related to the school materials.” According to Griffiths (2008), the practice of independent reading is indicative that a learner is taking charge of his learning journey through exploring options that suit the individual. This also relates to applying a mechanism of self-regulation that leads to achieving academic goals and adds to an impression of success. In their 2004 publication that stressed the importance of the connection between self-regulation and self-efficacy, Zimmerman and Bandura highlighted the role of using self-regulation effectively to reach further goals and enhance academic performance. Overall, it is evident from MS’ answers to certain questions that exerting extra effort beyond the borders of the institute was crucial for his English language learning journey.

Unlike BJ who was critical about the ways of *teaching the basics of English* at the school level, MS’ answers reflect his happiness with the solid background he received at the institute for the blind. He happily describes the process of learning the basics and its impact on later stages of learning English saying,

> I always claim that learning the basics is key to successful learning of English. If you start learning the basics at a very young age, you will succeed in later stages. It is very similar to learning the Arabic alphabet. If you learn both together, you will start improving in both languages. Even later at the university, you will feel the advantage of learning the basics during your time at the school.

Referring to *teacher practices* at the institute for the blind, MS stated clearly that his teachers were confident and knowledgeable in ways that supported his learning experience.

Moreover, MS identified two particular teachers as having a very positive effect on his learning of English during his time at the institute and identified particular practices which he regarded as positive. From his narrative, it is clear that MS has established a particular

persona in his interactions with his teachers. One statement that reflects MS' attitude towards his teachers at the institute is as follows:

> Teachers at the institute really know how to teach English. They teach the basics, they are inspirational, they take care of each individual and they keep repeating concepts which they know are important to learn.

In another statement, MS indicated that his classroom participation was supported by the confidence he was given by one of his teachers.

> My role in classroom participation was very much distinguished. I was very active, and, honestly, it was all the result of the motivation given to me by the teacher. He was motivating and I was excited about every class.

However, MS criticised the lack of classroom engagement in the classroom at the university, claiming that it is the duty of the teacher to create an atmosphere where students find themselves more interested in participation and engagement. However, it seems that MS is aware of how difficult it is for the teacher to cope with students who lack literacy skills or familiarity with English and those with higher levels of competence, thus reinforcing gaps in learning opportunities for the students within the same class. MS explained:

> Although, in my view, university teachers can do more to engage students in their classes, I am aware that some of my classmates did not even know how to write the alphabet, which makes it so hard for the teachers to give them enough support.

Psychological support is another aspect that impacted how MS perceived his experience as a student. Based on his comments, it is clear that he believes that different sources of psychological support including, for example, motivation by other family members, teachers' support at school, and coordination with other classmates, are all major contributors to the learning process. In particular, support from other family members features highly in MS' accounts of his initial educational experiences. This is not surprising given the central role which family plays in the Saudi culture as the most important social

institution. According to a widely cited report from the Library of Congress on cultural homogeneity and values within Saudi Arabia, for Saudis in general, the family is "…the primary basis of identity and status for the individual and the immediate focus of individual loyalty" (Library of Congress Country Study on Saudi Arabia, 1992, p.4).

In answering a question about what aspects might improve the learning experiences for the visually impaired, MS indicated that, "psychological support is as important as much as other aspects related to accessible materials and good teaching skills." MS described the "psychological support" he received from family and teachers using strong emotional language: "education will not be easy without the love and support of family and teachers." Drawing on Fuller et al. (2009), studies on the learning of the visually impaired need to focus more on the psychological and social dimensions in relation to an individual's vision impairment.

Finally, another aspect which MS thinks might improve the learning experiences of the vision impaired is having the accessible book. MS made a direct connection between his ability to read the book on his own and his self-confidence in his learning abilities. He said, "My confidence increased after having the E-book. I started to develop personal independence in learning English". This view supports the perspectives of other participants in this study who all agreed to numerous benefits the E-book offers to the visually impaired, including ease of access and greater independent learning.

Post-intervention interview analysis.

This section is an analysis of the post-intervention interview with MS which took place after MS completed ENGLISH 103 during which he used the accessible textbook provided for the course. This section is intended to provide particular insight into MS' opinions about this experience and the extent to which having an accessible E-book contributed to his learning.

MS was asked about his first impressions of having the *accessible book* during the ENGLISH 103 course. He replied by saying, "[t]his E-book is very good - good /hu-wamin momtaz momtaz jedan/. I liked it very much. I am able to find the page I want. I can jump very fast from one chapter to the next chapter. This is very good - good." MS opened his response and closed it with the same phrase "/momtaz momtaz jedan/". This repetition is

a form of emphasis which indicates great interest and a strong sense of gratitude towards the accessible E-book for English 103. MS also said, "[t]his E-book made me study for ENGLISH 103, and I started to participate in ENGLISH 103 lectures unlike in ENGLISH 101 and ENGLISH 102 where I seldom participated." Like MM and ZS, MS, with his various responses, hints at substantially better engagement and participation in ENGLISH 103. I asked MS how he found the accessible E-textbook. He responded that the accessible E-textbook had helped him in his English learning, "I was attending My ENGLISH 103 classes carrying with me the course textbook. I was able to work with my sighted classmates on class exercises at the same time as them. I had no problem doing the exercises in the E-book."

It is evident from MS' responses that having this accessible E-textbook provided him with an essential tool during ENGLISH 103 to excel on the course. MS made it clear that the accessible E-textbook provided him with a positive experience in ENGLISH 103 in contrast with his experience in ENGLISH 101 and 102.

With regards to how much time MS devoted to reading and studying from the accessible E-book, he mentioned that he used the E-textbook to study ENGLISH 103 for more than an hour a day. MS also appeared to be satisfied that he had the choice of when and where to pick up the book and study for his course, saying "I can read the E-textbook anywhere I feel like. I can open my E-textbook and read it even in the car when we are travelling on the road." Thus, MS stressed the crucial importance of being independent when it comes to choosing the time and location for reading, and he found this valuable for his personal learning journey. He also stated how the book directly contributed to his ability to engage and participate with classmates - a very positive outcome that other participants have also mentioned. MS confirmed, "I now participate in ENGLISH 103, and I can read the E-textbook while I'm in the lecture".

I t has become clear that MS's perceptions of participations in English classes have positively changed. In relation to the discussion about participation inside the classroom, MS made an association between bringing the ENGLISH103 e-textbook to the lecture and his frequent participation in lectures. MS emphasised several times that his class participation increased. MS said, "I now talk more with my classmates because I work with them in pairs. I am also participating more." MS made it clear that in ENGLISH 103 he

has opportunities that did not exist in the previous English courses. These positive outcomes indicate a change in how MS perceived participation, finding it as an easy experience now, but, additionally, one that now gives him confidence that he contributes to class group work with his cited peers, something that may increase self-efficacy beliefs.

Reflecting on MS' *personal efforts* during his learning journey in ENGLISH 103, it was apparent that MS was excited about the E-textbook as a means for enhancing his English learning because he spent a great deal of his time reading the E-book. He commented "I read the E-textbook sometimes while I am in the car, travelling on the road". Bandura (2006) stated that an agentic individual consciously tries to influence the course and functioning of their current circumstances. It seems as if it was a conscious decision by MS to put extra effort into interacting with the E-textbook, even while travelling. Performance phase measures, e.g. good time management, avoiding distractions, and monitoring one's performance, are influenced by self-efficacy beliefs (Bandura, 1997).

To compare their experiences of the current intervention for ENGLISH 103 with their prior experiences on the earlier English courses, the VI students were asked: if such accessible books had been available before, would it have helped…more when learning English? MS replied to this by saying, "I would have liked this very much. This would have helped me to understand and communicate in English better." Like ZS and BJ, MS clearly indicated his wishes for the university to provide such accessible E-books for all courses, and not only this one.

Before completing the questions about the textbook, I asked MS whether the E-textbook was easy to navigate, and if he had any suggestions for future improvement. MS found that reading the E-textbook was simple. He said, "[t]his is my first time to read a textbook on my computer. I never thought it would be that easy". MS had no suggestions for how to improve the accessible E-textbook for ENGLISH 103. In fact, he mentioned, "[o]nce I have more experience, and read more accessible E-textbooks, I can make suggestions".

In relation to computer proficiency skills, which are crucial for using the accessible E-textbook, MS is able to use the computer with NVDA, and uses the iPhone as an inclusive mainstream technology. MS is able to browse the internet. MS has sufficient computer literacy. Technology for education can maximise mastery experiences for students (Bandura, 2001).

Analysis of Focus Group Discussion

This focus group discussion took place three months after the intervention. As mentioned in the previous chapter, the main purpose for this was to allow enough time to elapse following the post-intervention interviews in order to compare the VI students' feedback and responses to the intervention with the post interviews. This is valuable for the current study since all participants who passed ENGLISH 103 in this intervention indeed went on to take ENGLISH 104. The focus group discussion tries to discover the experience of the students and their opinions in taking an "inaccessible" ENGLISH 104 class after the experience of the accessible E-book that they had use of for ENGLISH 103.

The focus group discussion complemented the findings from interviews by exploring group interaction occurring in a more natural environment where participants have the potential to influence others and be influenced by them, as in genuine life discussions (Kruger, 1994; Wilkinson, 1998). The focus group discussions re-examined issues discussed in the interviews in order to compare and evaluate the responses of some of the participants as an individual and among their group. Moreover, it was valuable to learn from the participants what could be improved in their current study to ensure better and equitable English learning for VI first year university learners in the coming years.

Four VI students participated in the focus group discussion. In this section, I present the analysis of the focus group discussion with ZS, MM, MS and BJ. The section aims to offer special insight into VI participants' opinions about their experiences and the extent to which the intervention contributed, or not, to their learning. In an attempt to make the participants feel at ease talking and contributing to the discussion, I tried to create a more informal atmosphere for them compared to the face-to-face interviews which unfolded within a classroom setting. The focus group discussion was conducted in a more relaxed and natural setting in a small and familiar room for the participants with a round table where all the participants could sit close to each other. Sweets and coffee were provided, and I made sure not to interrupt the participants when they were discussing among themselves a point I asked about in order to keep the flow of discussion moving.

To compare the experience of the intervention in ENGLISH 103 with the experiences on the next course (ENGLISH 104), the focus group discussion began by asking the four VI students: How was your overall experience in ENGLISH 104?

