BRAILLE AND DIGITAL AUDIO-SUPPORTED READING TECHNIQUES AND ACHIEVEMENT IN ENGLISH LANGUAGE COMPREHENSION AMONG STUDENTS WITH VISUAL IMPAIRMENT IN IMO STATE, NIGERIA

BY

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CERTIFICATION

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DEDICATION

This work is dedicated to individuals who show affection to all persons with special needs.

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ABSTRACT

Students with Visual Impairment (SVI) experience difficulties with sight-related activities and this hinders them from acquiring functional life skills like reading, which are important for success in academics and life in general. Reports have shown that many SVI in Imo State exhibit low achievement in English language comprehension. Previous studies have focused largely on provision, and the use of assistive technology as well as mobility training for SVI with little emphasis on interventions using braille and digital audio supported reading techniques for improving their reading comprehension skills. This study, therefore, was designed to determine the effects of Braille Reading (BR) and Digital Audio-supported Reading (DAsR) techniques on achievement in English language comprehension among SVI in Imo State, Nigeria. The moderating effects of onset of visual impairment and Emotional Intelligence (EI) were also examined.

The study was anchored to Lev Vygotsky's Socio-cultural Theory, while a pretest-posttest, control group quasi-experimental design with a 3x2x2 factorial matrix was adopted. Three integrated public secondary schools (Boys' Secondary School, Aboh, BSA; Girls' Secondary School, Orlu, GSO; and Government Secondary School, Owerri, GSSO), were purposively selected. A screening conducted using the Snellen Chart revealed that there were only 17 SVI in the three integrated schools. All the 17 SVI were enumerated across the schools: BSA (8), GSO (5) and GSSO (4). The schools were randomly assigned to BR (8), DAsR (5) and control (4) groups. The instruments used were Bar-On Emotional Quotient Inventory (r=0.78), Achievement in English Language Comprehension Test (r=0.79) and instructional guides. The treatment lasted eight weeks. Data were analyzed using descriptive statistics, Analysis of covariance and Scheffe post-hoc test at 0.05 level of significance.

The participants' age was 16.35 ± 1.12 years, while 59.0% acquired visual impairment after birth. There was a significant main effect of treatment on achievement in English language comprehension among the participants (F (1.7) =3.21, partial = 0.39). Participants exposed to BR had the highest post mean achievement score in English language comprehension (53.06), followed by those in DAsR (45.34) and control (39.16) groups. Onset of visual impairment had no significant main effect on achievement in English language comprehension of the participants. The EI had no significant main effect on the achievement in English language comprehension of the participants. Treatment and onset of visual impairment had significant interaction effect on the achievement in English language comprehension of the participants (F (1,7) = 3.41, partial = 0.17). The two-way and three-way interaction effects of treatment and onset of visual impairment, treatment and EI, treatment, onset of visual impairment and EI, respectively were not significant on achievement in English language comprehension of the participants.

Braille reading more than Digital audio-supported reading enhanced achievement in English language comprehension among students with visual impairment in Imo State, Nigeria. Special Educators should use both reading techniques in teaching students with visual impairment to enhance their achievement in English language comprehension.

Key words: Braille reading, digital audio-player, achievement in English language comprehension, students with visual impairment

Word count: 469

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The English language is often used in Nigeria to communicate in public and private transactions. It is the primary language teachers use in teaching students at all levels of education, irrespective of their health status. Comprehension, as an integral component of English, denotes the ability of a reader or student to read through a text and make meaning out of the text using the knowledge gained in solving problems. The purpose of reading is to identify the main ideas in the text and interpret an author's message. The ability of any student to read and comprehend a text determines, to a large extent, the student's academic success level. Comprehension is a complex intellectual activity that requires the perception of language structures, identifying thoughts and the utilization of various strategies to accomplish enhanced English language achievement.

It is, however, essential to note that not all reading results in comprehension or enhanced achievement in English language comprehension. Some students may read a comprehension passage fluently and not be able to derive significance from it and apply it in solving problems. Hansen (2016) noted that comprehension is a cognitive activity in which the reader interprets the text by organizing information. Comprehension involves someone interacting with the content depending on insight and the action surrounding the person's ability to understand the content. Understanding a text requires perceptual strategies which students combine in interpreting and making meaning out of the text. Mirizon, Diem and Vianty (2018) remarked that some of these strategies students employ in enhancing achievement in English language comprehension include finding a core idea, paying attention to important information, acquainting with the figures of speech, applying previous knowledge, summarizing ideas, building vocabulary, generating, and answering questions.

A student who can effectively combine these perceptual strategies in reading a comprehension passage can understand and use the knowledge gained in relating with

teachers, communicating with peers, enhancing English language comprehension and general life improvement. Because they cannot read printed materials, students with VIs cannot reap all these benefits and, therefore, cannot engage in reading comprehension. To achieve English language comprehension goals, students need to understand grammar, identify ideas in the text, and use various strategies. Hence, students with VI experience continuous poor English comprehension performance. Students with VI experience severe reduction in vision to the extent that it interferes with their ability to read printed materials and move independently in their school environment.

Gold (2002) observed that a student might have partial sightedness, low vision or total blindness. Poor achievement in English language comprehension attributable to loss of sight and non-availability of learning materials in accessible format affects mainly the students with low vision and total blindness since those with partial sightedness can read with magnifiers. This implies that there is a research need into the variables that can enhance achievement in English language comprehension among students with total blindness. Research into the understudied aspects of the learning needs of students with total blindness is of great concern to the team of professionals working together for the welfare of students with VI. Nwamuo, Ugwuegbulam and Okoro (2012) stated that visual impairment refers to partial or total loss of sight, which makes it difficult for the affected to carry out activities requiring the use of sight, such as reading and writing, without social support services.

Reading for enhanced achievement in English language comprehension requires extensive use of the eyes. As such, students with VI cannot achieve reading fluency and English language proficiency associated with constant reading practice, proper understanding, paraphrasing and applying knowledge in accomplishing high achievement in English language comprehension. Some students with VI may read without understanding, but the problem facing them is the inability to access information from the recommended English language textbooks because these students do not have these books in accessible formats. If students with VI have the recommended English language textbooks, it would be possible for them to combine good reading ability and strategies to enhance their English language comprehension achievement. This might save such

students from the frustration of constant poor English language comprehension achievement.

Salehi, Gazizadeh and Tabesh (2017) affirmed that students generally experience problems identifying main ideas and summarizing a text, which results in poor achievement in English. Poor achievement in the English language is a general problem affecting students at the senior secondary school level. This is evidenced in the general analysis of 2010-2018 West African Senior Secondary School Certificate Examination (WASSCE) results of candidates in the six geopolitical zones of Nigeria. Yusuf, Baba and Isa (2021) reported that only 25% of the candidates who sat for (WASSCE) within the period under review excelled in the English Language, while 75% of the candidates failed the subject. Furthermore, sighted students who have printed copies of the recommended English language textbooks still fail English language comprehension let alone students with VI who cannot access the recommended English language textbooks as a result of lack of comprehension. Comprehension is a vital skill in getting good grades in English language while mastery in comprehension will reflect when students take English language examinations and it would likely result in enhanced achievement in the English language among the students.

Poor achievement in English language comprehension is more likely to result among students with visual impairments than sighted students. Students with VI in Imo state have long been experiencing poor achievement in English language comprehension, resulting from their inability to read printed materials and non-provision of learning materials in an accessible format. This phenomenon leads to underachievement in other subjects, repeating classes and examinations among the students with VI. Because most secondary school examinations are written in English, and mastery of the language helps the students understand and respond to questions accordingly. Also, students who fail the English Language in promotion examinations are not promoted to the next class. Poor achievement in English language comprehension among students with VI also extends to external examination.

In the Analysis of 2014-2018 (WASSCE) results for Imo State candidates with visual impairment, Omilani (2015) reported that in 2014 only 14% of candidates had credit passes in the English language, while in 2015, only 18.34% excelled in the English

language. Obiagwu (2018) reported that in 2016 only 20.34% had credit passes in the English language, while in 2017, only 18.62 % of the candidates did well, and in 2018 only 16.54 % had good grades. This analysis reveals the immense challenge poor achievement in English language comprehension imposes on students with VI, as only a small percentage of students with VI who desire admission into higher institutions each year succeed. Poor achievement in English language comprehension among students with VI and sighted students is of concern to their teachers, who have been using various strategies in teaching them comprehension to ensure that the students overcome poor achievement in English language comprehension. Roit (2016) affirmed that the teachers' duty in ensuring that students bolster their achievement in English language comprehension is to select and use appropriate teaching methods such as group reading, teacher-monitoring comprehension, student-centred reading, and peer learning strategies.

Teachers have been using these strategies in teaching students' English language comprehension in an inclusive classroom to foster student achievement in English language comprehension. These strategies are very effective in helping sighted students to comprehend and enrich their achievement in the English language. On the other hand, these strategies are defective for students with VI who cannot access the text. Hans and Hans (2015) emphasized that reading to comprehend among students with VI is a complex activity, which requires that students predict and confirm predictions through which background knowledge is connected to the present text and the purpose for reading comprehension is realized. It is necessary to make English language textbooks available in an accessible format for students with VI to enable them to predict and confirm predictions. Okwudire, James, and Unogwu (2013) stressed that students experience difficulties in comprehension, while failure in comprehension also results in failure in English language.

The authors further explained that strategy-based instructions could positively impact students' achievement in English language comprehension. Students with VI need adequate attention to master English language structures, sentence construction, paraphrasing of passages and building vocabulary, which leads to enhanced English language comprehension achievement. Enhanced achievement in English language comprehension is one of the prerequisites for academic progress, and for students with VI

who do not have the opportunity to read English language textbooks, attaining enhanced achievement in the subject may be an arduous task. In addition, students with VI do not engage in active participation in the classroom, resulting in poor achievement in various aspects of the English language, such as comprehension, summary, vocabulary, oral forms, grammar and morphology. Koeswiryono, Asrori and Setyaningsih (2014) asserted that students with VI face challenges in their quest to acquire knowledge and achieve academic success.

The authors further explained that these challenges are likely connected to losing sight, not spending enough time to teach the students, and lack of enough expertise and intervention teaching strategies. It is difficult for students with VI to meet the targeted academic benchmark in English language comprehension without comprehending the text, and these students cannot comprehend a text without reading it. At this juncture, examining the contribution of an inclusive system to academic achievement is vital. An inclusive classroom in Imo State is a heterogeneous one which consists of sighted students and students with VI and where each group needs different strategies, types of textbooks and other instructional materials for enhanced academic achievement. Okwudire, James and Unogwu (2013) affirmed that students with VI are peculiar students who require unique learning materials, strategies, and devices to achieve their academic set goals.

Students with VI who experience poor achievement in English language comprehension are discouraged, especially when they realize that their continuous poor achievement is not because of intellectual incompetence but because of the non-provision of learning resources in an accessible format. Therefore, it becomes imperative that adequate intervention strategies, special devices and instructional materials are utilized to remedy students' problems with VI and help them overcome poor achievement in English language comprehension. Oueini, Bahous and Nabhani (2008) opined that teachers use read-aloud, verbalizing and memorizing strategies in teaching students with VI comprehension. The teacher, the text and the students are the fundamental aspects of the teacher's read-aloud strategy. This strategy is suitable for teaching in an inclusive classroom as it facilitates the understanding of students with VI who cannot read the text.

The teacher reads the text to the students, who would listen to the teacher, after which the students continue to rehearse what they have learnt, and during the process of verbalisation, memorisation takes place. Students with VI commend these strategies but argue that it is difficult to learn this way as the teachers may not be able to read the text more than twice and that it is effortless to forget memorized context (Bhatti and Kumari, 2015; Koeswiryono, Asrori and Setyaningsih, 2014). Braille reading is another strategy teachers can use to facilitate comprehension because most senior secondary school students with VI can read and use Braille to study. Shamim, Sarwar and Chaudhary (2020) remarked that transcribing learning resources into an alternative format and using Braille reading in teaching students with VI comprehension may reverse poor achievement in comprehension among them. Students with VI agree that Braille reading enables them to engage in independent reading, but some dislike it. Nearly all students with acquired blindness do not use Braille because according to them, nothing reminds them of what was before the onset of VI more than Braille reading.

Students with VI also argue that Braille reading is relatively slow, time-consuming, and bulky and producing it is strenuous. Braille reading enables students with VI to participate in the classroom as opposed to the conventional teaching method, where students with VI do not have the recommended English language textbooks in an accessible format. This strategy ensures that students with VI have copies of the recommended English language textbooks, making them active participatory members of the heterogeneous class. When students with VI have copies of the English language textbooks in Braille, teachers can then guide them on how to discover essential ideas in the text, relate the text to prior knowledge and understand difficult points. The conventional teaching method does not allow for equal opportunities for all students; a sense of belonging and the specific learning needs of each student are not considered.

This means that students with VI who are indirectly not active members of the heterogeneous class where the recommended English language textbooks for learning comprehension are not in Braille do not have a sense of belonging and usually find it challenging to achieve their academic goals. Enhanced achievement in English language comprehension is one of the significant academic goals of students with VI, and more serious effort should be made to help them realize this all-important academic objective.

This way, students with VI may overcome the lingering poor achievement in English language comprehension that has retarded their academic progress. English is a crucial subject in secondary school since it is a compulsory subject determining entry into higher institutions. Munoz (2010) opined that Braille reading encourages students with VI to cognise, comprehend, apply knowledge, analyze, synthesize and evaluate the context. Students cannot understand a comprehension passage and peer-review it without reading it. Braille reading facilitates understanding and applying knowledge in problem-solving and ensures that students with VI read alongside their peers.

Achieving this through Braille reading may likely motivate them to learn and encourage them to share knowledge with their peers. Students with VI who cannot access English language textbooks depend solely on their sighted peers to read the comprehension passages for them, which is impossible in the classroom when English language comprehension lessons are going on. It is also difficult for such students to answer comprehension questions their peers answer after reading the comprehension passages. Learning is very complex for blind students, but Braille reading can probably assist this undaunted group of students to master spelling, connect ideas and understand concepts. It is necessary to examine if Braille reading can help students with VI comprehend, understand the concept, relate ideas and attain academic success. Moreover, researchers such as Elige and Nwamtina (2017), Anyanwu (2013), Okwudire, James, and Unogwu (2013) have conducted remedial studies that investigated the relationship between achievement in English language comprehension among students with VI and other factors such as teachers' attitude, availability of special equipment and rehearsal.

However, these studies were mainly surveys, and a combination of Braille reading, and the digital audio player was not utilized in carrying out these studies. Students with VI also continue to struggle with English language comprehension. It has also been established that studies which combined Braille reading and digital audio player involving students with VI in Imo State were not found in the literature. It becomes imperative to conduct this unique study that examines the effect of Braille reading and digital audio player on achievement in English language comprehension among students with VI. Strategies such as interactive question and answer, teacher read-aloud, and Braille reading

strategies may likely motivate students with VI to learn and enhance their academic achievement when effectively utilized.

Braille is a medium of communication comprising a fundamental component known as the Braille cell, with six dots arranged in two columns and three rows combined to form letters, numbers and symbols, which individuals with visual impairment can read by touching the raised dots with their fingertips. Radojichikj (2015) described Braille as a system of raised dots on paper that can be read with the tip of the finger by people with visual impairment. Braille is the sure way through which students with VI can become literate. Braille reading can be likened to visual reading since both are strategies through which people access information. It is more tasking than reading print because a Braille reader combines the process of identifying dot representations and comprehending the message in the text. This explains why a Braille reader is twice slower as a print reader. However, a proficient Braille reader can combine the two processes effectively and still understand the text. Garcia (2004) affirmed that Braille reading follows a pattern of step-by-step discovery of ideas by first interpreting letters which differs from the stable movement of the eyes on configured letters in a text.

The effect of digital audio-player on achievement in English language comprehension among students with VI is another variable to be considered in this study. Digital audio player, also known as MP3 (music player 3), is a portable electronic device that can record information, play the recorded information, and has a radio section. English language comprehension lessons can be recorded on a digital audio player to aid learning among students with VI. Arlinwibowo and Retnawati (2015) asserted that digital audio-player recording is the alternative way to disseminate information to students with VI. If it is impossible to transcribe the text into Braille or the students prefer audio instruction, a digital audio player becomes another option. It is possible for comprehension lessons to be conveyed to students with VI in different dimensions. Students can listen to a recorded comprehension passage, still understand the text, and narrate it in their own words. In other words, teachers can play recorded comprehension passages for students with VI to listen to; doing so will likely help them learn English and achieve academic success.

With the use of a digital audio player, teachers can guide students with VI to decode relevant issues in the text and relate the knowledge to their background knowledge and the knowledge gained can be applied in solving problems such as aiding understanding of other school subjects. Digital audio-player has the potential to facilitate perception, arrange and recognise fact, recall and make inferences, all of which are very necessary for academic success among students with VI. These strategies are crucial for students with VI who have limited learning experiences and require extra effort and time by the students to acquire and use them effectively for learning.

Comprehension is a complex mental process involving various activities in a unified form; The teacher can teach English language comprehension using a digital audio player and still achieve comprehension objectives. The only difference is that students with VI are learning through auditory sensory modalities rather than through visual or touch sensory modalities. In addition, digital audio-player facilitates learning, encourages independent study and makes students with VI active members of the class. Digital audio-player can help students with VI cope with academic rigour, which may lead to overall academic achievement. Various strategies, methods and assistive technology devices may be used in conveying information to students in the same classroom. However, decoding, cognition and perception of information received may depend on such factors as parental acceptance, attitude to learning, level of adjustment, achievement motivation, the onset of VI and emotional intelligence. This study considers the moderating effect of the onset of VI and emotional intelligence on achievement in English language comprehension among students with VI.

The onset of VI (the period when sight was lost) affects how individuals process information, assimilate information and apply knowledge differently. Eniola and Busari (2014) noted that the onset of VI might be before birth (congenital blindness) or after birth (adventitious blindness) which affects the academic efficacy of the students. The onset of VI can positively or negatively affect the affected individuals' personal acceptance, psycho-social adjustment, environmental orientation and learning abilities. Komolafe and Tajudeen (2018) established that students with congenital blindness tend to accept the condition more efficiently and better than students with adventitious blindness. The reason for this may be that students with congenital blindness have known just one angle

of life (being blind) and do not need reorientation in their various school premises and classrooms. For instance, a student who lost his sight at the age of fifteen is already used to doing things independently, and the sudden loss of sight will automatically disorient such a student. It may be difficult for such a student to accept the present situation, and the emotional consequences of this sudden loss will negatively impact all aspects of the student's life.

Congenital blindness shapes or negates coordination of visual stimuli, and students with congenital blindness, therefore, make effective use of the remaining four sensory modalities in learning, while students who acquired blindness depend mainly on auditory inputs for learning (Ozoji, Ozoji and Jurmang, 2015). It is possible for students who acquired VI to relate visual knowledge and experience of yesteryear to the present learning situation to grasp the content, while congenitally blind students battle with the subject matter. At the same time, understanding is based on tactual and visual imagination. This seems to balance the difficulties confronting each group of students with VI in their day-to-day academic and social activities.

Adjusting to the learning environment is another area that contrasts between these two groups of students. Compared to congenitally visually impaired students who begin life with groping and dependence, it is more difficult for students who become visually impaired later in life to adjust to their school environment. In essence, one can say that onset of VI harms students. However, the student's adjustment and academic achievement level depend on their approach to the condition. It is imperative to note that a typical integrated classroom comprised three groups of students: sighted students, students with congenital blindness and students who acquired VI and the ability of each student in the last two groups to effectively cope with the disorganising consequences of VI such as diminished emotions, shock, loneliness and poor achievement in English language comprehension may likely be affected by the emotional intelligence level of such a student.

Emotional intelligence is a psychological construct that affects all aspects of human life. It is the ability of a person to discover personal emotions and that of others and manage them using the information to achieve set goals. There are three levels of emotional intelligence: high emotional intelligence, middle emotional intelligence and

low emotional intelligence, which affect whatever individuals do. Attri and Rai (2013) affirmed that VI is one of the life events associated with emotional instability, and some students with VI exhibit low emotional intelligence**.** The authors further explained that emotional intelligence influences achievement in English language comprehension for all students. It is necessary to encourage students with congenital and acquired VI to develop high emotional intelligence since it is assumed that students with high emotional intelligence are better adjusted to cope with learning situations than students with low emotional intelligence levels. Parween (2015) asserted that emotional intelligence encompasses personality attributes supportive of academic success, such as intelligence, motivation, and self-concept and students with VI are viewed to have low emotional intelligence when compared with their sighted peers. It is assumed that low emotional intelligence among students with VI may have accounted for poor achievement in English language comprehension experienced by this category of students.

Emotional intelligence affords students the strength to control their lives and monitor their academic progress effectively. This implies that students with high emotional intelligence are more competent in handling challenges in life and are better able to take charge of academic activities than students with low emotional intelligence. Low emotional intelligence is associated with a lack of competence, confidence, and motivation for learning in students with total blindness. It is necessary for them to possess the emotional intelligence level necessary for making right decisions, maintaining relationships, goal attainment and achievement in English language comprehension. Onu, Asogwa and Obetta (2013) confirmed that emotionally intelligent students are optimistic and stay focused. Students with low emotional intelligence are pessimistic, cannot manage emotions and may not achieve their academic set goals.

Undoubtedly, assisting students with VIs to develop low emotional intelligence levels may help them adjust to their school environment and motivate them to learn. As a matter of consideration, the unavailability of the recommended English language textbooks in accessible format and disparity among students with VI may have accounted for the incessant poor achievement in English language comprehension among students with VI in the Imo state. The current study, therefore, examines the impact of Braille reading and digital audio supported reading techniques on achievement in English

language comprehension among students with VI in Imo state, Nigeria, moderated on the onset of VI and emotional intelligence level of the students.

1.2 Statement of the Problem

Poor achievement in English language is prevalent in Nigerian senior secondary schools. It is a phenomenon that transcends Nigeria's six geopolitical zones and does not end at the teacher-made promotion examinations in their various secondary schools. This is evidenced in the 2010-2018 West African Senior Secondary School Certificate Examination (WASSCE) results, where only 25% of the candidates excelled in English. There is no unanimous agreement about the cause of poor English language achievement among senior secondary school students. An improvement in English language comprehension may likely enhance achievement in the English language generally since comprehension is a vital subset of the English Language.

Poor achievement in English language comprehension among students with VI reflected in their achievement in the English language, which may be traced to the loss of sight and unavailability of English language textbooks in an accessible format. Another reason may be the English language structure, which demands that students with VI read the recommended English language textbooks to get acquainted with the English language structures that will enable them to obtain enhanced achievement in English language comprehension.

The continuous poor achievement in English language comprehension among students with VI in Imo state leads to repeat classes because all students in secondary schools must obtain good English language grades before they can be promoted from one class to another. It also causes poor achievement in other school subjects, such as mastering the English language. It determines the ability of students with VI to comprehend examination questions and provides answers to these questions because examinations for most of these subjects are written in English. As a result of poor English language comprehension, this category of students cannot continue their education beyond the secondary school level. This is reflected in the WASSCE results of students with VI in Imo state from 2014-2018, which showed that only 17.56% of the candidates had good grades in the English language. Enhanced achievement in English language

comprehension may positively influence their achievement in the English Language since comprehension is an essential aspect of the second subject.

Poor achievement in English language comprehension also results in the inability of students with VI to pursue their career choices, as a good grade in the English language determines admission into higher institutions. It leads to their inability to realise their ambition and life actualisation and hinders their academic progress. It also causes frustration among them as students with VI are unable to take care of their financial needs because poor achievement in English language comprehension leads to their inability to lsecure job opportunities and earn a living: Instead, this category of students might become beggars and are unable to contribute to the society's economic growth meaningfully. Adequate and urgent intervention is required to save students with VI from all these problems.

Moreover, some researchers have investigated the relationship between achievement in English language comprehension among students with VI and other factors such as academic achievement, multiple intelligence dimensions, teachers' attitudes and elaborative rehearsal. However, this research mainly focused on Braille and digital audio supported reading techniques. Thus, the researcher considers it necessary to examine how Braille reading and digital audio supported reading techniques affect English language comprehension among students with VI in Imo State.

1.3 Objectives of the Study

The study examines the main effect of Braille reading and digital audio player on achievement in English language comprehension of students with VI in Imo state. Specifically, the study determined:

The main effect of

1. Treatment (Braille reading and digital audio-player) on participants' English language comprehension achievement.
2. The onset of VI on achievement in English language comprehension of participants.
3. Emotional intelligence on achievement in English language comprehension of participants.

The interaction effect of

4. Treatment and onset of VI on participants' English language comprehension achievement.
5. Treatment and emotional intelligence on achievement in English language comprehension of participants.
6. The onset of VI and emotional intelligence on achievement in English language comprehension of participants.
7. Treatment, onset of VI and emotional intelligence on participants' English language comprehension achievement.

1.4 Hypotheses of the study

The following null hypotheses were tested at 0.05 level of significance.

There is no significant main effect of

Ho_1: Treatment on achievement in English language comprehension of participants.

Ho_2: Onset of VI on achievement in English language comprehension of participants.

Ho_3: Emotional intelligence on achievement in English language comprehension of participants.

There is no significant interaction effect of

Ho_4: Treatment and onset of VI on achievement in English language comprehension of participants.

Ho_5: Treatment and emotional intelligence on achievement in English language comprehension of participants.

Ho_6: Onset of VI and emotional intelligence on achievement in English language comprehension of participants.

Ho_7: Treatment, onset of VI and emotional intelligence on achievement in English language comprehension of participants.

1.5 Significance of the Study

It is anticipated that the findings of this study will prove extremely beneficial to students with VI, who would be exposed to test strategies that may be more reliable and effectively enhanced English language comprehension skills. Comprehension is a vital

component of the English language, so improved achievement in comprehension may likely result in enhanced achievement in the English language. It would also allow them to improve overall academic performance. It is anticipated that the results of this study will benefit the parents and guidance of students with VI whose achievement in English language comprehension would be enhanced, eliminating financial wastage resulting from multiple registrations of classes and examinations. Additionally, through seminars, parents and teachers association meetings and online publicity, the results of this study would provide information to parents and guardians on the effectiveness of Braille reading and digital audio players in encouraging academic success.

The findings of this study would also benefit universities, colleges of education and other institutions concerned with teachers' education. These institutions would see the importance of Braille reading and digital audio supported reading techniques in teaching students with VI. The institutions would transfer this knowledge to teachers of students with VI, who would use them to teach students with VI. Educators working with special needs children will benefit greatly from the study's findings. Special educators would see the need to explore Braille reading and digital audio players in teaching the English language to students with VI in more practical terms. It is also expected that teachers of the English language and those who teach students with disabilities thereby benefiting from the results of this study, since they will be informed regarding the usefulness of Braille reading and digital audio supported reading techniques in the education of students with disabilities. Special educators have the opportunity to access this study and do the needful by perusing and practicing what has been investigated.

This information would encourage English language teachers and regular teachers to use Braille reading and digital audio players in teaching students with VI. The study findings would also assist the school counselors in addressing students' academic, personal, social and career developmental needs. This would promote not only the students' academic achievement and their total school-life experience. Students' success in an educational setting would definitely inspire their success in other areas of life and promote a sense of personal fulfillment. The findings of this study would provide curriculum planners with knowledge of the relevant curriculum needs of students with VI. This would help them incorporate the use of assistive technology devices that would

foster an understanding of the English language among students with special needs. It would also help them realize the importance of emphasizing English language comprehension to aid understanding among students with VI and incorporate it while planning the school curriculum.

Based on the results of this study, school administrators will better understand the importance of Braille reading and digital audio players in the education of students with VI. This awareness would encourage them to recommend to the government the provision of necessary equipment and materials for teaching students with VI in their various schools. It would also encourage them to make the school environment conducive for students with VI, create a particular unit or resource room for students with VI to learn and secure their equipment. It would also facilitate the provision of technical advice and assistance from the ministry of education. This study will provide valuable information to policymakers. The education policymakers knowing the effect of each Braille reading and digital audio player on achievement in English language comprehension of students with VI, would more clearly see and understand the deficiencies in the existing education policies for students with VI. This would enable them to articulate and make more plausible policies to help reduce the plight of students with VI and enhance achievement in English language comprehension and other school subjects.

The findings of this study would also benefit the government because it would encourage them to provide funds to purchase assistive technology devices for integrated secondary schools in their zones. It would also encourage the government to fund special programmes for students and teachers in integrated secondary schools. Above all, researchers and academics would benefit from the study as it forms the pedestal for further research into the factors that improve achievement in English language comprehension among students with VI. This study is highly significant to different stakeholders and they can be informed of this study by liaising with the institution where this project is carried out. It is also expedient that the stakeholders have a copy of this study for teachers' training and implementation purposes.

1.6 Scope of the study

The study examines the effect of Braille reading and digital audio player on achievement in English language comprehension of students with VI in Imo state. Participants were limited to students with VI in senior secondary school 1 (SS1) selected from three integrated secondary schools. The schools are Boys secondary school, Aboh, Girls secondary school, Orlu and Government secondary school, Owerri.

1.7 Operational definition of terms

The following terms were defined operationally as used in this study:

Braille reading is a way students with VI access information from a text by touching embossed dots on paper with the tip of their fingers, and teachers use it to facilitate learning among students with VI.

A digital supported reading technique is a portable electronic device that can record, store, and playback recorded information in an audio format that students with VI use to access information.

Comprehension is a cognitive activity in which the students construct meaning from a written or audio text by organizing information in the text.

Visual impairment means the inability to see correctly or total loss of vision with no light perception or residual sight.

Students with visual impairment: They are students who have partial or total loss of vision and are to be educated with various assistive technology strategies and devices such as Braille reading, digital supported reading techniques and magnifiers.

Achievement in English language comprehension refers to scores students with VI obtained in various continuous promotion examinations up to the Senior Secondary School Certificate Examination (SSCE) level.

The onset of visual impairment: This refers to the period in one's life when partial or total vision loss occurs.

Emotional intelligence: It is the ability of students with VI to identify emotions and manage them, which enables them to improve their.. understanding of English language.

CHAPTER TWO

LITERATURE REVIEW

Conceptual, theoretical, and empirical reviews of relevant literature are presented in this chapter.

2.1 Conceptual review

2.1.1 Concept of visual impairment

Development of various organs of the body begins at conception at the time when the foetus is still in the uterus. Whatever happens to the pregnant woman during this period, for instance, illness, the effect of drugs and accidents may damage or obstruct the development of sensitive parts of the eye, optic nerve or part of the brain (cortical area) that controls vision which leads to congenital blindness. Adventitious blindness is a visual impairment acquired later in life mainly because of disease or accident. Visual impairment alludes to partial or total loss of vision not easily corrected with prescription glasses, medication or surgery, which makes it difficult for such individuals to function effectively, especially in activities requiring the use of the eyes (Hason, Andric, Atilgan and Collignon, 2016; Deen, Saxe, Bedny, 2015). The term total signifies complete loss of sight or no light perception after all necessary actions to remedy the condition failed to yield a positive result. This condition qualifies such an individual to receive additional support services to compensate for the limitations of visual capacity in carrying out normal daily activities.

Visual impairment is the loss of vision or malfunctioning in the organ of sight, which results in total or partial blindness. It is a broad term used to describe all kinds of defectiveness in an individual's eyes which causes varying degrees of vision loss that interferes with the individual's ability to see, read printed materials, and move independently in the environment. Komolafe and Tajudeen (2018), citing World Health Organisation (2005), noted that VI is a term that denotes visual acuity of less than 3/60 or visual field loss that is less than 10 degrees in the better eye with the best corrective

measures. This implies that the brightness of the retina centres in the eyes, the non-dysfunction of the retina and cortex/brain that interprets and coordinates visual stimuli sent by the eyes to total or partial blindness. Damage to the optical and cortical systems will prevent the eyes from sending images to the brain and the brain from interpreting visual stimuli (visual impairment). This can be mild or severe, and the individual involved cannot see when this happens. Vashist, Senjam, Gupta and Kumar (2017) observed that the World Health Organisation's description of VI is the central visual acuity of 20/200 or worse in the better eye with the best corrective measures. This means that an individual with central visual acuity of 20/200 can only see an object when that object is placed 20 feet away from such an individual's position, while an individual with normal vision can see an object from 200 feet away.

The definition of visual impairment varies from country to country based on factors such as disability, economic and impairment measurement. In Turkey and England, VI is defined by functional or economic factors. These countries see a person with blindness as someone who cannot do any work requiring the use of the eyes. Other countries, for example, Somalia, base the definition of blindness on disability while countries like Singapore and Kuwait combine the two (Vashist, Senjam, Gupta and Kumar, 2017). The United States of America and Canada use VI (legal blindness) to denote someone with a degree of vision loss up to 20/200 or worse with the best possible correction that designates them to receive welfare support services (Monga, Parwal, Rohatgi and Dhaliwal, 2009). Social blindness alludes to the degree of vision loss that interferes with an individual's ability to relate effectively with people and retards personal growth and academic progress.

The term visual impairment is used in education to describe a severe vision loss that interferes with the ability to read and write and designates such students to receive special education services. Gold (2002) asserted that students with VI could be categorized as follows: students with refractive errors (short-sightedness, long-sightedness, and astigmatism), the legally blind (legal designation for support services), the partially sighted, low vision and the blind. The partially sighted students make use of a variety of optical devices or magnifiers for learning. Some partially sighted students may need only modification of materials and environmental adaptation for learning. Students

with low vision have residual vision designated for movement around the school compound and other places. The totally blind students are students who do not perceive light or cannot see. This research focuses on students with total blindness, congenitally blind students and students who acquired blindness later in life. Students with total blindness rely on tactile and auditory senses for learning purposes. This category of students uses Braille reading and assistive technology devices such as digital audio players, computers with job access with speech (JAWS) and mobile phones for learning. Educational programming for a student with VI depends on the student's choice and the resources available but is recommended by special educators.

2.1.1.1 Causes of visual impairment

The causes of blindness in children and adults are many and can be classified into prenatal, perinatal and postnatal categories. Causes of VI can also be classified into hereditary conditions (genetic), diseases, injuries and unknown factors. Gagate, Gilbert and Zin (2011) affirmed that maternal illness, injury, drug, smoking, and alcohol could damage the optical system and the foetus's brain, leading to congenital blindness. Hereditary factors that did not manifest at conception, early childhood diseases and injuries sustained from accidents may lead to adventitious blindness or acquired blindness. Diseases that can cause damage to the visual pathway of an individual include:

(i) Rubella: This is one of the diseases that can cause VI in an unborn baby if the mother contracts the disease within the first trimester of pregnancy. The foetus is infected with the rubella virus transmitted through the mother, which can damage the retina. The incidence of rubella is relatively high in underdeveloped and developing countries due to poor sanitation and insufficient health care services.

(ii) Optic nerve atrophy: Espanol (2016) remarked that optic nerve atrophy is an eye condition in which the optic nerve is damaged, causing VI. The damaging or gradual weakening of the optic nerve may result from brain cancer, injuries, swelling and the like making it impossible for the eyes to transmit impulses to the brain, so vision loss emerges. Optic nerve atrophy could be hereditary and occur due to diseases and anoxia.

(iii) Retinopathy of prematurity: Good and Carden (2016) explained that retinopathy of prematurity is a disease of the eyes that occurs mainly in premature babies. Prematurity could obstruct the average growth of the blood vessels in the retina, which causes leakage, leaving a mark on the retina that can cause VI. Early retinopathy of prematurity presents no signs, can only be identified by an ophthalmologist and may be corrected through surgery.

(iv) Onchocerciasis: This is also known as **r**iver blindness, it is one of the country's leading causes of early childhood blindness. World Health Organisation (2018) stated that Onchocerciasis is caused by a blackfly, which transmits filaria worms into a person's body while sucking blood. Microfilariae develop in the skin and cause intense itching and lesions, which may lead to VI.

(v) Trachoma: World Health Organisation (2018) affirmed that trachoma damages the outer and inner layers of the eyes, causing severe pain and discomfort, leading to partial or total blindness. It is an infectious disease contracted by personal contact with the discharge from the eyes and nose of an infected person through handshake and use of personal belongings of the infected person. Flies harbour the bacteria and spread the disease from one person to another. Trachoma is one of the leading causes of VI in children aged 1-9 all over the world, and it can also affect older children and adults.

(vi) Glaucoma: Bourne, Taylor, Flaxman, Keefe, Leasher and Naidoo (2016) noted that glaucoma damages the optic nerve by exerting pressure on the eyes, preventing the eyes from sending visual stimuli to the brain. Glaucoma is an inherited disease, but one can develop it later in life through injuries, surgeries and other diseases that affect the eyes. Unlike other eye conditions, it has no indicative signs and symptoms; the only possible way to avoid it is by regular eye checkups. Glaucoma, if not treated on time, can cause irreversible partial/total vision loss.

(vii) Xerophthalmia: Feroze and Kaufman (2019) explained that xerophthalmia is a preventable eye disease caused by a lack of vitamin A mostly among children in developing countries. Vitamin A deficiency causes dryness of the eyes, and delay in treatment may result in soreness in the eyes, making it impossible for someone to see in dim light.

(viii) Cataract: A cataract is a growth in the eye that impairs vision by preventing light from entering through the lens to the eyes. Though the disease commonly affects adults, some babies may be born with congenital cataracts. Cataracts may be caused by swelling, obesity, injury, and diabetics, and they could be progressive, unchanging, unilateral or bilateral. Cataracts affect people in both rural and urban areas in every country. Excessive exposure of the eye to light is very harmful because it may lead to cataracts. Early identification and treatment (mainly surgical) can reverse lost vision, so regular eye check is necessary.

(ix) Stargardt: Gagate, Gilbert and Zin (2011) established that Stargardt is a hereditary eye disease that damages the macula, causing a decrease in one's ability to focus directly on objects and bright light. It is more common in children than in adults and does not affect an individual's side vision. An individual with Stargardt disease may not see objects clearly, and skip letters, words and sentences while reading or writing. An individual with Stargardt disease may experience difficulties recognising colours but can move around unaided. Stargardt disease is caused by a faulty gene that leads to waste accumulation that damages the macula and cannot be remedied.