ZS said, "/aswa' mn ENGLISH 101 w 102/worse than ENGLISH 101 and ENGLISH 102." MM added "true". MS, "yes". Three of the participants without any hesitation concurred that the ENGLISH 104 course, for them, was worse than the first two English courses they took at the university where they didn't have any means to access the textbook and materials. BJ reported that, for him, all courses felt the same. The participants were asked to elaborate. ZS, MM, and MS used the accessible E-book for ENGLISH 103. For them, not having the means to access the textbook for ENGLISH 104 independently felt much more disappointing after experiencing independence in ENGLISH 103. MM noted "this was the norm before ENGLISH 103". ZS and MS agreed, saying "yes". The learner's perspectives changed, and, thus, they could not get to grips with the nature of English 104 as the norm due to the intervention. BJ, who didn't use the accessible textbook in ENGLISH 103 because of his very low level of English proficiency, showed his interest in the intervention by asking me to make accessible books for all other courses at the university. He said, "I want to experience what they experienced in ENGLISH 103". It now becomes clear why, for BJ, there was no experiential difference between English 103 and 104.

It was apparent from participants' responses that having the accessible book for ENGLISH 103 offered them freedom and independence. According to them, the E-book was an essential tool throughout the intervention period. It manifested repeatedly in their responses throughout the focus group discussion that the ENGLISH 103 intervention was very helpful for them in the following ways:

1) It enabled them to avoid having to ask for help from a human reader ("We had to ask others for help a lot due to the absence of accessible books").

2) It made them use their time more appropriately by not wasting their time on "dictating to a writer and asking others to read for us".

3) It provided them with a tool to excel in ENGLISH 103.

Participants emphasised that the accessible textbook made their experience in English 103 a very positive one compared to the "unfairness" they expressed about attending

English 104 classes, which took place directly after the intervention underpinning ENGLISH 103.

No one can deny that offering books in an accessible format for VI learners is a must in order to offer equal treatment to all students. The educational institution should provide equal access for all its students. This belief became very dominant in the spoken language and the word choice for these students. Words like “our right”, “not fair”, “equality” etc. emerged frequently in the discussion. For instance, some participants said the following:

- “We felt deprived of our rights in ENGLISH 104 after the experience we had in English 103.”
- “It is not fair; it is not acceptable at this current time to fully depend on others to read a textbook for a course!”
- “We should advocate making all courses accessible at the university.”

Even the participants who did not use the accessible textbook for ENGLISH 103 demanded that this should be applied to “all of our university courses”. It can be argued that this increased sense of self-worth and ‘knowing-our-right’ way of expressing oneself is a product of the experience the VI students acquired from the intervention. This way of expressing themselves was not apparent at all in pre-intervention interviews and informal conversations.

In discussing the topic and debating whether the accessible book provided any advantages to them in ENGLISH 103 that they thought about while taking ENGLISH 104, the participants linked the freedom to read the E-book on their own whenever they wanted with their self-confidence in their engagement with their peers in the course and with an increase in their self-belief in their learning abilities. They said, “[i]t gives you confidence to know that we can read any page of the textbook at any time we want.”. Participants admitted the special value of their independence when it comes to having the ability to choose the time and place of when and where to read the textbook. This made the participants feel more confident to engage with the course instructor and their peers. Having said that, it becomes clear throughout the discussion that reading the textbook made them feel that their effort is appreciated by the instructor, and participants started talking frequently with their sighted classmates. This certainly gives

them the confidence that their instructor recognises and values their efforts, which would positively contribute to their self-efficacy beliefs.

Since the VI community at the university is a small one, most of the VI students know each other regardless of their actual academic year group, I wanted to find out why some VI people were not enthusiastic in using the E-book. Their input was very valuable. These participants mainly attributed this to the ways in which the basics of English are taught at school to the VI students. They agreed that most of the difficulty confronting VI university students in the first year English courses is the consequence of a very weak foundation laid down in schools. These participants also mentioned that taking four levels of English at the university is beyond the English level of most of the VI students at the university. According to them, the English taught to most VI students at school is not even sufficient for the first level of English (ENGLISH 101) at university. These participants were in agreement that it is not the responsibility of the university to teach them the basics of English, however. Indeed, in terms of language acquisition, it is very late for students to start learning the basics at university, with a participant noting “English at our schools should have been taught seriously”. This point was alluded to in the pre-intervention interviews as well.

As mentioned previously, the VI students had different experiences in their English classes at mainstream schools. Despite the fact that they were taught most subjects with sighted students, they were taught English in segregated classes while having their own English teacher. At some schools there was only one VI student in these segregated English classes. As the participants reported, “we used to talk about football matches and learn very little English”. “[In] some years we had several English teachers teaching us in one school year while other students have the same regular English school teacher”. This highlights that VI participants had different teachers who taught them English, unlike the sighted students who had a consistent teacher. This lead some of the participants to complain about their very weak basic knowledge of English in their first year of university which was their main reason for not reading the E-book for ENGLISH 103. However, it is worth reiterating here that those VI participants who did not use the E-book for such a reason, were nevertheless full of admiration of their fellow VI classmates’ achievements in ENGLISH 103.

Thus, the practice of observing others played a central role among the participants. Bandura (1986; 1997) identified vicarious experiences obtained through peer modelling as one way of having and strengthening one's self-efficacy beliefs. Observing others putting in effort and succeeding, as a result, can increase one's belief in their own ability to succeed. The key factor that plays a main role in the effectiveness of vicarious experiences is how similar the model is to oneself. The more similar people feel they are to one another, the more likely that their observations of their peers will increase their sense of self-efficacy. "It was a great source of motivation for me to see my friends improving their English and reading in classes from the book like sighted students.", said one participant. "I feel proud of my friends. I want to improve my weak English so I can do like them", noted another.

The influences of vicarious experience on self-efficacy in an individual are strongest when the observed other individual is perceived to be alike in terms of similar abilities and disabilities. For instance, observing a sighted student engaging with the lecturer in fluent English is less likely to lead to much increase in self-efficacy for learning English than a VI student who received inadequate English learning experience at school. In contrast, seeing a VI student successfully engaging with ENGLISH 103 classes and overcoming challenges is more likely to increase self-efficacy because those VI students are perceived as being similar in terms of their levels and the barriers confronted by them. This was prominent in the participants' responses. They referred to the influence of the other VI students in their classes quite frequently, and not to other students in the lectures.

At the end of the focus group discussion, I asked all the participants, "[w]hat suggestions can you offer to improve learning English at the university in the foundation year?". They offered several suggestions. However, they differed on one point, and agreed on the rest. The participants agreed that they should have the choice to have the textbook in any accessible format that the VI individual wants. The textbook could be provided in Braille, audio or E-book because not all VI students are comfortable reading textbooks via a screen-reader. They also suggested that the university website should provide all student resources and learning materials in an accessible format so they can easily find them and use them. The participants also agreed that instructors teaching them English in the foundation year should be well-trained in communicating with and teaching VI students because, according to them, some instructors are surprised and do not know what to do

when they see a VI student in their class. The last suggestion they made, and which they agreed upon, concerns giving VI students the chance to undertake written assignments and be tested in writing. However, they said this should only be applied once they have an equal opportunity to learn English and have access to all materials in an accessible way.

Two participants suggested that the university should put all VI students taking first year mandatory English courses in the same class - a specialised class for just the VI students. These two also suggested that, in this class, the instructors teach them using Braille. All resources that VI students need should be available in this class, for instance, Braille printers, Braille displays, personal computers with assistive technology and so forth. The other two participants completely disagreed with them about having a class at the university level that segregates VI students from other students. They, however, did like the idea of the specialised room which they said should be open all day as a resource room for VI students to use for studying. The participants kept arguing for and against having segregated English classes for VI students. The debate they had is aligned with the debate in the literature (see Christensen & Rizvi (1996), Liu (1995), and Rieser (2012)).

Chapter 6: Discussion

This chapter serves as a bridge between the descriptive statistics and rich qualitative data of the previous chapter, and the overarching findings and recommendations of this thesis. As such, several key concepts and research strands which were grounded in the questions and/or the participant data and responses are explored in further detail, with reference to existing literature. The chapter begins by discussing the psychological dimension to learning that participants mentioned. The four sources of self-efficacy beliefs are addressed here. Furthermore, this chapter presents a discussion of the deployment of a fully accessible learning experience for VI students in Saudi Higher Education based on the perceptions of these VI students who have experienced an accessible learning environment in the current intervention. Using social cognitive theory and self-efficacy beliefs as a theoretical framework has enabled me to understand the participants' perceptions and to link them to a wider insight of deploying and advocating for accessible and inclusive learning in Saudi Higher Education. Consequently, I developed five main comprehensive themes based on the data collected from the participants, including their understanding of what accessible learning means to them, what the advantages are, the challenges they encountered and their view of the future of accessible learning in general, and in Saudi Arabia in particular. I used these five themes in the discussion to allow for a deep interpretation of the issues that affected the participants' views. The main themes 'Accessible Learning Experience', 'Deployment / Implementation and Support', and 'E-Book Accessibility' emerged from the advantages and challenges perceived by the VI participants. The following sections discuss these issues in detail. This discussion chapter also summarises many of the points raised by revisiting and answering the research questions. The theme of E-book accessibility generated lots of interest and discussion with the VI students even beyond the scope of the interviews and the focus group discussions. The issues surrounding E-book accessibility and the challenges and advantages they pose for VI learners are discussed in-depth in the third section.

Sources of self-efficacy beliefs

As mentioned in Chapter 3, the literature on self-efficacy notes four sources of self-efficacy beliefs: 1) Enactive mastery experiences (achieved through personal successes

and experiences), 2) vicarious experiences (achieved through observing one's peers), 3) social persuasion (achieved through supportive and evaluative feedback from people like instructors) and 4) affective states (physiological and psychological states) (Van Dinther, et al., 2011).

Bandura (1986, 1997) emphasises *enactive mastery experiences* to be essential for the high self-efficacy of individuals. Likewise, the VI learners in this study expressed the view that their prior experiences at school and at university have given them high and low self-confidence when it came to learning English. These opposing experiences are actually the mastery, or lack of, they had over the years that increases or lowers their self-efficacy beliefs. Mastery achieved through successful and positive learning experience influences the self-efficacy of students and mutually enhances learner' self-efficacy. This mechanism widens the expectation of a student and thus the actual purpose of education becomes clearer, i.e. students overcoming obstacles. Therefore, improved self-efficacy beliefs achieved through this mutual process results in a strong and a better perspective on the part of the learners towards their learning:

"I used to participate in informative and beneficial competitions in class". "I am confident because I have been listening online to English documentaries". "I like to access the BBC English lessons".