(x) Amblyopia: Bretas and Soriano (2016) affirmed that Amblyopia is an eye condition in which there is a manifestation of a decrease in visual perception in one or both eyes. This is an early childhood eye disease caused by a malformation in the eyes resulting in decreased visual perception that children with amblyopia experience. Amblyopia (lazy eye) can progress to severe vision loss if not treated early enough. Early detection and treatment are required to bridge the gap between the eyes and the brain to restore vision in the affected eye. The educational implication of VI is that students with VI need modification of instructional materials and adaptation in the classroom and school premises for their academic success.

2.1.1.2 Prevalence of visual impairment

Information on the prevalence of VI in Nigeria is scarce as no national data on the incidence of VI. However, there is little available information on the prevalence of VI worldwide. Prevalence of VI alludes to how often, the number of times or widespread VI among people in an area, community, country or worldwide. Information on the

prevalence of VI among the citizenry is essential for planning and implementing medical and educational interventions. The World Health Organisation (2018) remarked that an estimated 37 million persons had VI in 2002. In a research carried out eight years later, the researchers gave a global estimate of about 39 million persons with VI (Pascolini and Mariotti, 2012). This report shows that there were 39 million persons with VI, presenting a 5.1% increase in 2002 estimate of persons with VI. World Blind Union (2015) reported an estimate of 36 million persons with VI representing a 7.7% decrease from the 2012 estimate of the total number of persons with VI.

American Foundation for the Blind (2016) reiterated that about 63,657 students and approximately 1.3 million adults in the United States are with legal blindness. Royal Nation Institute of the Blind (2019) noted that approximately 25,000 children live with VI, while 170,000 adults live with VI in the United Kingdom. Murthy, John, Gupta, Vashist and Rao (2008) confirmed that there are an estimated 1.5 million children with VI worldwide, and 1.3 million reside in Asian and African countries, out of which about 200,000 children with VI live in India, constituting 1/5 of the total number of children with VI worldwide. Approximately 1,130,000 adults with blindness and 75,000 children with VI reside in Nigeria (Sight Savers International, 2007: Adio and Komolafe, 2015). The prevalence of VI at the global and national levels is based on estimates and approximations, not actual figures/data. This suggests that nobody knows the accurate number of individuals with VI worldwide since prevalence is not based on a census of individuals with VI in each country.

The number of persons with VI in each country also depends on what that country accepted as a criterion for classifying individuals as being blind because there is no widely accepted definition of VI and individuals with VI. World Health Organization (2005) estimated that there will be 40 million people with VI worldwide by the year 2000 and that 90% of these people with VI live in developing countries, out of which 70% is either preventable or curable. World Health Organization (2005) added that it was estimated that 52 million individuals would be blind by 2002. The prevalence of VI worldwide was less than the initial estimate (52 million) of the total number of individuals who would be blind by 2002. This drop in the prevalence of VI may be due to the availability, awareness and accessibility of better healthcare services and sanitation. The

availability of more VI-based data worldwide may also be responsible for the decrease. Regrettably enough, about 75,000 children live in Nigeria, and not less than 75% of these children live with preventable or treatable visual impairment.

2.1.2 Identification and characteristics of students with Visual Impairment

Some degrees of vision loss can be identified easily through observation, while some can only be identified through a thorough eye examination by an ophthalmologist/optometrist, depending on the cause of vision loss. There are some suggestive signs and symptoms associated with VI through which students with VI can be identified at home, in the classroom and public places. Some students with VI have permanently closed eyes, while some have swollen, watery eyes. Rocking, awkward hand movement and clumsy movement are associated with some students with VI. Nwamuo, Ugwuegbulam, and Okoro (2012) pointed out that other signs and symptoms indicative of VI include: frequent rubbing of the eyes, slanting of the head, being highly sensitive to bright light, excessive blinking of the eyes, excessive discharge in the eyes, persistent complaint of pain in the eyes, persistent complaint of headache and blurred vision. When a parent or a class teacher observes any of these signs in a student, the child should be referred to a hospital for treatment and, if need be, to the unique centre for rehabilitation, including psycho-socio, emotional, education or vocational rehabilitation.

Experts carry out this rehabilitation in counseling, special education, talented technicians and artisans. Students with VI have typical psychological, cognitive, behavioural and social characteristics their sighted peers possess in addition to the ones emanating from VI (adapted skills). Visual impairment is associated with many cognitive problems; as a result, students with VI experience difficulties performing tasks that involve cognitive abilities. Lakshmi and Anuradha (2014) asserted that VI is among the life events that negatively impact the cognitive and psychological development of students with VI. Students with VI experience psychological challenges, such as mourning, fear, shame, withdrawal and passivity. A student with VI who has not undergone proper rehabilitation would find it difficult to concentrate in the classroom, affecting the student's ability to comprehend the lesson that the teacher is teaching. Learning for students with

VI is entirely a thing of the mind; if students do not have a good mindset, learning becomes difficult.

Accepting the impact of these problems and coping with academic activities is a cumbersome task for students with VI. This category of students' experiences difficulties understanding complex abstract concepts such as colour, spatial distance and spatial relationship. Due to limited life experiences among students with VI, it is almost impossible for them to see the link, relationship or connection between facts, figures and experiences. Creating images of objects and relating the information to subsequent learning situations is also difficult for them since visualizing the object and forming actual pictures of the object is impossible for them. The amount of information a student can access determines to a large extent the student's ability to understand the environment and how best to manipulate it. Ozoji, Unachukwu and Kolo (2016) emphasized that students with VI experience difficulties in understanding basic concepts because of challenges connected to vision loss.

Students with VI have the double duty of trying to understand objects by touching them and responding to the information by a pattern of thoughts quite different from sighted students. This scenario explains these students' difficulties in classifying objects, object shapes, object creation, object permanence, comprehension of the environment, and cause and effect relationship. Ekeh and Oladayo (2013) stated that students with VI could not utilize incidental learning processes, and as such, this category of students should be willing to learn through the available intervention strategies. Without visual stimulation, students with VI form unique truths and thinking patterns that differ from their peers. Students with VI need intervention strategies where and when necessary to address differential realities and peculiar patterns of thoughts among students with VI and sighted students since both are exposed to the same academic activities.

Vision loss adversely affects the overall personality development of students with total VI, and as a result, their development or acquisition of social skills that facilitates learning is delayed or impeded. Students with VI lag their peers in initiating and ending conversations due to their inability to utilize visual clues and body language. Ozoji, Unachukwu, and Kolo (2016) claimed that the social development of students with VI is slower than that of their sighted peers who have the opportunity to acquire social skills

during socialization. This category of students finds it difficult to interact with people, especially in a new environment where the people and the environment are unknown to them. This attitude may be attributed to fear because most of them are introverts. Fear and introversion are psychological constructs that hinder the learning process and academic achievement. Helping students with VI to acquire interactive skills through intervention strategies enables them to compete favourably with their sighted peers in academics and social endeavours.

Agesa (2014) observed that VI interferes with the student's ability to socialize and interpret environmental events, influencing the learning process. It is not easy for students with VI to establish and maintain relationships as it is for their sighted peers. Communication is crucial in maintaining friendship, and since students with VI lag in social interaction, these students choose to remain aloof. Undoubtedly, this attitude reduces the number of their learning experiences, adversely affecting their overall academic achievement. Inability to navigate in the environment, create visual images of the environment, interpret happenings in the environment and benefit in the acquisition of various skills through watching and imitating others are all effects of VI that negatively impact students' academic achievement with total blindness. Training for mobility\orientation, other adaptive skills and the utilization of the remaining senses will not only improve the academic achievement of students with VI but will also have a positive impact on their life ambition.

2.1.3 Concept of achievement in English language comprehension

English language comprehension alludes to the student's success in constructing and reconstructing meaning (understanding) from the author's original thoughts. Every reader aims to understand the text and derive meaning from the author's message, and the ability of a student to effectively apprehend and decode words determines the student's level of understanding of the text. Salehi, Ghazizadeh and Tabesh (2017) opined that English language comprehension is a process of deducing meaning from written or spoken messages through active interactions between the students and the text. English language comprehension strategies each student utilized during the process depended on the reading or listening ability of the student. In other words, a student can only

comprehend if that student is a proficient reader and listener and can combine helpful strategies in extracting and formulating meaning from the text.

Hansen (2016) established that English language comprehension represents one's ability to understand and interpret the information an author is conveying in a text. If a student can read fluently or listen attentively to a speech, identify main ideas and salient points in the text, and connect these ideas and points to form unified information representing the author's original thoughts, English language comprehension is said to have taken place. The student must be able to either write this information down or verbalize it, though not precisely how it was formally presented in the text. It must be almost the same or very close to the initial information in the text.

The primary issue is that there are stages and steps involved in English language comprehension; if any of these stages and steps are not met, English language comprehension will definitely not occur. Hansen (2016) affirmed that when a student reads but does not understand, reading should not continue. Koeswiryono, Asrori and Setyaningsih (2014) opined that English language comprehension reflects a reader's ability to get to an author's thoughts successfully. This implies that reading and listening precede English language comprehension and then proceed until the reader frames a mental picture of the information in the text, which is now presented in the reader's own words. Okoye and Tanimola (2014) mentioned that English language comprehension is a mental activity involving interactions between the reader and the text in which the reader can read, understand the text and provide answers to the English language comprehension questions.

Fluent reading and understanding of the text, which leads to the provision of answers that can attract pass marks to questions, is just part of English language comprehension that can only be completed when the reader can decode the author's language, paraphrase the ideas in the text and reproduce it in his\her own words. If this later part is missing, actual English language comprehension did not occur. A student’s background knowledge plays a significant role in that student’s ability to understand a text and reconstruct meaning from the author’s original information (English language comprehension). An author's message can be better understood and represented by students with a wide variety of vocabulary than by students who have to look up most of

the words in a text. For actual English language comprehension of a text to take place, a student must be a versatile reader through which enough vocabulary would be acquired, be able to utilize background knowledge and experiences, bring in a motivational attitude and combination of valuable achievement in English language comprehension strategies for decoding and reconstructing the information contained in the text.

Olatunji (2011) asserted that English language comprehension is a process that involves fluent reading, interpretation, recognition of words and synthesizing in which the student employs previous knowledge in decoding the text, connecting ideas in the text to form a representation of the original message in the passage. Fluent reading allows students to acquaint themselves with an author's syntax, language structure, and text features, making it easier for them to identify, integrate and paraphrase (English language comprehension) the message an author is conveying. Interpretation, word recognition and integration of ideas are vital competencies that facilitate understanding a given text.

The strategies English language teachers employ in teaching students' comprehension in inclusive classrooms include group discussion: students are grouped in small numbers and reinstructed to read a comprehension passage. After that, the students discuss the passage and answer post-comprehension questions. Teacher monitor strategy: the teacher reads a comprehension passage aloud, and all the students in the class are expected to read along with the teacher. Student position strategy: a student may be asked to read a comprehension passage aloud, and all the students in the classroom are expected to read along with the student. Students may also be asked to silently read a comprehension passage in their English language textbooks while their English language teacher monitors them. Peer learning strategy: students are paired and are instructed to read the comprehension passage and answer the post-comprehension questions individually.

The two students exchange their exercise books for marking and scoring, after which they discuss the passage together. In this strategy, the more informed peer will enlighten the less informed peer. All these strategies require post-comprehension questions and answers. The teacher explains complex and unfamiliar words and phrases to the students. Explanations are sometimes written on the board, the teacher corrects incorrect answers, and students are expected to record these in their notebooks. The

teacher monitors the students in the classroom while the comprehension exercises are going on. The conventional teaching method encompasses all these strategies that do not give all categories of students in an inclusive classroom equal opportunity to understand and achieve the much-desired comprehension goal. Comprehension of a text requires the student to concentrate fully on the text, digest the text, retain, recall and reproduce the information contained in the text, modifying and adapting where and when necessary.

Active memory, constant practice and strong vocabulary knowledge are fundamental prerequisites for the development of achievement in English language comprehension (Hansen, 2016; Eyisi, Adepoju, Adam, Adekunle, Ademola-Adeoye, Eto, 2014). Students who read constantly acquire enough vocabulary and achieve fluency and are more likely to comprehend better than students who are seldom readers. This is because the more a student can recognise words, interpret sentences, pictures, identify and connect ideas in the text, the more capable the student will be of achieving English language comprehension. Achievement in English language comprehension is almost impossible for students who have not built a strong vocabulary and have not achieved proficiency and a good reading pace. The ability to adequately combine useful learning strategies and reading fluency are also important components that enable students to effectively apply background knowledge and working memory in locating salient points and ideas and in total deduction of meaning from a reading text.

Hans and Hans (2015) postulated that encouraging students to read often, teaching students how to discover the main ideas in a reading text, connectivity, information retention, recall, and widening their vocabulary horizon of students are better ways of helping students to achieve high English language comprehension instead of testing comprehension.

2.1.4 Achievement in English language comprehension among students with VI.

Reading is an active interaction between a student and the text whereby the student utilizes experiences, attitude and previous knowledge to achieve English language comprehension. The pace and quality of English language comprehension each student or each category of students achieve depend mainly on the type or method of information acquisition such students engage in. Over the years, English language comprehension has

been of great concern to students with VI as this category of students has struggled with achieving English language comprehension and with a lack of text in an accessible format. Koeswiryono, Asrori and Setyaningsih (2014) viewed English language comprehension as a set of methods for accessing and applying information acquired via the visual channel.

This definition portrays an understanding of a reading text as consequent only upon the visual perception of information. It also implies that creating a mental image of written words and constructing meaning in the brain depends on the functional accuracy of the eyes of the reader. Students with total blindness have lost the ability to access information from printed material or comprehend the information contained in the printed text. For this reason, students with VI have unique strategies for accessing and exhibiting information, quite different from the strategies employed by their sighted counterparts.

Sighted students interact and decode a text (comprehend) via visual perception, while students with VI access and decode information (comprehend) by reading Braille. This difference in knowledge acquisition between students with VI and sighted students creates a wide gap in achievement in English language comprehension of these two categories of students. Normal functioning of the visual system affords sighted students better opportunities of building more substantial vocabulary, and achieving fluency, background knowledge and experiences, which necessitate more meaningful negotiation between the students and the text with the ultimate desire of achieving English language comprehension by the students. Khoirunisa, Gunardhadi, Choiri and Sunardi (2017) affirmed that sighted students are potentially more capable of high achievement in English language comprehension than students with total blindness, especially when students with total blindness do not have learning materials in an accessible format.

A variety of methods and strategies are necessary for teaching and evaluating students with VI for enhanced achievement in English language comprehension among them. One of these strategies is to ensure that such students have the recommended English language textbooks in accessible formats. This ensures that all students benefit from the instruction and have equal chances of understanding the content. Teachers should combine methods and strategies capable of promoting good achievement in English language comprehension, considering the opportunities each category of student

has to learn and the particular instructional plan for them. This ensures compelling reading and enhanced achievement in English language comprehension among all categories of students, particularly students with VI. Teaching students with VI comprehension and how to utilize helpful strategies in identifying the main ideas in a text and understanding the text should be the target of all reading comprehension instructions for students with VI. However, English language teachers' methods and strategies in teaching students in public secondary schools in Imo State do not encourage active participation and improved achievement in English language comprehension by all students in the classroom.

The process of reading, recognising words, identifying main ideas in a text and connecting main ideas in a text (decoding written language), paraphrasing and presenting information in one's own words (English language comprehension) through Braille reading/audio mediated instruction is more tasking and more demanding than a a mere visual interpretation of written information. Despite this, students with VI are expected to compete favourably with sighted students or even perform better than sighted students in English language comprehension examinations and justify the marks awarded them in English language comprehension assessments to avoid controversial statements from those who believe that students with impairment particularly students with VI cannot be educated.

It is difficult for students with VI to meet this expectation owing to the enormous challenges of VI, which include but are not limited to the inability to read print, lack of recommended English language comprehension textbooks in an accessible format, weak vocabulary building and difficulty in understanding abstract concepts. Khoirunisa, Gunardhadi, Choiri and Sunardi (2017) asserted that the distinct knowledge acquisition strategies and information processing patterns of students with VI and sighted students account for the wide margin in the achievement in English language comprehension of these two groups of students.

Students with VI have the same working memory, and cognitive and metacognitive processes as sighted students and might even achieve better in English language comprehension than sighted students with suitable early intervention. Teaching students with VI Braille, provision of English language textbooks in an accessible format,

teachers' positive attitude towards students with VI and providing moral support are some of the intervention approaches that enhance achievement in English language comprehension among students with VI and enable this category of students to enjoy the immense benefit of high achievement in English language comprehension.

2.1.4.1 Importance of achievement in English language comprehension among students with VI

Three primary sensory modalities work differently when understanding a test from different perspectives. Visual perception by sighted students is faster, easier and more accurate than real perception, in which the student is concerned with decoding information and interpreting and integrating Braille letters. However, students with VI can be assisted in overcoming the difficulties associated with loss of vision which enhances achievement in English language comprehension, making schooling less problematic. If students with VI can read and comprehend, going through academic activities will be less rigorous, reducing dropout among students with VI. Olatunji (2011) affirmed that the importance of enhanced English language comprehension in students' ability to go through school with less stress is emphasized by the higher marks awarded to it by various foreign and local examination boards like the West African Examinations Council (WAEC) and Joint Admissions and Matriculation Board (JAMB) than other aspects of the language test.

Robust achievement in English language comprehension improves achievement in English language among students with VI. Efstathiou and Polichronpoulou (2015) observed that English language is one of the essential school subjects for all students in Nigeria. Any student who fails English language comprehension in the promotion examination will likely repeat the class. High achievement in English language comprehension will prevent repeating classes among students, particularly students with VI. Comprehension of English language reading text goes a long way in helping students with VI master other school subjects and even perform better in such subjects. No student can pass any examination without understanding both the questions and the instructions contained therein. Most students fail examinations not because such students do not know

the answers to the examination questions but because the students do not comprehend the instructions and figure out what is expected.

Woitaszewski and Aalsma (2004) noted that all students (with VI inclusive) with high achievement in English language comprehension outperform those lacking this necessity in examinations. This explains why more periods are allocated to English language comprehension in the school timetable than other subjects. English language comprehension promotes good communication between students with VI and their peers. Students with VI who can read or listen and understand can relate well with others. Enhanced achievement in English language comprehension ensures better interaction and encourages friendship among students with VI. It encourages a cordial relationship between students with VI and teachers and facilitates the full integration of students with VI into society. Teachers tend to pay more attention to students with good English language comprehension ability at the expense of students who may not be interested or willing to learn. Above all, good English language comprehension ability increases the chances of job opportunities and meaningful contributions to the economic growth of society among students with VI. Woitaszewski and Aalsma (2004) affirmed that no amount of time and energy invested in providing reading and listening English language comprehension abilities to students with VI is considered wasteful as this motivates students to learn, improves overall academic achievement and creates a good platform for a good life.

2.1.5 Concept of Braille reading

Braille is essential in liberating students with VI from illiteracy and launching them into the world of educated members of society. American Foundation for the Blind (2016) confirmed that Braille was invented in 1824 by a fifteen-year-old Frenchman called Louis Braille. Louis Braille developed the Braille code at the Royal institute for the blind in Paris by adapting the night writing system formerly developed for use by soldiers. The Royal Institute students for the blind then found Braille more convenient than the former embossed letters that could only be produced by machine. American Foundation for the Blind (2016) remarked that Braille is one of the fundamental requirements for the education of students with VI. Braille is a medium by which students with VI access

information by touching raised dots on paper. It is formed by organizing six dots in a rectangular form named Braille cell to obtain letters, words, phrases, numbers and sentences. However, there are various noteworthy cutting cases in which the six specks of the conventional Braille cell have demonstrated insufficient for a specific function.

Ambitious innovators, instructors, and Braille readers have tried to increase the conceivable outcomes of the Braille cell by extending the number of specks from six to eight. These extensions have brought about a cell that is two specks broad and four specks elevated. Rather than 63 conceivable dot combinations in a six-dot cell, an eight-dot cell produces 255 conceivable dot combinations. Kacorri and Kouroupetroglou (2013), citing Braille Authority of North America (2007), clarified that a combination of dots 1, 2, and 3 on the left-hand side and dots 4, 5, 6 on the right-hand side form six dots of Braille cell while, a combination of dot 1, 2, 3, 7 and dot 4, 5, 6, 8 forms the eight dot Braille. Eight-dot Braille frameworks have been greatly valuable, especially within specialized ranges such as arithmetic and the sciences. Work is still in progress to closely monitor all advancements within the range of code expansions, including extra dots, and will survey their utility through its specialized committees. Despite the progress within the space of eight-dot Braille codes for several languages, there is a need for a precise way to plan these material frameworks.

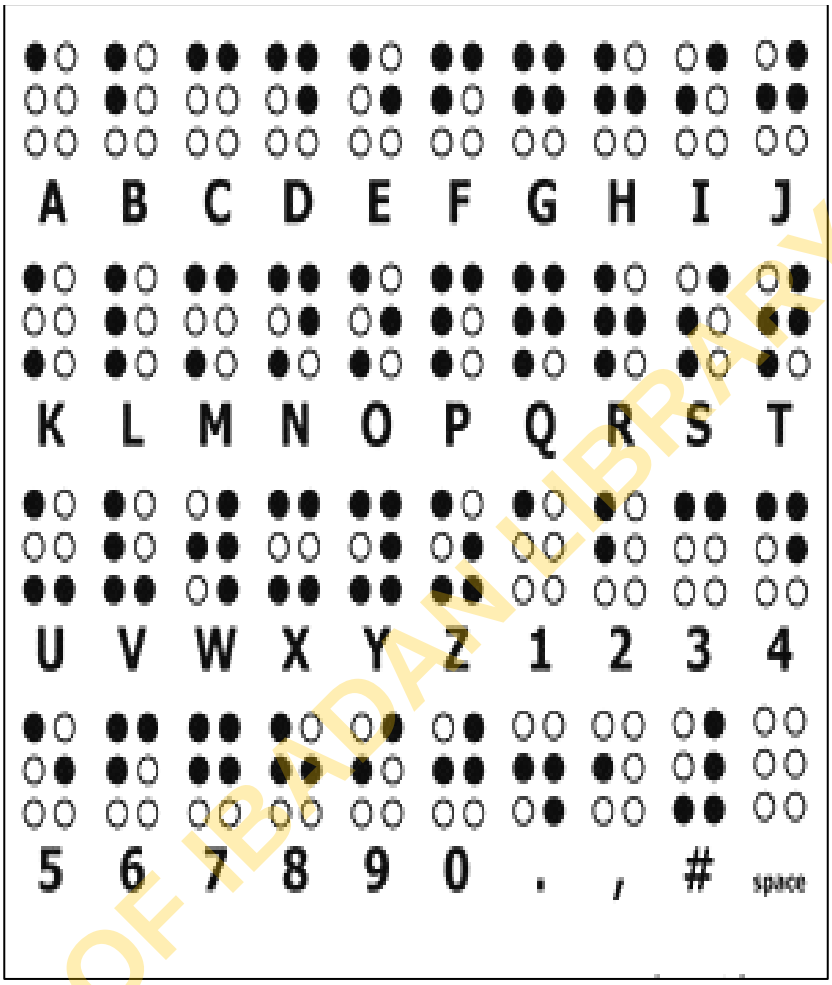

Figure 2.1: Braille Alphabet 6 Dot System from Kaludov (2019).

Figure 2.2: Braille Alphabet 8 Dot System from Kaludov (2019).

Onyemerekeya (2011) stated that Braille is a reading and writing system derived from an arrangement of dots one to six or eight raised on paper, and each dot is assigned a number following its position in the Braille cell. Adebiyi and Abilu (2009) observed that Braille is a tactile system caused by raised dots in different cell positions that blind individuals read by touching the raised dots. Braille is a code for transcribing written text in English and Chinese for individuals with VI to read. Gold (2002) added that Braille could be written with slate and stylus, likened to writing with pen and paper. Perkins Brailler functions like a typewriter and a medium of communication for individuals with VI and Braille embosser that prints were written documents in Braille. Among students with VI, the ability to read and write Braille is crucial to their academic success because the ability to read and write Braille determines, to a great extent, their academic success. It is easy for sighted students to access information from a written text by using their eyes to read, which is impossible for students with total blindness.

This category of students faces many challenges in their quest to achieve literacy, conquer academic underachievement and live fulfilling lives. These challenges include difficulties in cognition, note coping, word construction, information verification, phonetics, connecting ideas, morphemics, orthography, and text discourse structure, among others. Strickling (2014) emphasized that the attendant learning problems of VI override the strength and desire of students with VI to learn, and learning can be realistic only if this category of students has achieved proficiency in Braille and digital audio player. Students with VI cannot overcome all the problems associated with VI, but Braille offers such students the opportunity for independent reading and writing.

Literacy is the bedrock of education and essential for students' academic success. Damon (2012) asserted that Braille is the only known medium by which people with VI can achieve literacy, and the importance of Braille in the academic success of students with VI cannot be overestimated. Students can listen to the recorded English language comprehension questions, type answers to the English language comprehension questions or submit answers in audio format to enable genuine literacy to take place. Braille is the only medium equated with print media and the most suitable for academic progress

among students with VIThe barrier created between students with VI and sighted students can be bridged with Braille, which enables students with VI to access written text information and acquire writing skills and proficiency in reading, just like sighted students.

Mohammed and Omar (2011) remarked that Braille reading is equivalent to print reading, and both media serve the same learning purpose. The aim of Braille reading, and print reading is the same, but there are similarities and differences in the processes and methods of using the two media to access information. One notable similarity between Braille and print reading is that reading is achieved through the left-to-right movement of both the hands and the eyes and both readers attain the same purpose: comprehending the text. Students with VI access information from written texts by tactual and specific recognition of each letter contained in a word before comprehending the word and will follow this sequence throughout the reading process. Print reading does not require letter-by-letter identification typical of Braille reading. Instead, print reading involves the flash meaning of clustered words achieved through visual perception, making print reading faster than Braille reading. Bola, Siuda-Krzywicki, Paplinska, Sumera, Hanczur and Szwed (2016) established that a Braille reader reads at a pace of about 100-150 words in a minute, twice slower than a print reader.

The age at which a student with VI is introduced to Braille can influence braille reading speed for such students. This means, students who learnt Braille early in life read faster than those who were introduced to Braille later in life, but with time and constant practice, most slower readers will surmount this challenge. A solid foundation in Braille reading and writing is crucial for students with VI, particularly in special schools where a qualified Braillist is expected to teach palpable acuity. Students with VI who lack adequate Braille reading ability will find it difficult to cope with the academic rigours in post-secondary school. Considering the essence of reading in the academic success of all students, enough time, effort, and adequate instructions targeted at helping students with VI realize this and providing efficient Braille reading proficiency for this category of students are pretty rewarding. Students with VI who proceed to secondary school without

good Braille reading fluency may be placed in special classes for Braille reading improvement.

This will enhance reading fluency and improve English language comprehension and overall academic achievement. Oliveira and Martins (2011) observed that the negative effect of VI on the academic endeavours of students with VI could be curbed with effective Braille reading instructions to enable them to develop good Braille reading skills and acquire a good education. The difficulty experienced by early Braille reading students may discourage this category of students from enhancing English language comprehension that pre-determines and ensures the achievement of academic goals. Learning to read Braille is more tasking than learning how to read print and so students with VI need more time and effort to become potent Braille readers. Strict laws about learning how to read Braille with grade 1, 1/2 or grade 2, left or right hand, one or both hands is not encouraging, particularly for beginners, as this can affect the desire to learn. It is necessary to allow students with VI to learn Braille reading at their own pace. Proper reading strategies are also required to help students with VI acquire reading fluency and proficiency necessary for English language comprehension, cognitive perception, and easy and successful completion of academic pursuits.

2.1.5.1 The need for Braille reading

Students with VI can access information by listening to a sighted reader, teachers' explanations in the classroom and talking books, but this category of students cannot achieve literacy through any media. These channels also cannot provide opportunities for students with VI to personally access information from textbooks by reading or verifying and confirming information by rereading. As such, they cannot be equated with print reading and writing available for sighted students. American Foundation for the Blind (2016) maintained that literacy for students with VI could only be made possible by practically teaching this category of students Braille reading and writing since no other medium is capable of providing literacy even if information can be accessed through the medium. Incorporating Braille reading for students with VI at the secondary school level to bridge the gap between sighted students and students with VI, particularly in the

conventional classroom situation, is very necessary. Braille reading is needed to place students with total blindness on parallel literacy achievement with sighted students.

Kloc (2011) reiterated that Braille reading stimulates the sensorial and visual areas of the brain that students with VI require to remain focused. Braille reading assists students with VI to concentrate, comprehend and assimilate the information in a given text. Braille reading is essential for students with VI because it encourages full participation in the classroom, improves good memory, empowers the brain, guarantees independent reading, and achieves set goals of English language comprehension. Ozoji, Unachukwu, and Kolo (2016) affirmed that Braille reading fosters creativity and promotes analytical thinking and perception among students with VI. Reading on one's own creates a mental picture of what is being read and permits a better understanding of the subject. The activity of sighted readers or synthetic speech available for students with VI at the secondary school level does not stimulate the brain and enhance imagination, which necessitates excellent achievement in English language comprehension.

The importance of Braille reading in helping students with VI develop self-confidence, competence, and a keen interest in their studies which results in an excellent performance, cannot be overstressed. Students with VI learn English language comprehension, writing, spelling, pronunciation and punctuations through Braille reading, currently known as the only medium tied to the personal lives of persons with VI as sighted readers, talking books, and synthetic speech can disappoint them at any moment. Researchers argue that Braille reading is associated with a slow reading rate, fatigue, and time-consuming, identifying, integrating and interpreting dots and letters while assimilation is occurring (Arlinwibowo and Retnawati, 2015; Freitas and Kouroupetroglou, 2008). This interferes with assimilation and the student's ability to achieve high in English language comprehension and other school subjects. Elige and Nwamtina (2017) remarked that Braille is bulky, expensive, and challenging to produce and should be replaced with audio-based instructional devices. These media play a vital role in the education of students with VI, but they are not capable of promoting independent motivational learning, unlocking employment opportunities, enhancing academic achievement for students with VI and setting them free from illiteracy.

2.1.6 Concept of a digital audio player

Education is the right of every child, and for students with VI who cannot access print, assistive technologies available to this category of students are Braille, audio-based devices and a combination of Braille and audio-based devices. Digital audio-player is the category of audio-based devices capable of recording and playing back sounds. It is a pocket-size device that can record and store information with a flash drive, internal memory and memory card.

Figure 2.3: Digital audio player: Source Schofield (2018)

Jackson (2012) asserted that digital audio-player boosts access to and use of information as students with VI progress to higher grades. Brailed books are not available in integrated secondary schools in Nigeria, and the only available and acceptable means of accessing and using text by students with VI is an audio player. The most prominent audio players are digital and tape recorders/cassette players. A cassette player is handy for recording and playing lessons, but students with VI prefer a digital audio player because it is a more portable device with a chargeable battery. Eniola (2000) confirmed that assistive technology devices minimize the learning challenges experienced by students with VI and that teachers ought to employ these devices for effective teaching and learning outcomes.

It would have been utterly impossible for persons with VI to be educated without the invention of assistive technology devices such as Braille, digital audio players, computers with job access with speech, talking books, talking dictionaries and Kurzweil machines. This single innovation has permitted the optimal utilization of their potential for the best possible achievement in English language comprehension in particular and academic achievement in general. Elige and Nwamtina (2017) stated that modification and accommodation in the classroom to meet the learning needs of students with VI and fully include them in technology-based learning is attainable with a digital audio player. This is because digital audio-player can be used in teaching students with VI by playing recorded lessons for them to listen to. When teachers play audio instructions in the classroom, students with VI are placed on an equal level with their fellow sighted students, who can also listen to or read their textbooks.

Students with VI can learn by listening to the recordings, thereby gaining access to the curriculum, which ordinarily would not be possible since they cannot read print. Teachers can record assignments and corrections on English language comprehension exercises for students with VI so they can do their assignments at their own pace. This also encourages them to study after school hours and gives them a sense of belonging in the classroom. A digital audio player provides teachers with an alternative to ensuring that all students with VI have inclusive knowledge acquisition and application benefits. Using the chalkboard and printed textbooks alone for teaching excludes students with VI from gaining, storing and making use of information acquired in the classroom.

Borg, Lindstrom and Larsson (2011) affirmed that digital audio player is constructive in inculcating knowledge in students with VI; however, carefully selecting what to record and how to record it is critical. Recording for students with vision loss requires expertise, commitment and willingness for meaningful and befitting recordings. Teachers and volunteers recording for students with VI, mainly English language comprehension passages, must pronounce the words appropriately, observe punctuations, and indicate paragraphs and pages while reading. Reading should be at a moderate speed to enable the students to understand the text, titles and subtitles should be mentioned, words and lines should not be skipped, and the reader must be audible. A teacher recording for students with VI needs to be guided by the student's learning needs, background knowledge, curriculum requirement and the school environment.

Classroom arrangements to accommodate audio-based instruction might be to assemble students with VI at the back or to play the audio instruction for all the students in the class to listen, bearing in mind that audio instruction develops students' listening ability. Agesa (2014) asserted that recording students with VI who have developed good listening abilities requires providing examples, a summary of main ideas, explanations emphasizing salient points and thoughtful questions for evaluation. The purpose of the recording should guide volunteers recording for students with VI to ensure that the audio instruction achieves its aim. Recording English language comprehension passages to provide the English language textbooks in an accessible format for students with VI should adhere to just reading the passages verbatim. Teaching on tape to make the subject clearer for students with VI involves observing all the rules guiding good teaching for students at the secondary school level.

2.1.6.1 Benefits of Digital audio-player

Mulloy, Gevarter, Hopkins, Sutherland and Ramdoss (2014) pointed out that using a digital audio player in teaching students with VI ameliorates the difficulties encountered by students with VI and supports their academic progress. Digital audio player is of inestimable value to students with VI because it guarantees independent study and expansion of their working capacity. Students with VI have limited experiences of what they obtained in their school environment and, in most cases, do not participate in the

classroom. As a result, this category of students lack information acquisition and use. Digital audio players bridge the gap between sighted students who are privileged to acquire information in their school environment and the classroom by reading books and observing people. Recorded information gives students with VI the opportunity to listen to books on record, gather information, participate in the classroom, and use information gathered to solve subsequent problems.

When teachers or volunteers record books and lessons, students with VI can study independently even after school hours. This places them on an equal platform with sighted students with printed textbooks and instructional materials. Learning alongside sighted students occasioned by digital audio-player would dismiss discrimination, labeling, segregation and stigmatization, which students with VI encounter in their various classrooms and school environment and encourages friendship among the students. Listening to audio instructions liberates students with VI from information bankruptcy and launches them into the world of informed and wise citizens. Information on education, health, religion, politics, environment and other phenomena could be recorded on a digital audio player and played back for students with VI, increasing the information available. Information acquired through this medium keeps them informed about everything happening in their environment; with this, they can function in various spheres of life.

Mulloy, Gevarter, Hopkins, Sutherland and Ramdoss (2014) observed that assistive technology devices enhance reading and listening, English language comprehension strategies, problem-solving skills and cognitive development. Rehearsal of recorded English language comprehension passages tends to develop listening English language comprehension strategies among students with VI. Frequent listening to recorded English language comprehension passages enhances assimilation, retention, recall, communication, and pronunciation and improves their ability to make and read a personal note. It helps them be acquainted with sounds and differentiate between sounds they apply for short and long-distance travel. The usefulness of digital audio players to students with VI is not limited to knowledge acquisition but extends to information dissimilation, leisure, recreation and entertainment.

Elige and Nwamtina (2017) submitted that despite the plausible advantages of assistive technology devices, digital audio players inclusive such as education inclusion and social and political inclusion of persons with disability, are not devoid of challenges and limitations. Digital audio player is widely recognized as a handy tool in meeting the learning needs of students with VI. However, students with VI using this device experience long-term power outage that discourages constant battery charging, which interferes with the smooth running of the device. This negatively affects their study, continuous assessment tests, internal/external examination and overall English language comprehension achievement. The durability of digital audio players is not guaranteed to lead to undue expenses on the part of parents. When students with VI constantly demand their parents' replacement of digital audio players, this discourages them from purchasing the device, which negatively affects the education of this category of students. Integrated secondary schools in Nigeria lack the expertise to man assistive technology devices, making effective use of the tools difficult. Constant power supply, availability of volunteers to record, availability of trained technicians in integrated secondary schools and a disability-friendly government would possibly eradicate these challenges.

2.2 Theoretical review

Theories are principles or facts to explain events surrounding a given phenomenon. Different disciplines explain theory from different perspectives, and scholars ascribe different meanings to theory. Lourenco, Machado and Silva (2000) observed that psychologists view theory as a framework of intuition into human behaviour, feelings and cognition. This definition implies that any psychological-based theory explains how people behave and the underlying factors surrounding the behaviour upon which subsequent behaviours can be predicted. Sarid (2017) clarified that education theory, also known as learning theory, refers to a combination of theories which explain the motive for teaching, learning, assimilation, recall and application of information. Learning theory's predisposition is that the outcome of teaching and learning is not based on one theory or factor but is explained concerning a combination of psychological factors and theory-based ideas.

Teaching and learning theories guide teachers in assessing instructional materials, methods, ideas, and equipment. Theories guide special educators in assessing the type and degree of impairment of an individual student or a group of students to plan for proper rehabilitation, education or vocation for the individual or group of students. Hallahan and Kauffman (2006) affirmed that theory-based teaching/learning is essential in realizing educational goals for students with impairment, particularly those with VI. Experts would have understood theories upon which to anchor the selection of intervention teaching methods and instructional materials for educating students with VI. These theories will inform them about factors underlying their learning problems and how to help them overcome these problems. Theories can also provide insight into the importance of proper classroom arrangement, accommodation, adaptation and modification of methods and materials for effective teaching and learning.