The above comments are from resilient learners who have a personal interest in the important value of learning English. Furthermore, the self-efficacy evident from the above comments shows that mastery experience does not only come from practical in-class experience, but also from practices that learners exert beyond school boundaries. This high self-efficacy is likely to have an impact on their learning behaviour by making them more enthusiastic and resilient learners.

A positive attitude, attained through successful experience and passion to learn, not only makes learners enjoy their classes, but also leads them to not lose their passion for learning as two of the VI students elaborated: "I always enjoyed learning English. Whenever I was reading the E-book for ENGLISH 103, it was pleasant time for me." "If I was having some low moment because of something that happened during the day, I go to the ENGLISH 103 class having the accessible E-book with me, and forget everything

about the bad time while I participate in the class by following on my E-book with the instructor".

These comments describe the passion attributed to self-efficacious learners. These learners have such high self-efficacy regarding their learning of English that they do not attribute any negative experience or low time to their learning experience. They always remain positive and enthusiastic about working hard and putting in extra effort to learn. These learners sound optimistic and are positive. These observations are likely connected with enactive mastery. Enactive mastery experiences are the strongest source of self-efficacy (Bandura, 1997; Palmer, 2006; Usher & Pajares, 2008). When learners have positive and successful experiences, their self-efficacy beliefs for tasks in that particular area (i.e. learning in ENGLISH 103) increase and when they have negative and unsuccessful experiences, their self-efficacy in that specific area can decrease (Bandura, 1986; 1997). A strong sense of self-efficacy becomes possible not through easy successes, but by overcoming obstacles with persistence and effort (Bandura 1997).

Whereas successful performances reinforce self-efficacy beliefs, failed performances hinder one's sense of self-efficacy, especially if the learner does not receive serious and proper teaching. It was repeated multiple times by the participants that, in mainstream schools, VI students are taught English by a different English teacher while segregated from sighted students – unlike in other subjects. This change of setting gave the VI students a sense of lesser urgency to put effort into learning English. According to the participants, this impacted many of the VI students who completed more than six years of English classes during school years without learning even the basics. This certainly made these students lack enactive mastery experiences in learning English. It must be admitted that any future research must also tackle the competency of the teacher of the VI students, as it is possible that the ability and/or credibility of the teacher may have influenced the students somehow, however.

After discussing how learners' self-efficacy improves through enactive mastery experiences, it is worth focusing on how this enhanced self-efficacy then could influence students and their learning experience. The data analysis highlights three areas where the impact of high self-efficacy is apparent on learners: having positive outcome and enthusiasm, personal effort and being resilient. As stated earlier, efficacious learners put

extra effort into learning. As in some of the participants' study routine, "I can read the E-book for ENGLISH 103 on my journey to my hometown in the weekend".

The following section discusses *vicarious experiences* and *affective states* of the learners and how these experiences might increase learners' self-efficacy beliefs. Self-efficacy beliefs are also influenced by vicarious experiences, or the appraisal of the individual's own abilities in relation to the achievements of peers. By observing the successes and failures of comparable peers, a person can learn that a task is manageable, or not, and foster the belief that they also might possess similar abilities. Thus, this experience may heighten or lower an individual's own perception of competence (Bandura, 1997).

Bandura (1997) postulates that those individuals who are at, or slightly above, one's own perceived capability level will have the highest impact on their peers. Similarly, those individuals who are observed as similar in many ways will have more of an impact on their peers. That is, individuals of about the same age, educational level, same socioeconomic level, and having similar disability will have a stronger influence on the person observing them than ones who differ from them in those personal characteristics. Interestingly, in this study, there was strong evidence of vicarious experience at peer level among the participants. Those who could not use the E-book in ENGLISH 103 were full of praise for those who used it, and it can be observed from their responses that they wish they had been able to use it like them. Some of the participants explained:

"Our English is very humble because of the poor basics we learnt at school and the lack of proper support." "My English is weak." "I know very little English." Despite this negative experience, they talked about one of their peers saying, "[h]e was sometimes reading the E-book on his iPhone while we were waiting in the resource room between lectures."

It was a sort of positive encouragement to observe that VI learners were ready to learn from each other and converse among themselves regularly about the experience of those who used the E-book in ENGLISH 103. Those who did not use the E-book asked me in the focus group discussion which took place 3 months after they passed ENGLISH 103, "[c]ould we experience the same in our other university courses that are in Arabic?". Consequently, vicarious experiences as a result of working with peers influenced self-efficacy for these VI students. Christie, Munro and Fisher (2004) state that learning with peers should be encouraged because it creates informal support and gives a stronger

sense of belongingness and identity. Such practice augments vicarious experiences. When students are working together, they become responsible for each other's learning. Thus, the success of one of the students facilitates other students to be successful, which turns learning into a positive experience (Anderson, Kagwesage & Rusaganwa, 2012). Vicarious learning gives the learner a sense of self-efficacy to accomplish tasks i.e. if their peers can do this task, they can do it as well. Thus, the process of learning becomes more beneficial and rewarding if learners are learning from and with each other.

Emotional and psychological indicators during task performance, such as anxiety, stress, familial problems or fatigue can be an extra source of self-efficacy triggers. Positive emotions and a relaxed mind and physical state during task performance can reinforce self-efficacy beliefs and contribute to the expectation of future successful performances, whereas high levels of stress, pressure and anxiety can hamper performance. The participants in this study all had reported no physiological and psychological state problems.

Verbal persuasion, such as performance feedback or encouragement in overcoming obstacles from an instructor, can provide specific information about one's ability and can usually be a significant source of self-efficacy information (Bandura, 1997). Self-efficacy beliefs concern an individual perception of external social factors (Bandura, 1986). Students create self-efficacy beliefs on the basis of social feedback received from other people. However, not all instances of verbal persuasion will have the same effect on learners. Bandura (1997) states several factors that determine the effectiveness of verbal persuasion. 1) is about how the feedback is framed. That is, evaluative feedback is most likely going to enhance self-efficacy beliefs when the learner is at the beginner levels of learning development and they are told they have ability for the task. Moreover, feedback that is framed to focus on progress towards a goal rather than shortcomings is more likely to boost self-efficacy beliefs (Bandura, 1997). The second factor concerns the credibility of the person giving the verbal persuasion. Feedback from people who are perceived as knowledgeable and credible is going to have more prominent effect than feedback that is perceived as coming from a person who is not familiar with the learner or the task.

According to Schunk and Rice (1987), feedback that is precise and directed towards the progress of learners is highly effective. A student receiving an encouraging piece of feedback from their English writing instructor on their first draft increases self-efficacy beliefs in the writing of their subsequent drafts (Schunk & Swartz, 1993). The participants who were using the E-book in ENGLISH 103 classes remarked on an increase in their engagement in classes, and, accordingly, receiving more feedback from the instructor which made them prepare for English lessons in advance, “I felt that I became an active participant in the class; the instructor was impressed because of my participation. This made me study harder for the next class”. For this purpose, learners need to have the feeling that their effort and participation are appreciated and valued in the course. This feeling (through verbal persuasion) can provide the learner with strong self-efficacy beliefs regarding their ability to learn and excel on the course.

Through the interpretation and integration of self-efficacy information from these four sources, learners form their judgments of self-efficacy beliefs specifically to the task as they judge their abilities to accomplish language tasks in the ENGLISH 103 self-efficacy beliefs test pre- and post- intervention (See chapter 5).

The following section is a summary of the answers to the research questions, with the quantitative and qualitative findings of this study in mind.

List of research questions

RQ1 What are the factors that determine self-efficacy beliefs among vision impaired college-level learners? This RQ examines the factors that determine self-efficacy beliefs for these VI learners which were explored through their responses to direct questions about themselves and their relationships with classmates and instructors, as well as the familial environment with regard to their interactions and performance in ENGLISH 103. All these aspects were addressed in the post-intervention interviews and were further explored in the focus group discussions. The data were analysed while keeping in mind the factors providing all four sources of self-efficacy as explained above in 6.1, and their impact on learning in the given environment and the context of this research.

In summary, mastery experiences were important in making the learners efficacious. There is strong evidence of vicarious experiences for participants – they were prominent

among the VI students' interactions with each other. Students' self-efficacy beliefs at school or at university could be greatly influenced by the vicarious experiences observed through peer relations, particularly from peers most like the students themselves. For example, for this study, this pertained to vision-impaired first year university students. Accordingly, I can conclude that, for the participants in this study, it was vital that VI participants were exposed to positive and efficacious peers who could be role models at school and university. Learners did find some positive influence through verbal persuasion from their instructors in ENGLISH 103, but only for those who used the E-book in the class. Psychological and physiological states of the learners did not seem to be a prominent factor in impacting their self-efficacy. However, these states certainly have their influence on the overall learning process. The increase in self-efficacy beliefs through these four sources can make learners become enthusiastic, put in more effort, and be resilient.

RQ2. To what extent are there equal EFL learning opportunities for vision impaired college-level learners in their 1st year mainstream EFL course when compared to their fully sighted counterparts?

This RQ addresses whether VI learners think they are receiving equal learning opportunities at school and university levels. The interviews and focus group discussions revealed the participants' ideas and opinions when they talked about their prior experiences at school and the first semester at university. Furthermore, the experience of the students while taking ENGLISH 103 during the intervention did shed light on additional details that contributed to answering this question.

We could conclude that equality is significantly lacking, which was obvious from the collected data. Participants were demanding their equal rights "why don't we have like ENGLISH 103 book in all our university courses?" "Why we are not asked to write in first year English courses like sighted students?". The suffering of VI students from marginalisation and discrimination leads them to demand their clear rights. The least of their demands for change is providing accessible reading materials for all university courses. Much work has to be done to reach equality, even with the effort made in the intervention to create an accessible E-book experience for ENGLISH 103.

It should be noted that it is the learners' legal right to demand reformation and change. One of the participants says, "[w]e want to ask for equality and our legal rights. My hometown is more than one thousand kilometres from the university. I came to study in this university because when a VI person applies to the university near my hometown to major in English, the English department does not admit us giving the excuse we cannot support you." Any student, including VI students, should be able to join university programs in the cities where they live. The Ministry of Education has a duty to create an inclusive education system at all levels and in all universities around the country. This will ensure the right to education for all people with disability without discrimination on the basis of equal opportunity.

RQ3. What are vision impaired college-level learners' perceptions regarding the implementation of electronic texts in their 1st year mainstream EFL course?