2.2.1 Socio-cultural theory

The sociocultural theory was developed by one of the prominent Russian psychologists, Lev Vygotsky (1896-1934). Vygotsky emphasized that learning or cognitive development depends on social interaction, especially with skilful individuals in society. Socio-cultural theory centres not only on how grown-ups and peers impact how people learn but on how social convictions and demeanours affect how instruction and learning take place. Vygotsky believed that individuals possess biological components constituting the fundamental prerequisite for essential cognitive development/learning but that every culture, in any case, offers devices of mental adaptation. These devices permit students to utilize their essential mental capabilities in a way that is versatile to the culture they are learning. In essence, learning is based on the beliefs and values of every culture; whereas formal education may be prevalent in well-developed cultures, informal education may be widely practiced in a rural culture where modern schools have not been built. Vygotsky supported that amid learning assortment, internal formative patterns are aroused, which are highly incapacitated until the student begins interacting with peers and other individuals in the environment.

Meijer and Elshutt (2001) state that the most prominent concepts in socio-cultural theory include: Learning or cognitive development anchors on social interaction among

people and that learning or cognitive advancement can contrast distinctive cultures. The zone of Vygotsky's theory is the distance between the fundamental improvement level determined by autonomous issue resolution and the level of potential advancement as ascertained through resolving issues under capable individuals' direction or in cooperation with more competent peers. Basically, it cooperates with all of the information and aptitudes that students cannot learn or practice on their own but are capable of learning with the assistance of a teacher. Students are likely to continuously amplify the zone of proximal development as they are permitted to extend their abilities and information regularly by observing somebody marginally more progressed than they are.

Kozulin (1990) emphasized that social interaction is a fundamental and imperative tool in learning. In essence, learning is achieved through active involvement in social exercises instead of exclusive individual mental activities. Vygotsky assumed that learning is a process of activating incoherent intrinsic developmental processes amid social interaction with adults in collaboration with peers. Learning is an interpersonal lively social activity that depends on a minimum of two individuals, with one unique way better educated or more experienced than the other. Mamoru (2008) regarded social-cultural settings as the fundamental factor for human cognition/cognitive activities. On this basis, learning is occasioned by transmitting information from one person to another or by sharing information, and as such, someone could learn how to speak English by interacting with a more competent English speaker and learn how to cook by observing a good chef. Block (2003), citing Kozulin (1990), noted that human learning is continuously intervened through others in that information is social, developed through collective exertion to memorize, comprehend and illuminate issues.

Vygotsky emphasizes that two distinctive levels of advancement must be recognised in a student for instruction to be compelling. The primary level is recognised as the fundamental improvement level shown by the issues that the student can fathom freely. In comparison, the secondary level is the potential level the student can reach in fathoming issues with help. Vygotsky called the zone of proximal development the discrepancy between these two levels. The zone of proximal development portrays the numerous ways other individuals can help an individual’s advancement within the social setting (Thorne, 2006; Cheon, 2008; Mamoru, 2008). It indeed clarifies how one can alter

the intermittent or irregular functioning of a student through either guidance or the use of instruction. Vygotsky suggested that learning should not be only classroom activity based but that social-cultural strategy to teaching should be extended to collaborative social interaction.

Students can only benefit from the concept and discoveries of Vygotsky if teachers can reorganize and restructure their educational approaches to integrate social interaction in cases of classroom instruction to improve cognitive advancement. The sociocultural theory implies that teachers of students with VI could expand the zone of proximal development among students with VI by discovering the strengths and weaknesses of a student through individual assessment and planning of intervention strategies to improve the student's limited ability. Another essential concept in socio-cultural theory that can enhance knowledge and skill acquisition among students with VI is scaffolding. Teeming (2005) affirmed that scaffolding describes how well-informed or better-skilled adults and peers can assist less competent individuals through guidance, role-playing, dialogue, turns-taking and using hints and prompts. This framework does not present cognition (enhancement of achievement in English language comprehension) as a transfer of knowledge from a teacher to a student but as joint development of help. Teachers can utilize clues and suggestions to enhance students' knowledge and abilities. They can also group students with varying intellectual abilities together, where more competent students are encouraged to improve the abilities of students with less ability or those considered weak.

Summarily, the function of the interpersonal and interactive setting places tremendous importance on a socio-cultural attitude to teaching. More significantly, the concepts of zone of proximal development and scaffolding areas give peer support a significant position by improving the quality of communication and aid. Subsequently, it is essential in learning instruction and building an interactive learning atmosphere in which students can collaborate and build their achievement through peer support. Vygotsky and other researchers advocated using various teaching/learning strategies, tools, methods and peer-assisted learning approaches to inculcate knowledge to the students with and without impairment (Kozulin (1990); Teemant, 2005; Mamoru, 2008). This study utilized Braille reading and a digital audio player upon this advocacy to ensure

that necessary provisions are made for students with VI to have an interactive learning environment and achieve greatly without restrictions created as a result of their impairments. This theory is also essential to Braille reading and digital audio supported reading techniques because both methods give students with VI the opportunity to learn while teachers are privileged to use diverse strategies to achieve the purpose of teaching and learning.

2.2.2 Theory of Multiple Intelligence

Intelligence is interpreted differently by different scholars and different disciplines. Uzma and Tajamma (2013) observed that intelligence describes one's ability to acquire knowledge, think and apply the knowledge in solving problems. British psychologist Charles Spearman first introduced the concept of general intelligence in 1904 to measure people's performance on cognitive ability. After using factor analysis to measure a range of cognitive abilities, Charles Spearman concluded that a general mental ability determines total performance on mental tests. Spearman's general intelligence are; (verbal comprehension, reasoning, perceptual speed, numerical ability, word fluency, associative memory and spatial vision) as primary mental abilities.

The theory of multiple intelligences was propounded in 1983 by Howard Gardner in a book titled "Frames of mind" where Gardner posited that individuals possess multi-dimensional intelligences. Based on valued capabilities and abilities Gardner (2006) posited eight different intelligences and these include:

(i): Verbal-linguistic intelligence: This intelligence involves efficient use of words either in written or spoken English language comprehension. Individuals who have good verbal linguistic abilities are good orators, poets and do very well in languages.

(ii). Visual-Spatial Intelligence: This involves the ability to cognise one's spatial environment efficiently and act upon them meaningfully. It enables people to transform perceived visual information creating visual images from memory and persons with VI skillfully employ this intelligence to create mental maps of the environment. Engineers, artists, inventors, pilots and architects exhibit the height of this intelligence.

(iii). Logical-mathematical intelligence: This type of intelligence deals with numbers, equations, statistics, calculations and logical reasoning. People with vast logical-

mathematical intelligence do well in pattern recognition, critical thinking and analyzing abstracts. This category of people engages in scientific researches, calculations, possess good problem solving abilities and good reasoning abilities.

(iv). Musical-rhythmic intelligence: This refers to ability to demonstrate good skill in sound composition and in handling musical instruments. Examples of career choices of this category of people are acoustic engineering and music.

(v). Bodily-kinesthetic intelligence: This intelligence depicts high ability in body expression, finger dexterity, flexibility and dancing. People with bodily-kinesthetic intelligence are good at acting, sports, sculpturing and are highly creative.

(vi). Interpersonal intelligence: This is the ability to be sensitive and relate effectively with people in one's environment. Individuals with interpersonal intelligence do recognise, understand and interpret peoples' intentions, feelings/emotions differentiating between these emotions which lead to cordial relationships among people. People with good interpersonal intelligence might become counselors, teachers, nurses and salesmen.

(vii). Intrapersonal intelligence: This is all about personal examination of one's feelings, motive, thought and emotions to form a mental picture of self. This mental picture serves as a guide for personal decisions about life and people with this kind of intelligence are good autobiographers, theorists, scientists and philosophers.

(viii). Naturalistic Intelligence: This is the ability to identify natural features and how these features are related. These individuals explore their environments and can become veterinarians, botanists, farmers and hunters.

Multiple intelligence theory proposes that teachers should utilize a variety of teaching methods, strategies, techniques and approaches for teaching/learning in the classroom. Application of varieties of methods and strategies in teaching will benefit students with different learning needs unlike when a single strategy or method is used. A single approach or technique will benefit only students that are very brilliant and do not have peculiar learning challenges to tackle. Students with peculiar learning challenges particularly students with VI operate at different levels of abilities, capabilities and strength which determine how these students perceive and process information. Multiple intelligence theory encourages individualized teaching/learning, the use of intervention strategies, tools and equipment such as Braille reading, digital audio-player and optacon

machine in teaching and this is highly profitable in teaching students with VI. It also posited that the school environment such as classrooms, libraries and laboratories should be structured in such a way that the teaching/learning environment becomes favorable to all categories of students.

Armstrong (2014) remarked that adopting an instructive framework with flexible educational modules that primarily address the learning needs of every student has remarkable influence on the development of mental capabilities of even those students considered weak in the classroom. Educational system that adopts a curriculum which develops different mental abilities of students rather than recognising just one dimensional appraisal for all students is the hallmark of multiple intelligence theory. This has implications for students with VI who may be underachieving due to restrictions in specific intelligence range and could overcome the deterrents by turning to their extremely developed abilities. In essence special educators ought to offer assistance to these students to distinguish between intelligences, discover their intellectual potentials and utilize them in overcoming learning challenges. Teachers should also utilize various intervention strategies to meet the learning challenges among students with VI and improve their academic achievement. Using varieties of compensatory media and intervention strategies in helping students with VI overcome learning difficulties has implications for this study as Braille reading and digital audio-player would be utilized for the study.

2.2.3 Schema theory of reading

Schema theory is concerned with the way readers apply background knowledge in understanding the context. Barlett introduced schema in psychology in 1932 describing it as a simulative representation of prior experiences /occurrences. An (2013) stated that schema was introduced in reading by Rumelhalt in 1980, Hudson in 1982 and Carrell in 1991 in their writings about the usefulness of prior knowledge in comprehending a text. According to Rumelhart (1980), schema is the readers' application of knowledge stored in memory in understanding the text. The basic point in schema theory is that text does not have fixed meaning; instead, text provides insight for each individual reader on how to understand it based on information stored in memory. Schema theory posits that readers

store acquired knowledge in a structure (memory) which enables them recall and apply the knowledge in solving subsequent problems. Schema theory is an interactive carefully planned tool responsible for enhancing recall and application of information in problem solving. New information acquired is integrated into the pre-knowledge structured framework or written down. Rumelhart (1980) established that background knowledge structures of a reader are known as schemata. Background knowledge of readers is arranged in an order of general at the top down and specific at the bottom.

Schemata denotes knowledge about ideologies and the connectedness or association between these ideologies, conditions, activities and events. Schema theory presents understanding of text as the interactive cognitive activity which involves a readers' prior knowledge and the text. Understanding of a text demands that a reader connects the content to the background knowledge, that is, the student forms a unified picture between the present (text) and the past (prior knowledge). Reading comprehension is a dual process, from bottom up to the top and from the top down to the bottom of the hierarchy. Bottom up (specific) and top down (general) operate pari-passu and reciprocal which adds to the ideology of comprehension. Mcvee, Dunsmore and Gavelek (2005) reiterated that schema theory has contributed immensely in helping readers understand English language comprehension passages. Linguistics still believe in the inestimable value of schema theory in aiding students understanding of English language comprehension despite their belief that students learn through socio-cultural interaction rather than on the student's ability to relate the information in the text with and connect it to prior knowledge as posited by schema theory. Carrel (1991) stated that schema can basically be classified into three basic types: content schema, linguistic schema and formal schema.

Content schema involves prior knowledge of the subject, cultural based knowledge and subject awareness. Content schema is concerned with the students' understanding of a given topic based on prior cultural knowledge of the students. Interpretation of a given text is always found and expressed within a pattern of thought in a culture and students are always learning in one community or the other upon which interpretation of English language comprehension passages is centered. Content schema is very useful in ameliorating the learning challenges students with VI encounter in English language

comprehension since this type of schema recognises the right of every student to live and study in a cultural context.

Linguistic schema is based on knowledge of grammar, phonetics, vocabulary, syntax and how they are arranged and utilized in reading and writing. Linguistic schema is fundamental for students to be able to interpret or decode English language comprehension passages which facilitate efficient comprehension of the text. An (2013) opined that good readers should be able to interpret the language structure as effective decoding of the language structure like syntax determines efficient understanding of the text. Good linguistic ability and knowledge play a pivotal role for second language learners and students facing learning difficulties in understanding English language comprehension passages because solid background of language structure is essential for deriving meaning from a text.

Formal schema denotes background information about formal, mode of language and arranged structures obtained in various categories of texts. It is a textural arrangement, shrouded, logical structure of meta-language upon which students anchor their quest for understanding a text. Formal schema means information about how different language structures are arranged and offered in a speech or write-up. An (2013) citing Richardson and Morgan (2000) viewed schema as an organized basic structure responsible for the arrangement of a text. How argumentation, proposition, subject and expositions are connected to form a unit differentiates a particular text from the other. Students with VI who have limited knowledge of genre composition and structure might encounter difficulties in understanding English language comprehension passages.

Schema helps students to connect present knowledge to background knowledge, a process that bridges the gap between the newly acquired knowledge and the background knowledge, spurs interest and prediction during reading or listening to English language comprehension passages. Mcvee, Dunsmore and Gavelek (2005) remarked that prediction and application of background information enables the students to derive meaning from English language comprehension passages and assimilate the information as a whole. Understanding of English language comprehension passages requires a student's ability to link inferences drawn from the text and the stored schemata effectively and assimilate the information as a single message. In schema theory text remain the bases for knowledge

formation as understanding English language comprehension passages anchors on the fact that assimilation of information is based on the connectivity between that information and the existing schema.

Zhao and Zhu (2012) stated that schema serves as a good guide for teachers teaching students encountering reading challenges. Students with VI belong to the group of students experiencing reading challenges due to difficulties associated with vision loss. This category of students lack basic prerequisites and even reading materials in accessible format and as a result they experience incessant poor achievement in English language comprehension. Input of individual readers contributes immensely to the level of English language comprehension each reader achieves. Teachers of students with VI are aware of the fact that students could only understand English language comprehension passages if those students have stored enough information (background knowledge) from which inferences could be drawn for decoding and assimilation of new information. This awareness needs to guide inculcation of knowledge and encouragement of students with VI to enhance their achievement in English language comprehension that will help ameliorate reading problems.

2.2.4 Information processing theory

The concept of information processing theory was first introduced by George A. Miller in 1956 a psychologist at Harvard University. The concept of information processing is the very core of cognitive psychology. Cognitive psychology considers the person as an information processor in much the same manner a computer receives data and follows a programme to generate an output. The remarkable features of approach to information processing include: Accessible information within one's environment is processed through a number of mechanisms such as: concentration, working memory, sensory memory, long term memory and cognition. The processing mechanisms systematically transform or modify data. The objective of information processing is to indicate the fundamental structures and procedures for cognitive activities, storage and retrieval of information. The processing of data in people is similar to that in computers (Miller, 1956).

Information processing theory examines the processes by which learning takes place; it particularly centres on viewpoints of memory encoding and recovery. The theory compares thought systems to that of a computer, in that it gets input, forms and conveys output. Input accumulated in the senses, is collected, and configured by the brain which ultimately results in a cognitive reaction. One of the notable ideas about information processing is the level of processing model that information has been extended to in different ways including perception, concentration, naming, and significance which affects the capacity to access information later. In essence, the extent to which information was expounded upon will influence how well cognition takes place. Morris, Bransford and Frank (1977) expanded this concept by adding that recovery of information will be made less difficult if the process in which it was acquired resembles the manner of storage. The next significant innovation in the theory of information processing is the connectionist model of Rumelhart and McClelland (1988), backed by recent studies in neuroscience. It posits that data is simultaneously stored and linked as a network in distinct zones of the brain. The number of links that a single piece of information has will influence the recovery facility (David 2019) citing (Craik and Lockhart, 1972); (Morris, Bransford and Frank, 1977 and Rumelhart and McClelland 1988).

David (2019) noted that there are three elements in the overall model of information processing theory which include sensorial memory, working-memory and long-term memory. In sensorial memory, information is assembled through the sensory organs by converting the messages into nervous signals that could be analyzed by the brain. These recollections, generally oblivious, stay for a while probably extending up to about three minutes. Human sensorial faculties are always crowded with expansive sums of information. Individual memories function as a filter, by focusing on what is essential and ignoring what is dispensable. Information in the human sensory model captures attention and therefore advances into short-term memory only if it is perceived as appropriate or recognisable.

Baddeley (2001) released a short-term memory pattern that comprised three aspects. The official controls framework directs all short-term memory action, such as picking information, preparing, meaning and ultimately determining whether to transmit it to long-term memory or disregard it. Visual-spatial check pads and sound-related circles

operate as partners in this framework, which prepares useful related information. Sensorial recollections transmitted into short-term memory will last at most 15-20 seconds housing about 5-9 bits or chunks of data. Information is retained in short-term memory through sustenance or extensive practice. Sustenance alludes to iteration, whereas extension alludes to the arrangement of information.

The activity that happens in short-term memory is influenced by a number of components. People have different levels of perception stack or the sum of mental exertion that they can involve in at a given time due to personality traits and mental competence. Besides, data that has been rehearsed numerous times gets to be programmed and, in this way, does not require much cognitive assets. Overall, people use selective processing to concentrate attention on extremely appropriate and essential data, depending on the job at hand.

Unlike prior memory mechanisms, long-term memory has unlimited room as it incorporates all sorts of information: asseveration, process and symbolism. However, less information than stored in the long-term memory is retrievable. The key component of long-term memory is how appropriately information is structured because it greatly influences adequate enshrouding and recovery procedures. The level of correspondence between the way information is enshrouded and accessed forms the nature of retrieval pattern. The core context of information processing theory is the way student's access, cognize, store and recall information. The theory recognises the importance of visual and auditory channels in accessing and assimilating information , laying more emphasis on visual perception and this has implications for both teachers of and students with VI. Hersh (2016) stated that traveling independently is exceptionally critical for involvement in schooling and other perspectives of contemporary life and successful travel solely depends on the available information about the place of interest.

In view of this, special educators and rehabilitators ought to equip students with VI with information about environmental descriptions, signals, maps and sounds (orientation/mobility and information) for processing, saving and retrieval to enable them travel from home to school and navigate independently in the school environment as this is the only way this category of students can participate in learning of English language comprehension in the classroom. Making information for safe travel available to students

with VI will help in curbing learning challenges associated with loss of vision which in turn improves their academic achievement. Awshee (2018) asserted that underestimating the power of vision in knowledge acquisition will definitely lead to poor academic achievement among individuals with VI as more than 80% of school activities require vision. Information processing theory also stretches the pivotal role of vision in learning emphasizing that almost all learning activities are accomplished through vision.

According to Miller (1956) auditory and tactile channels are also useful in knowledge acquisition but apart from vision being the most essential channel for information gathering, such information attracts rapid assimilation, durability and is easier to remember for use. This places students with VI at a disadvantage since this category of students cannot change their condition. Special and regular educators can help them by teaching them compensatory learning skills and by using strategies and resources that would stimulate their brain and by encouraging them to constantly rehearse what they have learnt.

Discrimination against Persons with Disabilities (Prohibition) act signed in 2018 stipulates that students with VI should be admitted and educated in the same school environment and classroom with sighted students avoiding all sought of discrimination and that intervention teaching/learning strategies and technological tools should be employed by teachers in teaching students with VI in order to strike a balance in learning between sighted and students with VI. Information processing theory reveals the sensitive function of vision in learning, enlightens teachers on the problems attributable to loss of vision and its effects on learning capacity. Notable among effects of vision loss are that students with VI have limited learning experiences, lack cognitive visual imagery of accessed information, tend to forget what they have learnt due to lack of visual rehearsal of acquired knowledge, insufficient brain stimulation, retain and recall disconnected information all of which jointly lead to poor achievement in English language comprehension and in overall academic achievement.