This RQ investigated the impact of accessible technology on the participants' self-efficacy beliefs. It was answered by investigating how the students' beliefs regarding their ability to perform tasks has changed (or not) before and after the intervention. This was answered through the participants' post-intervention interview responses, as well as from the data of post-interview focus group discussions. Moreover, the results from the pre- and post-intervention self-efficacy questionnaire responses complemented the qualitative data in answering this question by analysing and comparing the scores from the pre- and post-intervention questionnaires, and by linking participants' scores with their responses in the post-interviews and focus group discussions. Overall, it was a positive experience for the participants as they have repeatedly revealed in their responses. In particular, it made a big difference for those who used the E-book to participate during the class, and to read and prepare for classes. This mobility feature of the accessible E-book enabled VI participants to study away from their regular environment. That is, the data revealed that some participants read the E-book whilst in the car, while waiting between lectures, or while walking inside their home. It can also be said that even a relatively simple and low-cost tool such as a basic Ebook on a mobile phone can make substantial differences to the learning and self-efficacy beliefs of VI learners provided with such tools. This shows that inclusive learning materials need not be difficult to assemble, disseminate or train instructors on. The rights that learners correctly demand need not be too troublesome to implement effectively. More on this

theme comes in the discussion for RQ4, and in the next section on E-books within the study.

RQ4. How does the accessibility of electronic texts and technology impact the self-efficacy beliefs of vision impaired college-level learners?

This RQ attempted to find out the students' views on the use of the E-book and the other supplemental materials for the ENGLISH 103 course rather than on reflecting their confidence or the ability to perform specific tasks in the ENGLISH 103 course. It is worth noting in this context that the post-intervention interview contained questions that directly investigate the participants' perceptions regarding the use of accessible technology and the E-book on their learning. Moreover, the post-interview focus group discussions revisited this in a more in-depth fashion. It had a great impact on them. Participants reported significant increases in their engagement in ENGLISH 103 classes with the instructor and with their other classmates, whilst engagement was almost next to none in the other three first year English courses (ENGLISH 101, ENGLISH 102 and ENGLISH 104). The E-book led students to participate in ENGLISH 103 and be part of the class. It gave them independence by being able to read the E-book whenever and wherever they wanted.

RQ5. Is there a change in ENGLISH 103 vision impaired college-level learners' self-efficacy beliefs in the areas of listening, speaking, reading, writing, and grammar and vocabulary after the intervention?

This RQ was answered by comparing VI learners' responses to the pre- and post-intervention ENGLISH 103 self-efficacy- belief instrument on a 10-point Likert-type scale from 0 to 100 in each of the language skills. The self-efficacy beliefs questionnaire charts illustrate the changes (See Chapter 5). While further statistical work on a larger group would need to be conducted for more robust findings that can be extrapolated and generalised to other settings, early signs suggest that some of the changes are likely to be statistically significant. Further research is needed.

The next section turns to what has been understood about accessible learning, especially with respect to E-books in the VI EFL Saudi Context with input from the study participants.

E-books accessibility in the context of this study

This section presents a discussion of E-books as they relate to this thesis. The participants in the current study provided a wealth of valuable input in regard to accessible E-books in general, and to the deployment of E-books in this study in particular. As evident in this study, people with reading barriers are confronted with myriad challenges (See 3.7 for more details about the E-books challenges for VI learners). It is likely possible to author a book on what an accessible E-book should be, but this is not the main purpose of the thesis. This section of the discussion chapter is intended to introduce the concept of VI accessible E-books, and the challenges faced by VI readers when trying to search for and access E-books. It also draws a connection with what the participants in this study think of E-books in general, and what challenges they face when using them.

Providing educational content in many volumes of heavy Braille books or on multiple audio tapes/CDs is often time-consuming and very expensive to create (McNaught & Alexander, 2014). Fortunately, the current rapid digital revolution allows for other varieties of electronic content that are available in a cost-effective and more convenient fashion for VI students. Nonetheless, the participants in this study, as set out in the previous chapter, held two different views of what is more beneficial for them when it comes to accessing English textbooks. Some participants found that listening to the audio tape of the English textbook (or the teacher explaining the syllabus in an audio recording) was the easiest way to study for the course. Those who held this opinion shared some characteristics with each other: a) their English level was generally very low; b) they do not use computers due to a lack of training in accessible use of PCs and screen-readers; and, c) they do not feel fully confident interacting with sighted peers and instructors, e.g., they are of the opinion that the best teacher to teach the blind English is VI, like them. The other participants considered accessing a fully accessible E-textbook for the English courses to be the best way to learn and participate in the classes. They also shared similarities with each other: a) all of them are relatively competent computer users; b) they have acceptable levels of English that allow them to understand the English textbook for ENGLISH 103; and, c) they have a sense of self-confidence in interacting with their English instructors and working with their sighted peers.

One E-book accessibility challenge that confronted the participants is that, in schools and higher education, curriculum developers and teachers are not aware of the accessibility of

E-books, let alone how to promote them for VI students. It is not an exaggeration to posit that many teachers are not fully aware of the need for, and the potential of, learning technologies such as E-books in enhancing learning, particularly for VI students. This is all the more astonishing given that there is a wide array of such accessible products on the market that are designed specially to meet the needs of these students. The products are neither necessarily complicated from a technological perspective nor (prohibitively) expensive and so, with fair support for institutions and staff, their integration has the potential to be smooth. As was illustrated in the study participants' responses, however, a good number of VI individuals are not able to perform equally during their educational journey. Ensuring the distribution of, and adequate specialised training on, accessible technologies such as using E-books clearly provides VI students with more positive experiences, and, hence, better learning outcomes, including greater inclusion both at school and at university.

The participants are also confronted with even more obstacles. Many researchers (e.g., Akpan & Beard, 2013; Ostrowski, 2016; Eligi & Mwantimwa, 2017) talked about deficiency in instructors and curriculum developers who are trained in specialised, disabled-friendly teacher competencies. There is limited flexibility in training options for VI students, and restricted availability of specialist VI-friendly hardware and software due to financial constraints. In addition, there is a lack of formal involvement of governmental organisations in providing the appropriate support structure for the disabled, and having negative attitudes towards people with disabilities, and insufficient disabled-friendly policies and the unsatisfactory implementation thereof. The lack of specific laws that discuss reasonable accommodation for students with disabilities in Saudi legislation could be said to be the main cause of teachers not knowing how to ensure that the VI student in the class has their learning needs met. As stressed several times by the participants, instructors must receive training in how to carry out the minor adjustments needed while teaching to guarantee that VI students are keeping up with the class (e.g. reading out loud what is written on the blackboard rather than just assuming everyone can see). This very basic and simple practice would make a big difference according to the participants.

The participants had some concerns regarding the E-book accessibility for ENGLISH 103. For instance, ZS suggested that he would like to have the images in the ENGLISH 103 book feature a description so he can independently complete exercises that are linked with

pictures. The accessible E-book for ENGLISH 103 did not have image description. This is something noted as needed for meaningful provision of accessible E-books for the students. The table of contents was well structured and appropriately laid out for the E-book for this course, as MM commented that the table of contents was the first thing he read when he got the book, and this helped him to construct a mental image of the E-book layout and flow, which, in turn, made it easier for him to navigate the E-book, and follow along in class with the instructor and his peers. This is perfectly aligned with what Bartalesi and Leporini (2015) mentioned about the three most common problems with E-book accessibility. These are images that do not have alternative descriptions explaining what an image includes for screen-reader users, the table of contents is not available or, if it is available, it is usually not well-structured, and the organisation of the E-book into chapters, sections and sub-sections is not properly formatted to allow convenient and accurate interaction via screen-readers, and, in particular, on touchscreen devices such as the iPad and iPhone.

To sum up, even with all the developments and progress in the area of E-book accessibility, I still believe it is safe to conclude at this time that the concept of complete accessibility to E-books is far from being a reality. Nevertheless, some progress has been made. In terms of literature, and in terms of readings that lend themselves to linear or verbal comprehension and interaction, we have solutions that seem adequate with the caveats that have been mentioned in 3.7 (the literature review on E-books), i.e., the document must comply with existing standards, the correct technology (with appropriate affordances) is available, and one can only benefit from the technology if one can afford to purchase it. In domains like STEM, for instance, the challenges are still significant. For example, it is not yet possible to read books with complex mathematical equations, or to read the International Phonetic Alphabet or a syntax tree in accessible linguistics textbooks.

The findings of the current study confirm the myriad obstacles that VI students face in a daily basis in their educational journey, especially when the educational system does not provide up-to-date trainings and policies for inclusion by the provision of an equal learning experience for VI students. A well-planned accessible learning experience should be integrated into schools and higher education based on a change management strategy

by accessibility experts who take into account the fact that incorporation of universal accessibility is an ongoing process that requires constant support and revision.

Revising Approaches to Inclusive EFL Learning for VI Students in Saudi: The Beginnings of a Framework

Based on the quantitative and qualitative findings of this study and, in particular, the experiences of the participants' and even, to an extent, the researcher, we see emerge the very beginnings of a tentative framework for Inclusive EFL learning for VI students in Saudi. Below are the areas in which further research should be carried out, and it is envisaged that each of these forms a research pillar of a new, fully fleshed-out framework to support VI students on their quest for learning equality in Saudi.

a) Improvements in university policy

b) Changes in education policy and law

c) Improvements in teacher training: education on disability, inclusion, and accessible technologies

d) Metacognitive education for VI students and coaching/training around self-efficacy beliefs (in addition, the link between educator enthusiasm and feedback and student engagement should also be investigated in the VI context)

e) The idea of family or peer role models as fostering self-efficacy for successful EFL learning in VI students

Chapter 7: Conclusion

This chapter presents the conclusions, discusses the limitations of this study, and gives recommendations for future research in the field of self-efficacy beliefs and accessible technology in higher education for vision-impaired learners.

At the beginning of Chapter One of this thesis, I explained that educational practices and pedagogical adjustments for VI EFL students in Saudi needed more investigation, better evaluation, augmentation, and implementation because, as we learned in the context of the chapter, on the one hand, there is a particular religious view of disability in Islam that leads to certain attitudes and problems for VI learners, and, on the other hand, data on VI individuals are lacking, as are proper interventions to support VI individuals, both inside and outside of educational contexts. Moreover, the research undertaken for this thesis revealed that there was a poor understanding of accessible learning technologies, for VI people or not, and, crucially, teachers did not possess the skills to assist VI learners of English, never mind in terms of supporting students with accessible technology.

With all this in mind, the aim of this study was to examine participants' learning journeys and self-efficacy beliefs with respect to learning English, and learning English with an accessible E-book in particular, in order to shed light on educational adjustments and interventions that might improve not just student experience and self-efficacy, but also improve learning gain and learning outcomes. The role of the accessible technology, the E-book, was crucial to that end. In the previous chapter and, in what follows here, presented are valuable insights and conclusions which go some way to accomplishing the aims of the thesis and, of particular importance for me, which go some way to improving inclusive education and the educational experience of VI learners such as myself in the Saudi context. In fact, as we saw tentatively introduced at the end of the last chapter, this thesis yields the beginnings of a "best practice" framework that can assist government, policy makers, and university departments – right down to the individual teacher – to make informed decisions about access to education and inclusive delivery thereof for VI individuals.

Following discussion of the religious and medical contexts for visual impairment in Saudi Arabia, I presented a review of the literature on Bandura's work and associated concepts

and frameworks necessary to unpick and evaluate the rich qualitative data provided through my participants' questionnaires and focus group discussions. This chapter also introduced the literature on E-books relevant to the context of this thesis. Then, there came the methodology, followed by a detailed discussion of purposively selected participants that draws on and elaborates on the Bandurian, and other psychological/sociological/pedagogical, concepts put forward in the literature review. The methodology chapter also contains information about the participants and their learning context, and some information about the design of the intervention. The methodology finishes with a section on reflexivity and situates the researcher within the context of the study. From the analysis chapter, some key areas were outlined for more detailed discussion, which then followed. The discussion examined in some detail our learnings about self-efficacy in the context of the thesis, returned to and answered the research questions, and also shared what has been learnt about E-books in terms of the intervention undertaken for this thesis. There are several contributions made by this chapter, but essential is the beginnings of the best practice framework mentioned above, which will be the focus of my fledgling research programme, post thesis.

Let us go back to the research questions posed towards the beginning of this thesis in order to ascertain what has been learnt. My research questions were as follows:

1. What are the factors that determine self-efficacy beliefs among vision impaired college-level learners of English at a Saudi university?
2. To what extent are there equal EFL learning opportunities for vision impaired college-level learners in their first year mainstream EFL course when compared to their fully sighted counterparts?
3. What are vision impaired college-level learners' perceptions regarding the implementation of an electronic text into their first year mainstream EFL course?
4. How does the accessibility of electronic text and technology impact the self-efficacy beliefs of vision impaired college-level learners?
5. Is there a change in ENGLISH 103 vision impaired college-level learners' self-efficacy beliefs in the areas of listening, speaking, reading, writing, and grammar and vocabulary after this intervention?

To what extent have these questions been answered? Indeed, it appears from the qualitative data that self-efficacy plays a role in how VI students participate in their EFL learning. Moreover, although the sample population in this study is small, it seems clear that being provided with an accessible E-book has the potential to increase self-efficacy beliefs in VI EFL learners, which, in line with the literature, will engender positive effects for a large portion of such learners. Again, the sample of the study is small, so it is difficult to say in a truly representative way exactly the extent to which, in general, equal opportunities of learning exist. However, from the data, we can say that it appears that there are not equal opportunities of learning currently for VI learners of English at the Saudi university studied. In the main, the research questions have been thoroughly targeted, and useful information pertaining to each question has been obtained. However, to create a more robust study with results that can be extrapolated to the Saudi higher education landscape at large, the sample size must be increased. Furthermore, we know from the government/medical data that women are disproportionately affected by vision impairment. As such, their experiences should be included in future work. Finally, clearly, participants would need to be drawn from several universities. It is my intention, post viva, to engage in postdoctoral work that continues to drill down into these questions, but do so with larger sample sizes, and samples that represent the general (university) population. In this way, results are more robust, and will be of more interest to stakeholders, as the results are likely to be more meaningful.

In any case, to draw on the thesis as a whole, and to add in some of the key observations from the discussion chapter, there are some important, meaningful discoveries that have been made in the course of producing this thesis.

The first relates to vicarious experiences for VI learners. The second source of self-efficacy beliefs is found to play a significant role in the self-perception of the VI students in the given context. Vicarious experiences are not as influential as mastery experiences (Bandura, 1997; Klassen, 2004). Nonetheless, the VI students in the current study cherished their self-efficacy beliefs through observing the performances of other VI students. All four sources of self-efficacy had an impact on the students. However, vicarious experiences had a greater effect on the VI students than the other sources of self-efficacy beliefs, it appears. Importantly, although the data is only tentative, it appears that participants who might be reluctant or inexperienced with accessible technology may

be prepared to engage with this even if it is challenging for them IF they see peers having success with technology. We must also consider the emerging theme of family in this picture. The role of peer role models and peer support should not be underestimated in terms of uptake and success with learning technologies for VI EFL students. I will investigate this in future self-efficacy research focusing on psychological Dimension, Vicarious Experiences and The Role of the Family.

Reasonable accommodation has been shown to be a fundamental need for the VI students in this context. Proper application of reasonable accommodations in education is a central part of the progress and success of VI students. It must be emphasised that key principles of reasonable accommodation, equal opportunity and discrimination should apply in all policies and legislation pertaining to the rights of disabled persons to education in Saudi Arabia. In fact, although it fell outside the current scope of this thesis, a theme of "institutional discrimination" began to emerge. Universities, whether on purpose or not (and it seems ignorance may be responsible rather than malice) seem to put barriers in the way of equality, equity and inclusion for VI learners. My post-PhD work will closely link with universities to educate them on best practices, and fully develop the fledgling framework set out in the discussion chapter.

Islam strictly forbids discrimination in fundamental rights. Allah said: "People, we have created you all male and female and have made you nations and tribes so that you would recognise each other. The most honourable among you in the sight of God is the most pious of you. God is All-knowing and All-aware" (Qur'an, Chapter 49, verses 13). This verse stresses the unity of origin and demands co-existence, with the elimination of distinctions on any basis, including disability (see Chapter 2 for further elaboration). Islam makes assertations about the inclusion of disabled individuals and on respecting their special circumstances. Allah says: "There is no blame on the blind, the lame, the sick ones, and yourselves to eat at your own homes, or the homes of your father, mothers, brothers, sisters, your paternal and maternal uncles, aunts, or at the homes of your friend, and the homes with which you are entrusted. …" (Qur'an, Chapter 24, verses 61).

Thus, Islamic traditions maintain a prohibition of discrimination against anyone, and especially on the basis of disability. This was clearly illustrated when Allah scolded Prophet Muhammad for rejecting the poor blind man when he came to the Prophet

wanting instruction in the Qur'an. Nevertheless, instances of educational or structural discrimination were apparent in the accounts of the participants' experiences in education. VI learners were excluded from full participation in first year English courses due to lack of accessible books for these courses. The religious context will persist, and people's intentions based on religion are largely well-meaning. Nevertheless, respectful education about how to best support disabled individuals needs to be part of the training given to teachers and universities. It might appear kind, and the right thing to do from an Islamic perspective but awarding a high mark in return for no work is not the right thing to do, as the participants told me. All learners of all backgrounds should have the right to participate in education, and this should be equitable and fair.

As discussed in detail in chapter 5, the VI learners who were enrolled in English 103 had a generally positive perception of the accessible E-book that they used during the intervention. Even those who did not use the E-textbook due to their low English level or who were not trained in using computers held positive views of the E-book just by observing their VI peers using it. That even led some participants to request accessible E-books for the Arabic courses at the university. This should be advocated for at the university, and, hence, at the Ministry of Education, these shortcomings should be taken seriously, and the government should work on implementing adequate solutions.

It is also worth stating the implications for educators and for future research. Clearly, this thesis is of benefit to Saudi universities wishing to improve the quality of education, their rankings and their standards – and this with Vision 2030 in mind. Universities that can inclusively support as many students as possible will, on the global stage, have greater success, all other things being equal. In terms of how to do this, it follows logically that education colleges should be training their teachers in inclusive teaching methods and teaching their future educators about disability and how to teach effectively for those with disabilities such as a visual impairment. In terms of research, there is a great opportunity to expand on what has been done in this thesis and evaluate and update self-efficacy theory for individuals with disabilities. Furthermore, by conducting more in-depth self-efficacy studies following VI individuals over longer periods of time, it should be possible to discover a number of environmental and pedagogical factors that would make up a learning environment that supports the generation and growth of self-efficacy

beliefs in VI individuals, potentially leading to better learning outcomes. It is my intention to undertake such work in the near future.

Let us now turn to the implications to self-efficacy theory of this thesis. There are four constructs accounting for the main factors leading to increased self-efficacy beliefs for oneself in different tasks. These four sources (mastery experiences, vicarious experiences, social persuasion, and physiological and psychological states) were used as a framework in the interviews and focus group discussion to evaluate which of these sources has the greatest effect on the vision-impaired students. It is widely regarded in the literature that mastery experience is posited to be the strongest source of self-efficacy belief (Bandura, 1997; Klassen, 2004; Lopez & Lent, 1992; Matsui, Matsui & Ohnishi, 1990; Palmer, 2006; Usher & Pajares, 2008). However, it is worth noting that these studies were conducted on people reporting no disability. There is a dearth of literature investigating the effect of the different sources of self-efficacy on vision-impaired people. Participants in this study informed us that self-efficacy increased through the vicarious experiences of their VI peers. They felt a special connection to others with vision impairment and their success. One participant said "[m]y friends … did a brilliant job in ENGLISH 103 classes. I have high hopes to be the best I can from observing them reading in classes." Another participant noted "yes, it gives us motivation." Self-efficacy studies need further research specifically on the VI population. Vicarious experience appears to have the most prominent effect on VI students and we should consider why this might be, and if there is a difference for VI learners in the greatest source of self-efficacy compared to other populations or if there is some other factor exerting influence. The focus group discussion and interviews highlighted how important instructors' beliefs and behaviours towards VI individuals are to VI student success. Schools and universities, therefore, should address this importance by providing specific targeted training that enhance instructors' understanding and capacity to make classroom learning accessible to the widest variety of students. Furthermore, finding ways for VI students to obtain effective and beneficial support in difficult classes like physics and mathematics will reduce some of the barriers they face in their education journey at schools and colleges.