Hersh (2016) affirmed that the use of assistive technological strategies and tools in teaching students with VI can help them overcome visual related learning challenges and enhance their academic achievement. Considering this viewpoint, Braille reading and digital audio-player were utilized in this study.

2.3 Empirical review

2.3.1 Braille reading and achievement in English language comprehension of students with VI

Reading fluency is very vital in human development and people read for different purposes. Individuals' objectives for reading include among others: recreation, acquisition of information, enlightenment and passing examination. Gilakjani and Sabouri (2016) found that reading impacts positively on students' achievement in English language comprehension. Also Koeswiryono, Asrori and Setyaningsih (2014) confirmed that reading fluency contributes immensely to achievement in English language comprehension among students with and without VI. A study conducted by Peterson (2015) showed that reading abilities enhanced achievement in English language comprehension scores of participants who were tested on Braille reading and the partially sighted students who were tested on print reading. Stanfa and Johnson (2015) found that Braille reading significantly improved reading English language comprehension scores of students with VI and recommended that teachers should Braille English language comprehension passages for students with VI.

Garcia (2017) compared the reading achievement in English language comprehension of 133 sighted students and 122 students with VI and results revealed that Braille reading had significant effect on achievement in English language comprehension among students with VI and concluded that Braille reading is very effective in instructing students with VI. Bernable, Lei, McKerracher and Orel-Bixler (2019) found that though students with VI do learn via auditory channel, Braille reading has the capacity to improve achievement in English language comprehension among students with VI than audio learning.

Khoirunisa, Gunarhadi, Choiri and Sunardi (2017) conducted research with a sample of five students with VI using cooperative integrated Braille reading and composition and reported that statistical analysis showed a posttest mean score of 81.316 and a pretest mean score of 68.656 which indicates that treatment significantly improved participants' English language comprehension achievement. Research carried out by Iroegbu (2009), investigating the effect of Braille reading efficiency of achievement in English language comprehension on twenty students with VI reported that Braille reading

enhanced achievement in English language comprehension among the participants. Jarjoura and Karni (2014) found that achievement in English language comprehension of English language Braille readers is higher than achievement in English language comprehension among Arabic Braille readers.

This shows that Braille reading has a positive significant effect on achievement in English language comprehension of all the participants, although the differences between the two groups were not statistically significant. The most important thing here is that Braille reading improves academic achievement among students with VI. Brailling English language comprehension passages by the teachers of this category of students reduces poor achievement in English language comprehension among students with VI. This in turn eliminates or at least reduces academic underachievement that has for long plagued students with VI.

Argyropoulos, Martos, Sideridis, Kouroupetroglou, Nikolaraizi and Papazafiri (2015) conducted research to assess how repeated training in 6-dot Braille version and 8-dot Braille version influence achievement in English language comprehension among twenty totally blind students. The researchers organized series of training for the participants using 6-dot Braille version and 8-dot Braille version and the assessment mean score of 6-dots Braille version ($C.I._{95\ \%}$ =5.182-6.818) was 6.0 and 7.45 for the 8-dot Braille version ($C.I._{95\ \%}$=6.730-8.170). This result recorded that significant differences exist between the 6-dot Braille version and the 8-dot Braille version with the participants in the 8-dot Braille version achieving higher than those in the 6-dot Braille version. This new innovation has brought hope to students with VI as the 8-dot Braille version would probably increase Braille reading fluency in particular and their overall academic achievement in general. Garcia (2005) used a formal test to compare the achievement in reading English language comprehension of sighted students and students with VI and discovered that Braille reading has no significant influence on achievement in English language comprehension of the participants even though it has positive influence on reading fluency.

Silverman and Bell (2018) concluded that Braille reading efficiency enhanced academic achievement of students with VI used for the study and it also contributed to high self-esteem and life participation of the participants. An overview of these researches

indicated that using Braille reading to teach students with VI results in a positive outcome showing that if teachers provide reading materials in Braille, it will enhance achievement in English language comprehension and in all school subjects and improve life satisfaction among persons with VI. Radojichikj (2015) submitted that Braille reading had no significant difference on academic achievement of students with VI used for the study. Ochigbo (2016) found that students with VI who are able to read Braille perform better than those who cannot read Braille.

A Braille and print reading English language comprehension test conducted by Kathleen, Roy, Eleanor, George and Joan (2007) with100 rehabilitated students with VI and 100 sighted students revealed that a Braille reader reads at approximately 1/3-1/2 the speed of a print reader of the same age or averages of 70-100 words per minutes where as a print reader reads at the rate of 200-300 words per minutes. In spite of the fact that sighted students perform better than students with VI in reading English language comprehension, special educators are encouraged to use Braille textbooks and instructional materials to enhance Braille reading achievement in English language comprehension among students with VI.

Uwakwe and Okorie (2015) found that Braille reading had no significant effect on the academic achievement of the participants. Efstathiou and Polichronpoulou (2015) reported that more than 40 % of the teachers of students with VI do not utilize Braille textbooks and instructional materials in teaching students with VI English language. It is impossible for any student to earn good marks in reading English language comprehension exercises without practically reading the English language comprehension passage. Reading English language comprehension being an important component of English language requires that students with VI be provided with English language textbooks in Braille to enable them achieve high in English language comprehension. Herzberg, Rosenblum and Robbins (2017) also discovered that Braille reading abilities improved academic achievement of students with VI.

2.3.2 Digital audio-player and achievement in English language comprehension of Students with VI

Research conducted by Piggio, Juddio and Grudin (2011) with 32 students with VI to determine the effect of digital audio-player on achievement in English language comprehension of these participants showed that there was a significant increase between the pretest (3.90±2.84) and posttest (8.24±3.74) scores. Lovi (2013) found that digital audio-player enhanced achievement in English language comprehension among 72 participants with VI and that significant difference did not exist among the variables of interest. Moreno, Vermeulen and Jordano (2016) reported that digital audio-player has a positive influence on achievement in English language comprehension of participants with VI. However, Finley (2003) discovered that there was no significant relationship between relative use of digital audio-player and teaching/learning outcome among students with VI. Fansury, Lutfin and Arsyad (2019) submitted that the use of digital audio-player in teaching students with VI improves their achievement in English language.

Also, Retorta and Cristovao (2017) carried out a research with 15 Brazilian students with VI and revealed that digital audio-player improved achievement in English language comprehension achievement of the participants. Anyanwu (2013) confirmed that only about 2% of the total number of special teachers in integrated secondary schools in Imo State make scarce use of digital audio-player and other technology based devices in teaching students with VI which has an adverse effect on achievement in English language comprehension in particular and overall academic achievement in general among students with VI. Susanto and Nanda (2018) found that digital audio-player as a medium of teaching has the capacity to enhance achievement in English language of students with VI. Correspondingly Johnstone, Altman, Timmons and Thurlow (2009) concluded that digital audio-player provides robust learning opportunities for students with VI and motivates schools to provide learning resources in accessible format for this category of students. Hussin (2013) concluded that digital audio-player impacts positively on cognitive and listening abilities of students with VI.

Research carried out by Oira (2016) showed that 90% of visually impaired participants confirmed that digital audio-player improves their academic achievement and

motivates them to learn. The result of a study conducted by Silman, Yaratan and Karanfiller (2017) using digital audio-player to assess academic achievement among 2 students with VI in Cyprus Turkish with the permission of Blind Association revealed that digital audio-player enhanced academic achievement of the participants. In addition, Wachiuri and Imonje (2017) discovered that a significant relationship existed between digital audio-player and achievement in English language among the participants with VI. Contrarily, Alper and Raharinirina (2006) found that digital audio-player had no significant impact on academic achievement of students with VI. Results of a study conducted by Arslantas (2017) revealed that there was a relative association between achievement in English language of students with VI used for the study and digital audio-player.

Ibeabuchi (2013) concluded that none availability and usage of digital audio-player and other assistive technology devices by special educators in integrated secondary schools amounts to practical exemption of students with VI and gross academic underachievement among this category of students. Bhatti and Kumari (2015) used questionnaire and classroom observation to access the impact of digital audio supported reading technique on academic achievement of students with VI in national institute for the visually handicapped Dehradun, India and found that using digital audio-player in teaching students with VI increases the chances of high academic achievement among this category of students, information accessibility and the number of students with VI in higher institution.

Ikogor (2016) conducted a study to determine the effect of treatment on academic achievement of 7 students with VI and the result showed that significant positive effects exist between the dependent and independent variables (posttest 50.857 and pretest 24.857). Akpan and Beard (2013) concluded that audio players impact positively on the listening achievement in English language comprehension of students with VI and increase their opportunity to participate in the classroom. Also, Efstathiou and Polichronpoulou (2015) discovered through a compilation of data from different states that teachers' use of digital audio-player in teaching students with VI had contributed immensely to high achievement in English language comprehension among students with VI in these states. Jackson (2012) found that digital audio-player is highly effective in

improving the achievement in listening to English language comprehension and participation in the classroom among students with VI.

It helps them access information faster and ameliorate the difficulties associated with tactile reading. Mulloy, Gevarter, Hopkins, Sutherland and Ramdoss (2014) discovered that digital audio-player is very helpful in accessing school curricula areas including English language comprehension and vocabulary as well as overall improvement in academic achievement of students with VI. Iheme and Olee-Onwubiko (2013) carried out investigative research that involved 30 respondents to ascertain the impact of digital audio reader on academic achievement of students with impairment in Imo State and found that teachers do not use audio readers in teaching students with VI which leads to academic underachievement among students with VI. The use of digital audio-player in an integrated classroom to teach English language more especially will improve achievement in English language comprehension and reduce the incessant failure of English language among students with VI.

A systematic literature search was used to find out the function of digital audio-player on academic achievement and participation in school activities among students with VI and the result showed that digital audio-player improved their achievement in English language and increased their participation in the general school activities (Lovi, 2013). The challenges students with VI encounter in school have attracted the attention of some researchers who have carried out studies on the ways, strategies and device based instructions capable of eliminating or at least minimizing these challenges. Digital audio-player was found to be very effective in reducing these limitations and enhancing achievement in English language comprehension among students with VI (De freitas, Martins, Rabeluo, Rodrigues, Gonsparetto and Monteriode, 2009; Omer, Eralpa and Alven, 2010).

2.3.3 Onset of VI and achievement in English language comprehension of students with VI

Available information on the effect of onset of VIon persons with VI has a lot to do in understanding of the characteristics, aptitudes, attitudes and overall personality traits of persons with VI. More importantly knowledge of its effect on teaching and learning

outcome is a fundamental strategy for planning remedial or intervention programmes for students with VI. In view of this, Garcia (2017) carried out a research that examined the effect of onset of VIon achievement in reading English language comprehension and reading pace of 122 students with VI and found that onset of VIhad no significant effect on achievement in reading English language comprehension and reading rate of this category of students. Dietrich, Hertrich and Ackermann (2013) reported that significant difference did not exist in achievement in listening to English language comprehension of congenitally and adventitiously blind participants.

Nashleanas (2018) confirmed that significant positive association emerged between achievement in English language comprehension and onset of impairment and that the adventitiously blind students performed better than the congenitally blind students. Higher achievement recorded by students with adventitious VI was attributed to stored imagery that was related to the current learning experiences. Braille reading rate and reading achievement in English language comprehension levels of 20 students with congenital blindness and 11 students with adventitious blindness were assessed in which Daneman (1988) found that there was no significant difference in the reading and listening English language comprehension achievement scores of the participants. However, significant differences existed between the Braille reading rates of congenitally blind students (73.0) and adventitiously blind students (44.4). 80 participants consisting of 40 sighted, 20 participants with congenital blindness and 20 participants with adventitious blindness were taught in a pink noise and lower noise background to investigate the effect of onset of VI on English language comprehension abilities of participants with VI and to find out whether sighted participants show perceptual advantage over participants with VI.

Smed (2015) reported no significant differences in achievement in English language comprehension of the participants with VI and that sighted participant exhibited no perceptual advantage. Moreover, treatment and onset of VI did not significantly affect participants' English language comprehension ability. In addition, Retorta and Cristovao (2017) found a significant positive difference in achievement in English language comprehension in particular and in academic achievement in general among students with impairment to the advantage of students with adventitious impairment. A study conducted

with 9 students with early VI and 10 students with late VI by Kensuke, Tetsuya, Shigeru and Yasushi (2014) revealed that Braille is reading fluency of the participants relatively correlated with the age of onset of VI of the participants, and there was no significant correlation between Braille reading fluency and onset of VI after adjusting for age of onset.

Research conducted by Marpsein (2003) with 58 adventitiously and 40 congenitally blind students in Sweden, comparing the Braille reading efficiency between the two groups and the statistical analysis scores collected did not indicate any significant differences between the reading fluency of adventitiously blind students (27.34) and congenitally blind students (26.23). Lovi (2013) found no observable differences in the achievement in English language comprehension of students with congenital blindness and students with adventitious blindness. Iroegbu (2009) in research conducted with 10 adventitiously blind participants and 10 congenitally blind participants, discovered that a substantial difference in English language comprehension of the participants with adventitiously blind participants (4.92 wpm) achieving higher than the congenitally blind participants (0.77 wpm).

In an object classification experiment conducted with 13 participants with congenital blindness and 17 participants with adventitious blindness, Postma, Zuidhoek, Noordzijo and Kappers (2007) found no differential effect of treatment in spatial perception levels of the participants. Komolafe and Tajudeen (2018) used an adaptive behaviour inventory and self-concept scale to investigate the adjustment levels of 29 respondents with congenital blindness and 31 respondents with acquired blindness. The result revealed that a significant difference exists in the ability of the two groups to either adjust to the environment or adapt behaviour. This study also revealed that students with congenital blindness (46.99) had higher self-concepts than students with acquired blindness (28.38). The need to find out whether there are differences in the cognitive patterns of sighted students and students with VI as this information will guide the implementation of inclusive education has prompted the research in which Frieger, Roder,

Hilyard and Neville (2006) found that students with acquired blindness were more sensitive to background noise than sighted students. Hupp (2003) examined the perceptual differences among students with congenital or adventitious blindness and reported that

significant differences existed between students with congenital adventitious blindness. However, when the onset of impairment was adjusted, the difference in English language comprehension achievement between the participants was not significant. Byran, Louise, Grace, Melanie, Mae, Angela and Dhenise (2017), through a qualitative data analysis, discovered that family support and achievement accounted for self-acceptance among students with adventitious. Scholars have made several efforts to ascertain whether differences exist in the performance of students with congenital blindness and students with adventitious blindness.

In one such research Argyropoulos and Papadimitriou (2015) found that significant differences were observed in achievement in the English language comprehension of the participants with congenital blindness out doing does with adventitious blindness. Khoirunisa, Gunardhadi, Choiri and Sunardi (2017) reported that students with congenital blindness achieve higher English comprehension than those with adventitious blindness. Moreno, Vermeulen and Jordano (2016) found a significant positive difference between the English language comprehension abilities of students with congenital and adventitious blindness, with adventitious blindness showing higher significant gains.

2.3.4 Emotional intelligence and achievement in English language comprehension of students with Visual Impairment

According to Mansy, Halim and Wahab (2017), loss of vision is a turmoil condition that severely affects the overall personality of students with VI, markedly emotional intelligence, achievement in English language comprehension and social adjustment. Some students with VI might overcome the effect of VI, develop high emotional intelligence and become well-adjusted, while some are stuck in the obstructions of VI, which influence achievement in English language comprehension. High emotional intelligence is associated with high achievement in English language comprehension and other school subjects, whereas low emotional intelligence has a direct link with underachievement. Williams and Morris (2013) found that emotional intelligence does not significantly influence the ability of students with VI to perceive or comprehend reading the English language comprehension. In support of this view, findings of a study carried

out by Okoye and Tanimola (2014) confirmed that emotional intelligence impacts achievement in English language comprehension of the participants significantly.

Likewise, the results of Parker (2004) showed that emotional intelligence does not affect achievement in reading English language comprehension among students with VI. A close look at these findings indicates that emotional intelligence does not determine the capacity of students with VI to comprehend or perceive learning. However, diverse views of how emotional intelligence affects the learning capacity or behaviour pattern of students with VI exists among researchers owing to factors including instrument for data collection and research time, among others. Because of this, researchers have shown that emotional intelligence had a significant difference in achievement in English language comprehension ability of students with VI and that students with high emotional intelligence perform better than those with low emotional intelligence (Attri and Rai, 2013).

Onu, Asogwa and Obetta (2013) found that emotional intelligence accounted for 80% of people's achievements and intelligence quotient accounted for the remaining 20%. Sánchez-Álvarez, Berrios Martos and Extremera (2022) reported a moderate significant cumulative effect between emotional intelligence and achievement among the students used for the study. In contrast, Abdolrezapour and Tavakoli (2012) found that emotional intelligence significantly influenced reading comprehension in English language for students with VI in favor of students with high emotional intelligence. Emotional intelligence is an inherent solid psychological construct that can either positively or negatively affect a student's ability to perceive or learn. This has implications for teachers of students with VI who need to enhance emotional intelligence among students with VI to enable them to achieve their academic set goals.

Investigative research carried out by Al-Tai, Jawaldeh, Al-Taj and Maharmeh (2017), which aimed at ascertaining the differential emotional intelligence levels of students with visual and hearing loss, revealed that students with VI were emotionally more mature (mean score: 3.65) than their hearing impaired counterparts (mean score: 1.51). The researchers concluded that vision loss does not really hinder or obstruct the development of emotional intelligence in individuals with sight loss, so this category of students can develop high emotional intelligence and interact effectively with people.

Eniola and Busari (2014) found that enhanced emotional intelligence had no significant effect on the self-efficacy measures of students with VI used for the study. In addition, Catalina, Stanescu and Mohorea (2012) did not find a significant correlation between emotional intelligence and academic achievement in visually impaired participants. An investigation into the effect of emotional intelligence on the academic achievement of Xu (2018), discovered that the students used in the study did not benefit.

The need to understand the personality traits and characteristics among able and disabled students and to discover the underlying factors that necessitate unequal academic achievement and differences in the behaviour of these two categories of students have been, for a long time, the concern of some researchers. These researchers have, through various types of research, found that significant difference exists in the emotional intelligence levels of able and disabled students in favour of students without disability, and significant difference attributable to a type of disability was also recorded, whereas emotional intelligence had no gender difference (Shnikat, 2015; Mirzae and Saeedi, 2013; Kumar and Singh; 2013; Sharma and Agarwal, 2016; Arshad and Lodhi, 2015). Consequently, the mean score of a study conducted by Fernandez, Salamonson and Griffiths (2017) showed that emotional intelligence predicted achievement in English language comprehension among impaired and non-impaired participants. Emotional intelligence can improve achievement in English language comprehension of all students, particularly students with VI, and intervention programmes geared towards promoting emotional intelligence or the development of the ability to effectively manage personal and other peoples' emotions ought to be collaboratively pursued to enhance achievement in English language comprehension among students with VI.