What can policy makers and stakeholders learn from this study? One of the main outcomes of this thesis has been to propose strategies that aim primarily to promote the inclusion of disabled people in education. As a follow up, developing a framework of enforceable rights and guidelines for people with disability as equal citizens in education is an absolute necessity and, as noted above, this now forms the basis of my ongoing research programme. In particular, I note that there are two main aims for a modern welfare system which should be put into action: 1) promoting inclusion and equality for all different groups in society, and, 2) providing people with personal autonomy and more control over their own lives within a framework of educational, social and financial interdependence (see Bynoe, Oliver & Barnes, 1991). Such a framework ensures that every individual is able to participate in education to realise their own potential, and in their own way – a way that works for them as an individual learner. It is clear from the rich accounts obtained from participants in this research that Saudi Arabia has not done enough to implement the necessary measures to eliminate the preventable disadvantages that face VI students nor to compensate for the unavoidable disadvantages, even though equal rights for the disabled and equal opportunities are strongly engrained in Islam. This inadequacy in the current situation is exemplified by the inaccessibility of mainstream education which has no formal, agreed, research-led implemented measures to promote the right to reasonable accommodation for students with disability. It is my hope that this thesis goes some way to creating the framework and the policies that will rectify this educational injustice.

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Appendix A: Sample of English 103 Reading Quiz

Name:	Student ID:	Section:	Score out of 10:

Reading Quiz — Level 103

Instructions
Read the text below and answer the questions.

The Loci Technique

Your mother called you on the phone and told you to buy 5 things at the supermarket on the way home from school. When she called, you were holding your books in your hands. Your hands were full so you could not write the 5 things on a piece of paper. How could you make sure to remember the five items?

Many centuries ago, at the time of ancient Rome, a special memory method was invented by a man named Simonedes. The story goes that Simonedes was at a big dinner with many people when he had to go outside to get a message. While he was outside, the building collapsed. Everyone inside was killed. Some of the bodies were so damaged that they could not be identified. Simonides, however, was able to tell the authorities the names of the people at the dinner because he could visualize where everyone was sitting. After that, Simonides thought that people could remember anything if they associated it with a physical space.

This is called the loci method of memory.

Now, let's say that your mother asked you to buy carrots, hamour, potato chips, rubber gloves and paper towels. How could you use the loci method to remember these five things?

First, you must imagine a physical space. It is best to imagine a space that is very familiar to you. Think of your home. Think of what you do when you get up in the morning. Maybe you start in your bedroom and then walk into the hallway. Let's say there is a table in the hallway. Then you walk into the living room. Then you walk to the bathroom. Then you go to the kitchen.

Now, let's say that you imagine a giant carrot sleeping beside you when you wake up. Then, when you go to the hallway, you see a fish sitting on the table talking on the phone. In the living room, every step you takes makes a crunching sound. In the bathroom, you see your little brother wearing a yellow, rubber glove on his head. Finally, in the kitchen, your sister is covering her hair with white paper.

The more outrageous the images that you create in your mind, the more easily you will be able to remember things. Sometimes the loci method is called the Memory Palace because you could use all the rooms in a palace to help you remember things. But it could also be called the Memory House, the Memory Apartment or even the Memory Office.

Now, turn this paper over and close your eyes. Can you remember the five things that your mother told you to buy? If you can, you have learned how to use the loci method.

Name:	Student ID:	Section:	Score out of 10:

Reading Quiz — Level 103

Instructions
Read the text below and answer the questions.

Unusual Fashion

Researchers at the Harvard Business School say that people who do not follow "normal fashion" get more respect from others. Doctoral student Silvia Bellezza and two of her friends examined how we view the social status and competence of people who do not dress normally. They discovered that the more unusually people dress, the more respect they get. Participants in the research considered others who had a "stranger" fashion to be more unique. Researchers said that rather than thinking badly of someone unusually dressed, many people believe that dressing down is a sign of confidence. Ms. Bellezza said: "If you're willing to be different, there are negative points."

Bellezza did a number of experiments to test how people reacted to strangeness. In one, people in different types of clothes shopped at expensive shops in Milan. One group wore casual sports clothes, while the other wore expensive-looking clothes. The sales assistants thought that the ones in the sports outfit were the bigger spenders. In another test, students rated an unshaven, T-shirt-clad professor above an academic wearing a suit and tie. Bellezza says high-profile *businessmen* who dress down may be responsible for changing our perceptions. In particular, Facebook CEO Mark Zuckerberg's wearing of hoodies and the late Steve Jobs' trademark jeans, sneakers and polo neck tops.

One word in each sentence is NOT correct. Find the word and cross it out. Write the correct word. Each question is worth 2 points.

1. Researchers at the Harvard Medicine School say that people respect those who wear unusual clothes.
2. Researchers discovered that the more unusually people dress, the less respect they get.
3. If you are willing to be different, there are positive points.
4. The sales assistant thought that the ones in the formal outfit were bigger spenders.
5. Low-profile business men are responsible for changing our perception of unusual clothes

Appendix B: ENGLISH 103 Self-Efficacy questionnaire

It would be very much appreciated you taking a few minutes to fill out this questionnaire which will ask you questions about your perceived abilities in English

Please provide the following information:

Age	GPA	Nationality

Instructions:

On a scale from 0 (no chance) to 100 (completely certain), how sure are you that you can perform each of the tasks below with **reasonable grammatical accuracy, fluency, and ease in English**? Remember that you may use any number between 0 and 100.

0 10 20 30 40 50 60 70 80 90 100
No Chance 20% Certain 40% Certain 60% Certain 80% Certain 100% Certain

Speaking	0 – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 - 100
1. I can ask and respond to questions about myself.	
2. I can narrate events happened in the past.	
3. I can ask for precise quantities of food items I need to buy from the supermarket.	
4. I can ask for alternatives for any unavailable items when I go shopping.	
5. I can talk about the good and bad aspects about living in my city.	
6. I can give my opinion about the negative and positive aspects of my university.	
7. I can say prices.	
8. I can ask for information in hospitals.	
9. I can describe and express others' feelings, hopes, and ambitions.	
10. I can describe and ask about the experiences of others.	
11. I can describe and compare people, places and things.	

12. I can compare the weather in my city with another city.	
13. I can ask for and give directions to different places.	
14. I can give advice to my friends.	
15. I can explain my study responsibilities and commitments.	
16. I can talk about my future plans.	

Listening	0 – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 - 100
17. I can follow everyday conversations about familiar topics.	
18. I can identify main ideas and details when listening to people talk about topics such as health.	
19. I can identify main ideas and details when listening to people talk about topics such as an accident.	
20. I can identify main ideas when listening to interviews and familiar topics.	
21. I can understand the details of an interview my teacher plays in class.	
22. I can catch the main ideas of short recorded passages and interpret them.	

Reading	0 – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 - 100
23. I can identify some details in short, simple factual texts.	
24. I can read a medium-length general interest article.	
25. I can read a text and then respond to it with my own opinion/reaction.	
26. I can scan longer texts and identify important pieces of information.	
27. I can predict the content of a story or an article and then read to check if my prediction is correct.	
28. I can skim an article to identify the topic.	
29. I can skim an article to identify the main ideas.	

30. I can skim an article to recognise the general organization.	

Writing	0 – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 - 100
31. I can write about experiences and events that happened in the past.	
32. I can write a narrative essay.	
33. I can use appropriate adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	
34. I can use appropriate transitional words such as First, next, then, after that and when in simple sentences.	
35. I can plan my writing assignments by asking and answering questions about the topic.	
36. I can plan my writing assignments by putting my ideas into an outline.	
37. I can write more than one draft of a topic.	
38. I can improve my drafts in each stage by following an outline.	
39. I can improve my writing by responding to peer and instructor feedback.	
40. I can revise my writing by identifying and editing irrelevant sentences.	

Vocabulary and Grammar	0 – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 - 100
41. I can differentiate when to use definite and indefinite articles in the English language.	
42. I can use the past tense of irregular verbs with ease.	
43. I can use adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	
44. I can use and understand verbs in different forms such as swimming, like to swim and want to go.	
45. I can use different types of words such as compound nouns and verb-noun collocations.	
46. I can understand the meaning of compound nouns in the English language.	
47. I can understand the meaning of verb-noun collocations in the English language.	

48. I can locate new vocabulary items when I read a medium-length general interest article.	
49. I can deduce the meaning of new vocabulary I encounter in the text from the context.	
50. I can look up the unknown vocabulary items in the dictionary.	

Appendix C: ZS Pre – Post- Self Efficacy Results

No.	Items	Pre ZS	Post ZS
1	I can ask and respond to questions about myself.	100	100
2	I can narrate events happened in the past.	70	90
3	I can ask for precise quantities of food items I need to buy from the supermarket.	90	100
4	I can ask for alternatives for any unavailable items when I go shopping.	70	100
5	I can talk about the good and bad aspects about living in my city.	80	100
6	I can give my opinion about the negative and positive aspects of my university.	60	90
7	I can say prices.	100	100
8	I can ask for information in hospitals.	70	100
9	I can describe and express others' feelings, hopes, and ambitions.	60	90
10	I can describe and ask about the experiences of others.	50	90
11	I can describe and compare people, places and things.	80	100
12	I can compare the weather in my city with another city.	100	100
13	I can ask for and give directions to different places.	80	100
14	I can give advice to my friends.	70	100
15	I can explain my study responsibilities and commitments.	80	100
16	I can talk about my future plans.	70	100

	Listening		
17	I can follow everyday conversations about familiar topics.	80	100
18	I can identify main ideas and details when listening to people talk about topics such as health.	60	100
19	I can identify main ideas and details when listening to people talk about topics such as an accident.	70	100
20	I can identify main ideas when listening to interviews and familiar topics.	100	100
21	I can understand the details of an interview my teacher plays in class.	80	100
22	I can catch the main ideas of short recorded passages and interpret them.	80	100
	Reading		
23	I can identify some details in short, simple factual texts.	80	100
24	I can read a medium-length general interest article.	70	100
25	I can read a text and then respond to it with my own opinion/reaction.	50	100
26	I can scan longer texts and identify important pieces of information.	60	100
27	I can predict the content of a story or an article and then read to check if my prediction is correct.	60	100
28	I can skim an article to identify the topic.	60	80
29	I can skim an article to identify the main ideas.	60	80
30	I can skim an article to recognise the general organization.	70	90
	Writing		