Reporting the results of an experimental study involving students with impairment and those without impairment in Cyprus, Abdorazik (2017) found no positive impact of intervention on emotional intelligence concerning achievement in English language comprehension of all the students who participated in the study. This finding contradicts the findings of a study conducted by Jimoh and Oyerinde (2013) in which emotional intelligence, self-efficacy and parental involvement significantly influenced the goal-setting behaviour of adolescents of all categories in the Ibadan metropolis. Parween (2015) examined the impact of gender, age group, nature of VI, living condition and onset

of VI on the emotional intelligence of students with VI and discovered that the first four factors had no significant positive impact on the emotional intelligence of the participants except for the onset of impairment that had a significant difference on their emotional intelligence to the advantage of students with acquired blindness.

This result implies that students with congenital blindness require intervention strategies to boost their emotional intelligence, which will improve their reading comprehension of English. In a study aimed at examining the effects of two interactive strategies (emotional intelligence and self-regulation) on aggressive behaviours of students with VI, Eniola (2007) found that the independent variables (emotional intelligence and self-regulation) were very influential in reforming aggressive tendencies in students with VI. The record of significant improvement in the aggressive behaviour of the participants denotes that improved emotional intelligence would likely lead to better achievement in reading English language comprehension. In addition, Tabrizi and Esmaeili (2016), through an investigative study, discovered the close relationship between emotional intelligence and achievement in reading English language comprehension among Iranian students with VI used for the study.

According to Erol and Kyari (2014), enhanced emotional intelligence and self-efficacy improved reading comprehension achievement among students with VI and sighted students. Although emotional intelligence did not significantly impact reading comprehension, participants' self-efficacy significantly affected the dependent variable. The literature review proved that emotional intelligence might have a significant positive impact on not only achievement in comprehension but also the personality traits of students with VI. However, this study investigates the effect of emotional intelligence on achievement in comprehension among students with total blindness in the Imo state.

2.4 Appraisal of Literature

Conceptual, theoretical and empirical perspectives of literature have been reviewed, and various authors affirmed that efficient Braille reading, and the use of a digital audio player could positively influence achievement in English language comprehension among students with VI. Related theories have also been reviewed: socio-cultural theories and multiple intelligence theories upon which the study is anchored.

These theories advocated the elimination of learning barriers and supported peer learning strategies for effective achievement in English language comprehension among students with VI. Schema theory and information processing theory revealed that students with VI often encounter different learning challenges due to limited learning experiences or background knowledge to retrieve for proper information assimilation. Empirical perspective indicated that vision loss places students with VI at a disadvantage in reading English language comprehension achievement when compared with their sighted counterparts.

Researchers believed that the lingering academic achievement among students with VI could be eradicated with Braille reading and the use of digital audio-player in the Nigerian education system (Eniola, 2000; Iroegbu, 2009). It has also been established that the onset of VI significantly influences achievement in English language comprehension and overall academic achievement of students with VI and emphasized that this influence mainly depends on the subject matter/area. Students with adventitious blindness perform better than those with congenital blindness in subject areas that require retrieval of stored images to understand current instruction better. Students with congenital blindness adjust better to the academic environment than those with acquired blindness because this category has just one world, unlike those with acquired blindness who have experienced two different worlds. Students with acquired blindness battle with the transition from the world of sightedness to the world of VI and experience more emotional stress than those with congenital blindness.

Documented evidence in literature indicates that emotional intelligence greatly influences achievement in English language comprehension of students with VI. According to the research reviewed, students with high emotional intelligence achieve higher in English language comprehension and other subjects and can interact more effectively with their peers than students with low emotional intelligence. Though vision loss does not impede the developmental stages of the affected individuals, it negatively affects the academic achievement and emotional adjustment levels of students with VI. Students with low emotional intelligence are likely to record more failures in examinations than those with high emotional intelligence, adversely affecting their quality of life.

Some studies' results recorded significant differences in the onset of impairment, emotional intelligence and achievement in English language comprehension of the participants. In contrast, some recorded no significant difference between the independent variables or factors and the dependent variable (achievement in English language comprehension). These conflicting findings are attributable to factors such as research method, environmental condition, instrument suitability for data collection, the expertise of the researchers, and exposure of the participants, among other factors. However, the causes of differences in the findings of various researchers about the effect of onset of impairment and emotional intelligence on achievement in English language comprehension of students with VI remains inconclusive. The available literature on the effect of Braille reading and the use of digital audio-player on achievement in English language comprehension of students with VI is sparse. Therefore, the researcher considers it necessary to investigate the effect of Braille reading and digital audio player on achievement in English language comprehension of students with VI.

2.5 Conceptual model

The conceptual model portrays the study's procedure and variables. The independent variables manipulated (Braille reading and digital audio player) were the interventions. These variables were manipulated by assigning the participants into two experimental groups to examine the impact of treatments on the dependent variable, which is the achievement in English language comprehension of students with VI. The moderating variables are factors that could alter or influence the achievement in English language comprehension of the participants. The variables include the onset of VI (congenital and adventitious) and emotional intelligence (high and low). The study aimed to determine whether the onset of VI and emotional intelligence of participants affected their ability to comprehend the English language. It was the achievement of English language comprehension scores of the participants that was the dependent variable.

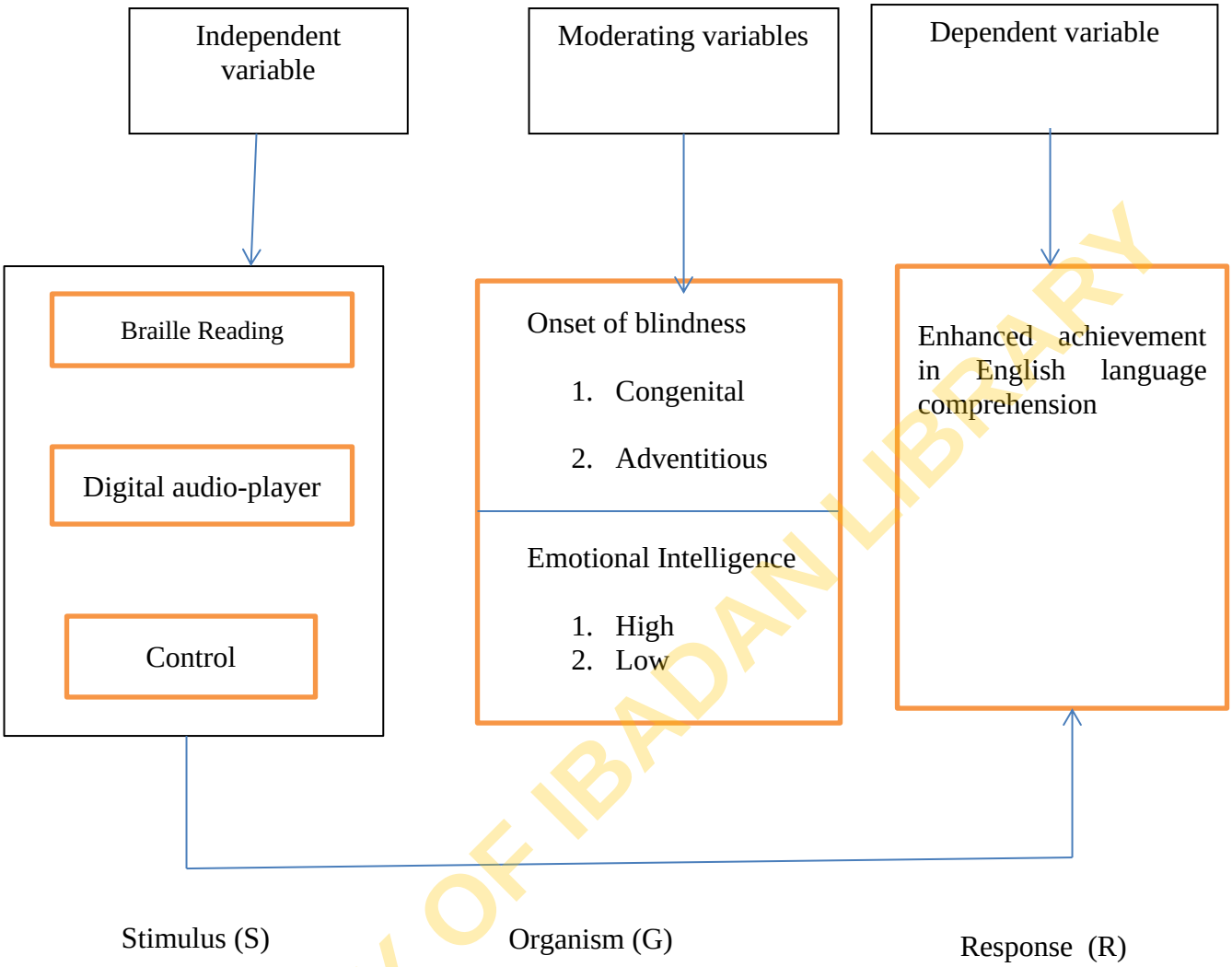

Figure 2.4: Conceptual model of the study

Source: Research (2023)

CHAPTER THREE

METHODOLOGY

A description of the study's methodology is presented in this chapter. It consists of the design, population, sample and sampling technique, instrumentation, procedure for data collection, and method of data analysis.

3.1 Research Design

A quasi-experimental design was used with a pretest, posttest, control group factorial matrix. Pretest, posttest and control group quasi-experimental design was adopted because it can establish cause and effect relationships attributable to interventions. The row comprised treatment groups of Braille reading, digital audio supported reading technique and the control group, moderated on the onset of VI (congenital and acquired) and emotional intelligence (high and low) at two levels, respectively. The three groups were obtained through random assignment of participants into the groups. The design is presented in table 3.1.

The design is represented below:

Experimental Group 1 (E1): O_1 X O_4

Experimental Group 2 (E2): O_2 X O_5

Control Group 3 (C): O_3 O_6

Where:

O_1, O_2, O_3 = represents pretest score for treatment groups 1, 2 and control, respectively.

O_4, O_5, O_6 = represent posttest observations for treatment groups 1, 2 and control, respectively.

X= represents the treatment for experimental group 1(Braille reading).

X= represents the treatment for experimental group 2 (Digital audio supported reading technique).

Control group with no intervention.

Table 3.1: A 3x2x2 Factorial Matrix Quasi-Experimental Design on Achievement in English language Comprehension of Students with VI in Secondary Schools in Imo State

Treatment	Onset of VI			
	Congenital		Acquired	
	Emotional Intelligence			
	High Emotional Intelligence	Low Emotional Intelligence	High Emotional Intelligence	Low Emotional Intelligence
Braille Reading	3	1	2	2
Digital audio player	1	1	3	1
Control Group	1	1	1	1

3.2 Population

The population comprised 550 senior secondary school students with VI in integrated secondary schools in Imo State, Nigeria out of which the sample was drawn. This is because students with VI attend integrated secondary schools and senior secondary school students can read Braille and operate digital audio supported reading techniques effectively, enabling them to participate in this study.

3.3 Inclusion Criteria

Participants include:

a. Students with VI who are in senior secondary school one (SS1) and are in school at the time of the study;
b. Efficient Braille readers with no additional impairment;
c. Students who are willing to participate in the study; and
d. Students who scored below 45 marks in the pretest.

3.4 Sample and Sampling Technique

The sample for the study comprised 17 students with congenital and adventitious total blindness in senior secondary school 1 (SS1) who were purposively selected from three integrated secondary schools in Imo state, Nigeria. The purposive sampling technique was adopted in selecting 8 participants for experimental group 1 (BR), 5 participants for experimental group 2 (DAP) and 4 participants for the control group. Purposive sampling was employed in this study due to the peculiar nature of the participants; the participants cannot be seen in other secondary schools. Integrated secondary schools were selected for the study using purposive sampling technique.

3.5 Instruments

The instruments used in data collection are:

1. LogMAR chart: a modified version of the Snellen chart
2. Bar-On emotional quotient Inventory: Youth version (BarOn EQI-YV) (Adapted)
3. Achievement in English Language Comprehension Test (Adapted)

3.5.1 The LogMAR Chart

The logMAR chart is a modified version of the Snellen chart, which was used to screen the participants. It is an instrument for measuring visual acuity; Brailey and Lovie-Kitchin designed the chart at the Nation Research Institute of Australia in 1976. A LogMAR chart comprises rows of letters that reduce in size in descending order to measure the visual acuity of the testee. Each letter has a score value of 0.02 Log units. Since there are five letters per line, a change of 0.01 log units is represented by a line's score. Participants were screened using a LogMAR chart.

Table 3.2: The LogMAR Chart.

Foot	Metre	Decimal	LogMAR
20/200	6/60 6/60	0.10 0.10	1.00 1.00

3.5.2 Bar-On Emotional Quotient Inventory Youth Version (BarOnEQ-i:YV)

Bar-On emotional quotient inventory youth version (BarOnEQ-i:YV) is an instrument that was adapted and used to determine the intelligent emotional level of the participants. Examples of items in the text: I can control my emotions; I do not understand the way other people feel. BarOnEQ-i:YV was developed by Bar-On and Parker in 2000. The instrument is a self-report instrument used on children and adolescents seven (7) years old to eighteen (18) years old. The author's test-retest reliability of the instrument was reported between 0.77 and 0.89. Its reliability was determined using a sample of 60 children, with a mean age of 13.15 and a test-retest interval of three (3) weeks. BarOnEQ-i: YV was validated by the researcher. The construct validity of the youth version of the assessment ranged from 0.76 to 0.88.

This assessment includes a longer Bar-On EQ-i: YV and a short form Bar-On EQ-i: YV(s). The youth short-form version of the instrument consists of thirty (30) items measuring different aspects of individuals' emotions. Special education and psychology experts selected the most suitable ten (10) items to measure students with VI to ensure construct and content validity. The experts also made an effort to ensure that all aspects of emotional intelligence were represented in a blueprint. Response choices include a Likert scale of very seldom true of me to very often true of me. Afolabi (2017), who adapted and used this scale in screening students, obtained a reliability value of 0.79 by computing the coefficient of alpha. The scale was trial-piloted on 12 senior students in a particular secondary school for the blind Opefia Izzi to determine its current reliability. When item analysis was done and Cronbach Alpha of Bar-On EQ-i: YV was computed, the reliability was 0.78.

3.5.3 Achievement in English language Comprehension Test

Achievement in the English language comprehension Test was adapted from the West African Senior Secondary School Certificate Examination (2012, 2014 and 2015). The three adapted comprehension passages were transcribed into Braille and also recorded on digital audio-player. The instrument consists of 2 sections: section A consists of demographic data includes name, gender, age of onset of vi, school and class while section B was made up of 3 similar passages. 4 multiple-choice questions (with option A-

D) and one open-ended question making 5 questions, were selected from each passage. Five marks were awarded to each of the 4 multiple-choice questions, while 10 marks were awarded to each open-ended question, making a total of 90 marks obtainable for each participant in each test. Scores from 45 and above were considered high, and scores below 45 were considered low.

Examples of items in the Achievement in English Language Comprehension Text: *Choose the most suitable title for this passage; give two reasons why Dele drove recklessly; for each of the following words, find another word or phrase which means the same and which can replace it as it is used in the passage: retired, unusual, debris, siblings, and objected.* The instrument was used for pretest-posttest assessment measures. The achievement in the English Language Comprehension Test was standardized. It was given to experts in Special Education and the English language for construct and content validity. The instrument was trial piloted on 20 students with VI to determine its current reliability. Reliability was evaluated using Cronbach Alpha which yielded a coefficient of 0.82 was obtained for the Braille format, while 0.79 was obtained for the digital audio-player format.

3.6 Procedure for data collection

The researcher visited each school to get familiar with the school environment and acquainted with the class teachers that served as research assistants. The research assistants were told the purpose of the research. A brief explanation of Braille reading and its importance were provided for the research assistants. The importance of digital audio supported reading technique in the education of students with VI and how it is utilized in recording and teaching students with VI was explained to the research assistants. The aim and method of administering the instruments were explained to the research assistants. Class teachers were used as research assistants because the teachers know their students better and ensure students' cooperation.

The researcher explained to the students that the questions were not an examination, but for research purposes, so there would be no pass or failure. They were encouraged to be as honest as possible in their responses, as all interactions between them

and the researcher would be treated confidentially. The treatment was carried out within one academic term to prevent the time-lapse effect.

3.6.1 Pretest administration

Prior to treatment, the researcher administered a LogMAR chart to the students to identify students with total blindness. Bar-On emotional quotient inventory youth version (Bar-OnEQ-i: YV) was then administered to those students with total blindness, after which achievement in English language comprehension test for pretest was administered to them.

3.6.2 Treatment Package

The treatment consisted of two weekly sessions for eight (8) weeks for the two (2) experimental groups. Each group session lasted for 60 minutes. Experimental group, I received treatment with Braille reading. Although the lessons were on English language reading comprehension in Braille, the researcher spent fifteen (15) minutes in each section to give guidelines on or explanations of some topics applicable to each session. The topics treated include tips on efficient Braille reading, the importance of reading reread in understanding an English language comprehension passage, how to identify main ideas in an English language comprehension passage, the importance of English language reading comprehension, and making and confirming predictions. Experimental group II received treatment with a Digital audio player. Although the participants listened to English language comprehension passages on a digital audio player, the researcher spent fifteen minutes in each section to give guidelines on or explanations of some topics applicable to each session.

The topics covered include guidelines on listening to English language comprehension passages on digital audio supported reading technique and the importance of listening and listening again in understanding English language comprehension passages on digital audio supported reading technique. It also includes identifying the main ideas in English language comprehension passages on a digital audio supported reading technique, the importance of English language reading comprehension passages, and making and confirming predictions. The control group was taught with the

conventional teaching method where the regular English teacher read aloud to students, and the students listened to the teacher, after which they answered comprehension questions in their regular classrooms. A pretest was administered to the control group, and after three weeks. The participants were given achievement in the English language comprehension test at the end of the sections for the posttest.

Summary of the Treatment Packages

Experimental Group 1: Braille Reading

Session 1: Training research assistants, general orientation and interactions between the researcher and the participants to gain their confidence and cooperation. Administration of pretest.

Session 2: The researcher provided participants with guidelines on efficient Braille reading. The researcher distributed Braille reading English language comprehension passage (instructional material) to the participants who were instructed to read the passage. It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next 15 minutes was for predicting answers while reading, and the last 20 minutes was for drawing conclusions or answering questions.

Session 3: The students were taught the importance of read-and-reread in understanding an English language comprehension passage by the researcher. The researcher allowed the participants to ask questions for clarification. The researcher issued another Brailled English language comprehension passage (instructional material) for the participants to study. It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next 15 minutes was for predicting answers while reading, and the last 20 minutes was for drawing a conclusion or answering questions.

Session 4: The participants greeted the researcher. She taught them to identify the main idea in an English language comprehension passage. The participants asked some questions. The researcher asked the participants to come forward and collect similar copies of the Brailled English language comprehension passage (instructional material) and study it. It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next fifteen minutes was for predicting answers while reading, and the last 20 minutes was for drawing conclusions or answering questions.

Session 5: During this session, the researcher welcomes the participants to the section. She explained how to identify the main ideas in an English language comprehension passage. The researcher provided the participants with another Brailled English language comprehension passage (instructional material) to study. It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next 15 minutes was for predicting answers while reading, and the last 20 minutes was for drawing conclusions or answering questions.