31	I can write about experiences and events that happened in the past.	50	90
32	I can write a narrative essay.	50	100
33	I can use appropriate adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	80	100
34	I can use appropriate transitional words such as First, next, then, after that and when in simple sentences.	100	100
35	I can plan my writing assignments by asking and answering questions about the topic.	50	90
36	I can plan my writing assignments by putting my ideas into an outline.	50	90
37	I can write more than one draft of a topic.	40	90
38	I can improve my drafts in each stage by following an outline.	50	100
39	I can improve my writing by responding to peer and instructor feedback.	50	100
40	I can revise my writing by identifying and editing irrelevant sentences.	80	100
	grammar / Vocab		
41	I can differentiate when to use definite and indefinite articles in the English language.	80	90
42	I can use the past tense of irregular verbs with ease.	70	90
43	I can use adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	100	100
44	I can use and understand verbs in different forms such as swimming, like to swim and want to go.	90	100

45	I can use different types of words such as compound nouns and verb-noun collocations.	70	100
46	I can understand the meaning of compound nouns in the English language.	90	100
47	I can understand the meaning of verb-noun collocations in the English language.	80	100
48	I can locate new vocabulary items when I read a medium-length general interest article.	80	100
49	I can deduce the meaning of new vocabulary I encounter in the text from the context.	70	100
50	I can look up the unknown vocabulary items in the dictionary.	100	100

Appendix D: MM Pre – Post- Self Efficacy Results

No.	Items	Pre MM	Post MM
1	I can ask and respond to questions about myself.	40	80
2	I can narrate events happened in the past.	40	70
3	I can ask for precise quantities of food items I need to buy from the supermarket.	70	100
4	I can ask for alternatives for any unavailable items when I go shopping.	50	90
5	I can talk about the good and bad aspects about living in my city.	80	100
6	I can give my opinion about the negative and positive aspects of my university.	70	90
7	I can say prices.	90	100
8	I can ask for information in hospitals.	50	80
9	I can describe and express others' feelings, hopes, and ambitions.	60	90
10	I can describe and ask about the experiences of others.	50	80
11	I can describe and compare people, places and things.	60	90
12	I can compare the weather in my city with another city.	70	100
13	I can ask for and give directions to different places.	40	80
14	I can give advice to my friends.	60	100
15	I can explain my study responsibilities and commitments.	70	100
16	I can talk about my future plans.	80	100

	Listening		
17	I can follow everyday conversations about familiar topics.	40	80
18	I can identify main ideas and details when listening to people talk about topics such as health.	60	100
19	I can identify main ideas and details when listening to people talk about topics such as an accident.	50	90
20	I can identify main ideas when listening to interviews and familiar topics.	50	90
21	I can understand the details of an interview my teacher plays in class.	80	100
22	I can catch the main ideas of short recorded passages and interpret them.	70	100
	Reading		
23	I can identify some details in short, simple factual texts.	50	80
24	I can read a medium-length general interest article.	40	90
25	I can read a text and then respond to it with my own opinion/reaction.	30	80
26	I can scan longer texts and identify important pieces of information.	30	70
27	I can predict the content of a story or an article and then read to check if my prediction is correct.	50	90
28	I can skim an article to identify the topic.	50	80
29	I can skim an article to identify the main ideas.	40	80
30	I can skim an article to recognise the general organization.	40	80
	Writing		

31	I can write about experiences and events that happened in the past.	60	90
32	I can write a narrative essay.	30	70
33	I can use appropriate adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	80	100
34	I can use appropriate transitional words such as First, next, then, after that and when in simple sentences.	70	90
35	I can plan my writing assignments by asking and answering questions about the topic.	60	90
36	I can plan my writing assignments by putting my ideas into an outline.	50	70
37	I can write more than one draft of a topic.	50	80
38	I can improve my drafts in each stage by following an outline.	40	60
39	I can improve my writing by responding to peer and instructor feedback.	90	100
40	I can revise my writing by identifying and editing irrelevant sentences.	40	60
	grammar / Vocab		
41	I can differentiate when to use definite and indefinite articles in the English language.	60	70
42	I can use the past tense of irregular verbs with ease.	70	90
43	I can use adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	80	100
44	I can use and understand verbs in different forms such as swimming, like to swim and want to go.	50	80

45	I can use different types of words such as compound nouns and verb-noun collocations.	60	80
46	I can understand the meaning of compound nouns in the English language.	70	90
47	I can understand the meaning of verb-noun collocations in the English language.	50	80
48	I can locate new vocabulary items when I read a medium-length general interest article.	50	90
49	I can deduce the meaning of new vocabulary I encounter in the text from the context.	50	90
50	I can look up the unknown vocabulary items in the dictionary.	70	100

Appendix E: BJ Pre – Post- Self Efficacy Results

No.	Items	Pre BJ	Post BJ
1	I can ask and respond to questions about myself.	30	30
2	I can narrate events happened in the past.	20	30
3	I can ask for precise quantities of food items I need to buy from the supermarket.	10	30
4	I can ask for alternatives for any unavailable items when I go shopping.	10	10
5	I can talk about the good and bad aspects about living in my city.	10	10
6	I can give my opinion about the negative and positive aspects of my university.	10	10
7	I can say prices.	70	80
8	I can ask for information in hospitals.	10	10
9	I can describe and express others' feelings, hopes, and ambitions.	30	30
10	I can describe and ask about the experiences of others.	10	10
11	I can describe and compare people, places and things.	10	10
12	I can compare the weather in my city with another city.	10	30
13	I can ask for and give directions to different places.	20	20
14	I can give advice to my friends.	20	20
15	I can explain my study responsibilities and commitments.	20	30
16	I can talk about my future plans.	10	20
	Listening		

17	I can follow everyday conversations about familiar topics.	10	20
18	I can identify main ideas and details when listening to people talk about topics such as health.	10	10
19	I can identify main ideas and details when listening to people talk about topics such as an accident.	10	10
20	I can identify main ideas when listening to interviews and familiar topics.	30	40
21	I can understand the details of an interview my teacher plays in class.	40	60
22	I can catch the main ideas of short recorded passages and interpret them.	30	50
	Reading		
23	I can identify some details in short, simple factual texts.	10	10
24	I can read a medium-length general interest article.	10	10
25	I can read a text and then respond to it with my own opinion/reaction.	10	10
26	I can scan longer texts and identify important pieces of information.	10	10
27	I can predict the content of a story or an article and then read to check if my prediction is correct.	10	10
28	I can skim an article to identify the topic.	10	10
29	I can skim an article to identify the main ideas.	10	10
30	I can skim an article to recognise the general organization.	10	10
	Writing		

31	I can write about experiences and events that happened in the past.	10	20
32	I can write a narrative essay.	10	10
33	I can use appropriate adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	10	10
34	I can use appropriate transitional words such as First, next, then, after that and when in simple sentences.	10	20
35	I can plan my writing assignments by asking and answering questions about the topic.	10	10
36	I can plan my writing assignments by putting my ideas into an outline.	10	10
37	I can write more than one draft of a topic.	10	10
38	I can improve my drafts in each stage by following an outline.	10	10
39	I can improve my writing by responding to peer and instructor feedback.	10	10
40	I can revise my writing by identifying and editing irrelevant sentences.	10	10
	grammar / Vocab		
41	I can differentiate when to use definite and indefinite articles in the English language.	40	50
42	I can use the past tense of irregular verbs with ease.	10	20
43	I can use adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	10	10
44	I can use and understand verbs in different forms such as swimming, like to swim and want to go.	40	30

45	I can use different types of words such as compound nouns and verb-noun collocations.	10	10
46	I can understand the meaning of compound nouns in the English language.	20	20
47	I can understand the meaning of verb-noun collocations in the English language.	10	10
48	I can locate new vocabulary items when I read a medium-length general interest article.	20	20
49	I can deduce the meaning of new vocabulary I encounter in the text from the context.	30	30
50	I can look up the unknown vocabulary items in the dictionary.	10	20

Appendix F: MS Pre – Post- Self Efficacy Results

No.	Items	Pre MS	Post MS
1	I can ask and respond to questions about myself.	50	90
2	I can narrate events happened in the past.	30	70
3	I can ask for precise quantities of food items I need to buy from the supermarket.	80	100
4	I can ask for alternatives for any unavailable items when I go shopping.	20	50
5	I can talk about the good and bad aspects about living in my city.	10	50
6	I can give my opinion about the negative and positive aspects of my university.	40	60
7	I can say prices.	90	100
8	I can ask for information in hospitals.	20	50
9	I can describe and express others' feelings, hopes, and ambitions.	60	80
10	I can describe and ask about the experiences of others.	80	90
11	I can describe and compare people, places and things.	70	100
12	I can compare the weather in my city with another city.	60	80
13	I can ask for and give directions to different places.	10	40
14	I can give advice to my friends.	30	50
15	I can explain my study responsibilities and commitments.	80	90

16	I can talk about my future plans.	70	80
	Listening		
17	I can follow everyday conversations about familiar topics.	10	80
18	I can identify main ideas and details when listening to people talk about topics such as health.	90	100
19	I can identify main ideas and details when listening to people talk about topics such as an accident.	60	90
20	I can identify main ideas when listening to interviews and familiar topics.	70	90
21	I can understand the details of an interview my teacher plays in class.	50	80
22	I can catch the main ideas of short recorded passages and interpret them.	20	70
	Reading		
23	I can identify some details in short, simple factual texts.	50	80
24	I can read a medium-length general interest article.	70	90
25	I can read a text and then respond to it with my own opinion/reaction.	20	60
26	I can scan longer texts and identify important pieces of information.	20	40
27	I can predict the content of a story or an article and then read to check if my prediction is correct.	70	80
28	I can skim an article to identify the topic.	30	50
29	I can skim an article to identify the main ideas.	50	80

30	I can skim an article to recognise the general organization.	10	50
	Writing		
31	I can write about experiences and events that happened in the past.	10	40
32	I can write a narrative essay.	20	40
33	I can use appropriate adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	30	60
34	I can use appropriate transitional words such as First, next, then, after that and when in simple sentences.	60	100
35	I can plan my writing assignments by asking and answering questions about the topic.	70	90
36	I can plan my writing assignments by putting my ideas into an outline.	10	40
37	I can write more than one draft of a topic.	10	30
38	I can improve my drafts in each stage by following an outline.	20	40
39	I can improve my writing by responding to peer and instructor feedback.	10	40
40	I can revise my writing by identifying and editing irrelevant sentences.	30	50
	grammar / Vocab		
41	I can differentiate when to use definite and indefinite articles in the English language.	100	90
42	I can use the past tense of irregular verbs with ease.	90	90

43	I can use adverbs such as fortunately, of course, just, at last and unfortunately in simple sentences.	50	70
44	I can use and understand verbs in different forms such as swimming, like to swim and want to go.	40	60
45	I can use different types of words such as compound nouns and verb-noun collocations.	70	100
46	I can understand the meaning of compound nouns in the English language.	60	80
47	I can understand the meaning of verb-noun collocations in the English language.	70	80
48	I can locate new vocabulary items when I read a medium-length general interest article.	40	60
49	I can deduce the meaning of new vocabulary I encounter in the text from the context.	20	50
50	I can look up the unknown vocabulary items in the dictionary.	20	60

Appendix G: Pre-study interview guide

The following interview questions guided the pre-interviews:

المقابلة القبلية

السلام عليكم ورحمة الله وبركاته

- كيف حالك؟
- كيف الدراسة؟

اليوم نريد أن نناقش وضع دراسة اللغة الإنجليزية من خلال تجربتك في الجامعة ومعهد اللغة وأود التأكيد على أن كل ما ستذكره لن يطلع عليه أي شخص آخر سواء من المدرسين آو كائناً من كان.

أي معلومة تذكرها ستكون مفيدة جدا لي حتى لو كانت المعلومة صغيرة باعتقادك ولا تتردد في التعبير عن رأيك بكل أريحية وصراحة.

- الخبرات السابقة أثناء المراحل الدراسية ما قبل الجامعة :
  - هل من الممكن أن تحدثني عن تجربتك مع دراسة اللغة الانجليزية أيام المدرسة من ناحية طريقة المدرسين في التدريس؟
  - دورك في الفصل؟
  - كيف كنت تذاكر؟
    - قراءة الكتاب
    - حل الواجبات
  - كيف كنت تذاكر للاختبارات؟
  - الدرجات؟

- الخبرات السابقة أثناء المرحلة الجامعية :

  - هل من الممكن أن تحدثني عن تجربتك مع دراسة اللغة الانجليزية من ناحية طريقة المدرسين في التدريس؟
  - دورك في قاعة المحاضرات؟
  - كيف كنت تذاكر؟
    - قراءة الكتاب
    - حل الواجبات

  - كيف كنت تذاكر للاختبارات؟
  - الدرجات؟

- الاحتياجات:
  - مالاشياء التي تعتقد أنها لو كانت متوفرة لك لأصبحت دراستك وتعلمك للإنجليزي سيكون أفضل؟
  - مالاشياء التي تعتقد ان الطالب الكفيف يحتاجها لتعلم اللغة الانجليزية بطريقة آفضل؟

Appendix H: English translation of pre-study interview guide

The following interview questions guided the pre-interviews:

Pre-interview

Intro / Setting the scene:

Greetings…

• How are you?

• How are you doing on your courses?

Today we want to discuss the state of studying English through your experience at the university at the English Language Institute and at school. I would like to emphasize that nothing you say will be known by anyone from your university or your instructors. None of your instructors will know anything that we say - no one at all from the university.

Anything you say will be very useful and important. Please do not undervalue any information you have. Please feel free to express all opinions and ideas you have freely.

- Previous experience:
    - Could you please tell me about your experience of studying English at school in terms of the way teachers taught you?

- What was your role in the classroom? How did you interact with the teacher in the classroom? What did you do during English class?
- How did you study for your English classes?
    - Reading the book? How did you read the textbook?
    - Doing homework?
- What about exams? How did you take tests? How did you answer exam questions?
- Grades? How were your grades in English during your school years?

- Now, to ask the same questions (repeat) about the previous English courses (101-102) at the university.
    - Could you please tell me about your experience of studying English in terms of the way instructors taught you English?
    - What was your role in the lecture hall?
    - How did you study for these courses?
    - What about reading the textbook?
    - How did it work with homework?
    - What about sitting exams and taking part in quizzes?
    - Grades?

- Needs:
    - What are the things that, if they were available, do you think would have helped you to study English better and become a better learner of English?
    - What do you think are the things that VI students need so they can learn English better and more effectively?

Appendix I: Post-study interview and post-study focus group discussion guide

The following interview questions guided the post-study interviews and focus group discussion:

المقابلة البعدية

- هل من الممكن أن تذكر لي انطباعك عن التجربة التي قمنا بها وتجربة استخدامك للكتاب الالكتروني؟
- هل تعتقد أن هنالك أي مؤثرات ساهمت او أثرت في تعلمك للغة الإنجليزية؟

- الزملاء:
  - كيف وجدت زملائك المبصرين في الفصل؟
  - هل كنت على تواصل دائم معهم؟
  - هل كنت تتعاون معهم؟
  - هل كنت على تواصل مع طلاب مكفوفين اخرين يدرسوا مادة ١٠٣؟
  - هل كنت تتواصل معهم لتبادل معلومات متعلقة بالمادة؟
  - هل وجدت اي فائدة من التواصل مع الطلاب المبصرين والمكفوفين الذين درسوا معك مادة ١٠٣؟

- مدرس المادة:
  - هل تعتقد أن مدرس المادة ساعد في تعلمك للغة الانجليزية؟
  - إذا كنت إجابتك بنعم , هل من الممكن أن توضح لي كيف كان مساعداً؟
    - التصحيح
    - الملاحظات المعطاة
    - أي أمور أخرى

- خارج الجامعة
  - هل هنالك أشياء ساهمت في تعلمك؟
  - هل هناك اشياء أثرت على تعلمك؟
    - مشاكل أسرية
    - مشاكل صحية
    - أي شيء آخر

- هل لديك أي أنشطة لا منهجية متعلقة باللغة الإنجليزية؟
- هل كنت تدخل على مواقع إنجليزية تستمع لبعض المقاطع الصوتية أو الراديو إلخ...؟

- الكتاب الالكتروني:
  - كم ساعة في الأسبوع كنت تستخدم الكتاب؟
  - هل كنت تستخدمه اثناء المحاضرة؟
  - هل كان مفيدا او غير مفيد؟
  - هل أغناك عن الاحتياج لمساعدة آخرين؟
  - هل تعتقد أن استغلال التكنولوجيا لتوفير مادة تعليمية سيزيد من استقلاليتك في التعلم؟
  - هل قام احد بمساعدتك لقراءة الكتاب؟
  - هل تعتقد أن تمكنك من قراءة الكتاب بمفردك له أي تأثير على ثقتك بنفسك؟
  - هل تعتقد أن تمكنك من قراءة الكتاب بمفردك له أي تأثير على ثقتك بقدراتك؟
  - هل تعتقد آن تمكنك من قراءة الكتاب بمفردك له أي تآثير على انطباعك عن تعلم اللغة الإنجليزية؟
  - هل تعتقد أن توفر مثل هذا الكتاب مكنك من ممارسة اللغة والمذاكرة أكثر مما لو كنت معتمدا على مساعدة الآخرين؟
  - هل كان سهلا عليك الوصول للمعلومات؟
  - هل كان التعامل معه بسيط؟
  - هل مكنك الكتاب من تحسين تعلم الإنجليزية؟
  - هل أسهم أم لم يسهم في تعلمك للغة الإنجليزية؟
  - هل أنت مع أو ضد توفير مثل هذا الكتاب في مقررات اللغة الانجليزية؟
  - هل تعتقد أنه لربما كان تعلمك للإنجليزية سيكون أفضل لوكان لديك مثل هذا الكتاب في المقررات السابقة؟
  - هل تمكنت من الوصول للدروس بسهولة؟
  - هل ساعدتك أم لم تساعدك الملاحظات التي تم توفيرها لمساعدتك لقراءة الكتاب؟
  - هل لديك أي ملاحظات تتعلق بالكتاب؟
  - هل تعتقد أن هنالك طريقة أفضل لقراءة الكتاب؟

- استخدام ومعرفة الكمبيوتر:

  - هل تستخدم الكمبيوتر؟
  - هل تعرف الدخول لمواقع الانترنت؟
  - هل تستطيع التنقل في الصفحة بصورة مريحة؟

Appendix J: English translation of post-study interview and post-study focus group discussion guide

The following interview questions guided the post-study interviews and focus group discussion:

• Can you please tell me about your opinion of the intervention we did and your experience of using the ENGLISH 103 e-book?

• Do you think that there are things that contributed to or influenced your learning of the English language?

- Your classmates in ENGLISH 103:
  - How did you find your sighted classmates in the classroom?
  - Were you in regular contact with them in lectures and outside lectures?
  - Did you work together with them and discuss issues with them related to ENGLISH 103?
  - Were you in touch with other blind students who were studying English 103?
  - Did you exchange information related to this course?
  - Did you find any benefit of being in touch with sighted and blind students who are enrolled on ENGLISH 103?

- Instructors on this course:
  - Do you think ENGLISH 103 instructors have helped you in learning English?
  - If yes, could you please explain how helpful the instructor was as regards…?
    - The way assignments are corrected
    - Feedback given
    - Other things?

- Outside the university:
  - Are there things that contributed to your learning?
  - Are there things that have negatively affected your learning? For example…

- Family problems
- Health problems
- Anything else?

- Did you do any extra-curricular activities that helped you to learn English which were not directly related to ENGLISH 103?
- Did you read English by accessing websites, listening to English radio and so on?

- The electronic book:
  - For about how many hours per week did you use the E-book?
  - Did you use it during the lecture?
  - Was it or was it not useful?
  - Did it or it did not make you dependent on assistance from others?
  - Do you think that using technology to provide educational material can increase your independence in learning on your own?
  - Did anyone help you with reading the ENGLISH 103 book?
  - Do you think that being able to read the book independently has had any effect on your self-confidence?
  - Do you think that being able to read the book by yourself has had any effect on your beliefs in your abilities?
  - Do you think that being able to read the book on your own has had any effect on your attitude towards learning English?
  - Do you think that providing you with the accessible E-book for ENGLISH 103 enables you to practice language and study more than if you were dependent on help from others?
  - Was it easy for you to access information from the E-book?
  - Was it easy to navigate the E-book?
  - Did the book improve your learning of English?
  - Did it contribute, or did it not contribute to your learning of English?
  - Are you for or against providing such a book for English language curricula at the university?
  - Do you think your learning of English might have been better if you had had a similar E-book for the previous courses?
  - Were you able or not to easily access units in the E-book?
  - Did the explained tips at the start of the intervention help you, or not, in reading and navigating the E-book?
  - Do you have any particular feedback about the E-book?

        - Do you think there could be a better way to make the E-book more accessible?

- Computer use and skills:

    - Do you use a computer?
    - Can you access the Internet?
    - Can you browse webpages confidently?