Session 6: Reasons why students should read English language comprehension passages were given to the students. The researcher distributed a Brailled English language comprehension passage (instructional material) to the participants to study. It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next 15 minutes was for predicting answers while reading, and the last 20 minutes was for drawing conclusions or answering questions.

Session 7: The participants were taught to predict and confirm post-English language comprehension answers. The participants were then instructed to read through their Brailled English language comprehension passage (instructional material). It lasted for 60 minutes: 15 minutes was for teaching, 10 minutes was for background exploration, the next 15 minutes was for predicting answers while reading, and the last 20 minutes was for drawing conclusions or answering questions.

Session 8: Revision and administration of posttest

Experimental Group II: Listening Comprehension

Session 1: Training research assistants, general orientation and interactions between the researcher and the participants to gain their confidence and cooperation. Administration of pretest.

Session 2: The participants were welcomed to the session**.** The researcher gave the participants guidelines on listening to English language comprehension passages on a digital audio player. An English language comprehension passage (instructional material) recorded on a digital audio player was distributed to each participant for them to listen to**.** The researcher instructed the participants to listen to the recorded passage for 60 minutes: 15 minutes was for teaching, 10 minutes for background exploration, and the

next 15 minutes was for predicting answers while listening. The last 20 minutes were for drawing a conclusion or answering questions.

Session 3: The participants were taught the importance of listening and listening again to understand English language comprehension passages on a digital audio player (instructional material) by the researcher. The researcher provided the participants with another English language comprehension passage recorded on a digital audio player for them to listen to**.** The researcher instructed the participants to listen to the recorded passage for 60 minutes: 15 minutes was for teaching, 10 minutes for background exploration, and the next 15 minutes were for predicting answers while listening. The last 20 minutes were for drawing a conclusion or answering questions.

Session 4: The participants greeted the researcher. She taught them to identify the main idea in an English language comprehension passage using a digital audio player (instructional material). An English language comprehension passage was recorded on a digital audio player for each participant to listen to**.** The researcher instructed the participants to listen to the recorded passage for 60 minutes: 15 minutes was for teaching, 10 minutes for background exploration, and the next 15 minutes was for predicting answers while listening. The last 20 minutes was for drawing a conclusion or answering questions.

Session 5: The researcher welcomed the participants to this section. She explained how to identify the main ideas in an English language comprehension passage. A similar English language comprehension passage recorded on a digital audio player (instructional material) was distributed to each of the participants to listen to**.** The researcher instructed the participants to listen to the recorded passage for 60 minutes: 15 minutes was for teaching, 10 minutes for background exploration, and the next 15 minutes were for predicting answers while listening. The last 20 minutes were for drawing a conclusion or answering questions.

Session 6: Why students should listen to English language comprehension passages was given to the students. Another English language comprehension passage recorded on a digital audio player (instructional material) was distributed to each participant for them to listen to**.** The researcher instructed the participants to listen to the recorded passage for 60 minutes: 15 minutes was for teaching, 10 minutes for background exploration, and the

next 15 minutes were for predicting answers while listening. The last 20 minutes were for drawing a conclusion or answering questions.

Session 7: The participants were taught to predict and confirm post-English language comprehension answers. An English language comprehension passage was recorded on a digital audio player (instructional materials) for each participant to listen to**.** The researcher instructed the participants to listen to the recorded passage for 15 minutes for the teaching, 10 minutes for background exploration, and the next 15 minutes for predicting answers while listening. The last 20 minutes were for drawing a conclusion or answering questions.

Session 8: Revision and administration of posttest

3.6.3 Posttest Administration

On completion of the treatment, the researcher used the achievement in the English language comprehension test used for the pretest to assess the participants for post-test scores, which ended the training.

3.7 Method of Data Analysis

The data were analyzed using descriptive statistics and analysis of covariance (ANCOVA). The analysis of covariance (ANCOVA) was at a significance level of 0.05. Analysis of covariance was used because ANCOVA treats the pretest scores as covariates to control for pre-existing mean differences between experimental and control groups and compare the posttest scores of two groups while controlling for the test administered before the intervention. Statistical significance was isolated using Scheffe post hoc analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter, the study's results are presented. After analyzing the seven hypotheses, the chapter concludes with a discussion of the findings derived from the study.

4.1.1 $H0_1$: There is no significant main effect of treatment on the achievement in English language comprehension among students with VI.

Table 4.1: Results of the 3x2x2 Analysis of Covariance (ANCOVA) Posttest regarding the achievement of VI students in English language comprehension

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1324.062[a]	9	147.118	1.109	.456	.588
Intercept	272.298	1	272.298	2.052	.195	.227
Prescore	208.621	1	208.621	1.572	.250	.183
Trtgroup	851.383	2	425.692	3.208	.038	.387
Onset	22.330	1	22.330	.168	.694	.023
Emotion	25.584	1	25.584	.193	.674	.027
trtgroup * onset	451.833	1	451.833	3.405	.027	.167
trtgroup * emotion	32.691	1	32.691	.246	.635	.034
onset * emotion	4.230	1	4.230	.032	.863	.005
trtgroup * onset * emotion	10.830	2	5.951	.045	.099	.009
Error	928.879	7	132.697			
Total	39900.000	17				
Corrected Total	2252.941	16				

a. R Squared = .588 (Adjusted R Squared = .3457)

A significant main effect of treatment was observed in Table 4.1 in enhancing the achievement of comprehension among participants with VI ($F2, 7= 3.208$, $p < 0.05$, $\eta 2 = 0.387$). Students with VI exposed to Braille reading (BR) and Digital audio player (DAP) achieved significantly higher English language comprehension mean scores than the control group. Consequently, hypothesis one cannot be accepted. Therefore, the results indicate that treatment enhances the achievement in English language comprehension of students with VI. This implies that Braille reading (BR) and Digital audio player (DAP) effectively enhance achievement in English language comprehension among students with VI.

It will be helpful to determine the direction of the differences between the three groups (BR, DAP and Control) regarding the enhanced achievement in English language comprehension among students with VI. The direction of the differences in mean scores will be as important as the magnitude of the differences between treatment and control groups.

Table 4.2: Statistical Significant Differences

TREATMENT	N	Subset for alpha = 0.05		
		1	2	3
Braille Reading (BR)	8	53.064		
Digital audio-player (DAP)	5		45.341	
Control	4			39.163
Sig.		1.000	1.000	1.000

Table 4.2 shows the following observations: (i) For students with VI, there were statistically significant differences between the Braille reading and digital audio-player groups. Nevertheless, many participants gained more benefit from the BR (Mean = 53.064) than from the digital audio players (Mean = 45.341). (ii) The post-hoc test mean scores indicated a difference between the Braille reading group and the control group in terms of improving English language comprehension among students with VI was significant. In comparison with the control group (Mean = 39.163), students with VI achieved significantly higher levels of English language comprehension when Braille reading was used (Mean = 53.064). (iii) Post-hoc tests show a significant difference between the Digital audio-player and control groups regarding the enhancement of English language comprehension among students with VI.

A digital audio player (Mean = 45.341) significantly improved English language comprehension among students with VI compared to the control group (Mean = 39.163). Participants in Braille reading, Digital audio-player, and the control group scored significantly differently. In contrast, Braille reading, and digital audio player outperform the control group

$H0_2$: There is no significant main effect of onset of VI on the achievement in English language comprehension among students with VI.

Table 4.1 shows that the onset of VI does not significantly affect students' ability to comprehend English ($F1, 7 = .168$, $p > 0.05$, $\eta 2 = 0.027$). Therefore, the mean scores for English language comprehension of the congenital and adventitious VI groups were not significantly different. The second hypothesis is therefore accepted.

$H0_3$: There is no significant main effect of emotional intelligence on achievement in English language comprehension among students with VI.

As shown in Table 4.1, emotional intelligence had no significant effect on the English language comprehension achievement of students with VI ($F1, 7 = 0.193$, $p > 0.05$, $\eta 2 = 0.027$). Accordingly, when compared with each other, no significant differences were found between students with VI in the low and high emotional intelligence levels. Hence, hypothesis three is accepted.

$H0_4$: There is no significant interaction effect of treatment and onset of VIon achievement in English language comprehension among students with VI.

According to Table 4.1, treatment and onset of VI significantly affect English language comprehension (F1, 7= 3.405, $p < 0.05$, $\eta 2 = 0.167$), thus rejecting the hypothesis. As a result, the interaction between the treatments (Braille reading and digital audio-player) and the onset of the VI (congenital and adventitious) is significant in enhancing achievement in English language comprehension among students with VI.

$H0_5$: There is no significant interaction effect of treatments and emotional intelligence on achievement in English language comprehension among students with VI.

As shown in Table 4.1, treatment and emotional intelligence had no significant interaction effect on English language comprehension among students with VI (F1, 7= .246, $p > 0.05$, $\eta 2 = 0.034$). Therefore, treatment and emotional intelligence had no significant interaction effect on the achievement among students with VI. Hence, hypothesis five is accepted.

$H0_6$: There is no significant interaction effect of onset of VI and emotional intelligence on achievement in English language comprehension among students with VI.

As shown in Table 4.1, emotional intelligence had no significant impact on achievement in English language among students with VI (F1, 7 = .032, $p > 0.05$, $\eta 2 = 0.005$). Therefore, there is no significant interaction between the onset of VI and emotional intelligence on achievement in English language comprehension among students with VI. Hence, hypothesis six is accepted.

$H0_7$: There is no significant interaction effect of treatments, onset of VI and emotional intelligence on achievement in English language comprehension among students with VI.

Table 4.1 shows no significant interaction between treatment, the onset of VI and emotional intelligence on English language comprehension achievement among students with VI (F2, 7= .045, $p > 0.05$, $\eta 2 = 0.009$). The onset of VI, emotional intelligence, and treatments did not significantly affect achievement in English language comprehension among students with VI. Hence, hypothesis seven is also accepted.

4.2 Summary of findings

The findings are summarized as follows:

1. Treatments were significant in enhancing achievement in English language comprehension among students with VI. Braille reading and digital audio-player effectively enhanced achievement in English language comprehension of students with VI, but Braille reading yielded better results than digital audio-player.
2. Onset of VI did not have a significant main effect on the achievement in English language comprehension among students with VI. This implies that the onset of VI did not play a vital role in enhancing achievement in English language comprehension among students with VI.
3. Effect of emotional intelligence on the achievement in English language comprehension among students with VI was not significant. This implies that emotional intelligence did not play any significant role in enhancing achievement in English language comprehension among students with VI.
4. Treatments and onset of VI interaction effect on the achievement in English language comprehension among students with VI was significant. This implies that the interaction of the treatments and onset of the blindness (congenital and adventitious) significantly enhanced the achievement in English language comprehension among students with VI.
5. Treatments and emotional intelligence did not have a significant interaction effect on the achievement in English language comprehension among students with VI. In essence, the abilities of the participants in the experimental groups are not determined by their emotional intelligence levels.
6. Onset of VI and emotional intelligence interaction effect on the achievement in English language comprehension of students with VI was not significant. This implies that interaction between onset of VI and emotional intelligence had no intervening influence on achievement in English language comprehension among students with VI.
7. Treatments, onset of VI and emotional intelligence interaction effect on the achievement in English language comprehension of students with VI was not significant. This implies that the interaction effect of treatments, onset of VI and

emotional intelligence did not play any significant role in achievement in English language comprehension among the participants.

4.3 Discussion of Findings

4.3.1 Main effect of treatment on achievement in English language Comprehension of Students with VI

The findings showed substantial main effects of treatments in enhancing English language comprehension achievement among the participants with VI. Therefore, students with VI exposed to Braille reading (BR) and Digital audio-player (DAP) achieved significantly higher scores in English language comprehension than students in the control group. It is therefore not possible to accept hypothesis one. Therefore, it is concluded that treatment's main effect in enhancing achievement in English language comprehension among students with VI was significant. This implies that Braille reading (BR) and Digital audio player (DAP) effectively enhance achievement in English language comprehension of students with VI.

Scheffe post-hoc analysis in Table 4.2, which presented the difference in levels of significance, indicated a statistically difference in the posthoc scores in enhancing achievement in English language comprehension of students with VI in the Braille reading and digital audio-player groups. However, Braille reading was more effective in enhancing achievement in English language comprehension of the participants as those in Experimental group I (Braille reading) benefited better from the treatment than participants in Experimental group II (Digital audio-player). These outcomes proved that the use of Braille reading and digital audio player in teaching students with VI has the potential to enhance achievement in English language comprehension of this category of students, which, in turn, has a positive effect on their lingering poor English language achievement.

The researcher discovered from the participants during this study that teachers do not use Braille reading and digital audio-player to enhance their achievement in English language comprehension and attributed their poor achievement in English language comprehension to lack of learning materials in accessible format. Achievement in English language comprehension of participants in the Braille reading group was more enhanced

than that of those in the digital audio supported reading technique group because the students with VI had a better understanding of the passage. Reading gives a better opportunity to interact with reading materials than listening to the materials on audio digital-player. When a student with VI reads, the student concentrates more than the student who is listening. English language Comprehension requires the students to identify main ideas and salient points which are interpreted to derive meaning from the author's message. Participants in the Braille reading group also had the opportunity to learn spelling, build vocabulary, and get acquainted with the language structure of the text which helped them to answer the post English language comprehension questions better than those in the digital audio-player group.

The participants in the digital audio-player group listened to the passages and this could adversely affect their concentration and understanding of the passages. The way a digital audio-player or a volunteer reader pronounces words, accents, stress and syllabus, vowel and consonant sound, may also affect their understanding of the passages. Students in the Braille reading group worked with what was touched and what was sensed while those in the digital audio-player group worked with what was heard and not what was touched which might have affected participants in the digital audio-player who may not understand the dialect of the reader. Participants in the digital audio-player group might not have an ample opportunity to learn spelling and get acquainted with the language structure and so were unable to get some of the English language post comprehension questions correctly. Operating the digital audio-player might have caused the differences in the achievement in English language comprehension of the two groups since operating the device might have slowed down the pace of the students in the digital audio-player group. However, the experimental groups performed better in English language comprehension than the control groups because participants in the experimental groups were taught Braille reading and a digital audio player. This implies that Braille reading, and digital audio-player are capable of enhancing achievement in English language comprehension among students with VI and so are very good in teaching them.

These finding is in line with those of Gilakjani and Sabouri (2016); Akpan and Beard (2013), Peterson (2015); and Retorta and Cristovao (2017) who found in their

studies that Braille reading, and digital audio-player positively influenced achievement in English language comprehension of the students with VI exposed to treatments who had higher mean scores than those in control group. Research has shown that students who have for some time been tagged underachievers had their academic achievement significantly improved when adapted/special strategies and devices were employed in teaching them (Jackson 2012; Bhatti and Kumari 2015; Kathleen, Roy, Eleanor, George, and Joan 2007).

This study outcome confirms the findings of Garcia (2017); Bernable, Lei, McKerracher and Orel-Bixler (2019) who pointed out that Braille reading is more effective in enhancing achievement in English language comprehension among students with VI than digital audio-player. Other studies equally revealed that digital audio-player has the capacity to positively improve academic achievement among students with VI (Piggio, Juddio, and Grudin 2011; Susanto and Nanda 2018; Oira 2016). Students with VI in experimental group II who were exposed to audio-mediated learning achieved higher comprehension than students with VI who were not exposed to any treatment. This implies that students in experimental group II were involved in the learning process. A situation highly contrasts with the conventional teaching method that excludes students with VI from teaching and learning of English language comprehension. It also explains why students with VI who were exposed to treatments experienced better outcomes than their control group counterparts.

In support of this study also are the findings of Efstathiou and Polichronpoulou (2015) as well as Anyanwu (2013) who found that it is almost impossible for students with VI to score high marks in comprehension without accessing the context of the comprehension passage either through Braille reading or audio format. This study lends support to the earlier discoveries by Johnstone, Altman, Timmons, and Thurlow (2009) and Iroegbu (2009) in which Braille reading and digital audio-player respectively significantly improved achievement in English language comprehension of students with VI used for the study. Consequently, the findings discussed above point to the fact that provision of comprehension passage in Braille or on digital audio-player is an essential

approach in improving academic achievement among students with VI. This improvement would eventually ameliorate persistent failure in English language and other school subjects which students with VI experience in local and foreign examinations.

However, the findings of this study contradicts that of Radojichikj (2015) who found that Braille reading had no significant positive effect on achievement in comprehension among students with blindness who participated in his study. Likewise, the result of the study by Finley (2003) in which the use of digital audio-player did not indicate any significant improvement in the teaching and learning outcome of an experimental study that involved students with VI. Similarly, the findings of this study opposed the studies of Uwakwe and Okorie (2015); Alper and Raharinirina (2006) which reported that neither Braille reading, nor digital audio-player had the potency to make the positive change expected in the overall academic achievement of students with VI. The differences observed in the findings of these studies could be attributed to the ability of the researchers to manage their treatment effectively, time lag in the course of the treatment, willingness and cooperation of both the researchers and the participants among other factors.

4.3.2 Main effect of onset of VI on the achievement in English language comprehension of students with VI

Based on Table 4.1, the onset of VI did not significantly impact the achievement of VI students in English language comprehension. The results indicate no significant difference in achievement in English language comprehension among students with VI in the congenital and the adventitious when compared with each other. The onset of VI had no significant impact on the participants' mean scores. This could be because the onset of VI (congenital or adventitious) did not determine the ability of the participants to enhance their achievement in English language comprehension.

The finding from this study agrees with Garcia (2017) who determined the effect of onset of VI on achievement in reading English language comprehension of students with VI and found that onset of VI had no effect on English language comprehension of

the participants. In line with this finding also is the result of Dietrich, Hetrich and Ackermann (2013) which indicated that significant difference did not exist in the achievement in listening comprehension of congenitally and adventitiously blind participants. The result also corroborated those of Lovi (2013) and Smed (2015), who found that the onset of VI did not influence the participants' reading and listening comprehension abilities because the mean scores of students with congenital and adventitious blindness did not differ significantly. This study also supports the findings of earlier research by Daneman (1988); Marpsein (2003); Postma Zuidhoek, Noordzijo and Kapper (2007), who found that a significant difference did not exist between the achievement in comprehension of students with congenital blindness and students with adventitious blindness that were exposed to treatments.

On the contrary, finding of this study opposes the findings of Retorta and Cristovao (2017); Nashleanas (2018) which reported that significant positive association emerged between onset of VI and achievement in comprehension and that the adventitiously blind students performed better than the congenitally blind students. In addition, this result negates the findings from Hupp (2003) and Iroegbu (2009). The latter group had an advantage over the former. The finding from the present study suggests that students with congenital or adventitious blindness used for the study have overcome the effect of blindness and have equally adjusted to academic rigour. This implies that intervention programmes designed to improve achievement in comprehension would equally benefit students with congenital and those with adventitious blindness. According to Mansy, Halim, and Wahab (2017), onset of VIthrows the affected in disarray affecting the overall personality of such an individual and the ability/inability of the affected to adjust makes the difference.

4.3.3 Main effect of emotional intelligence on the achievement in English language comprehension of students with VI

The effect of emotional intelligence on the achievement in comprehension of students with VI was not significant. The result obtained indicates that emotional

intelligence of the participants had no effect on achievement in English language comprehension among them. This is because the level of emotional intelligence (high or low) of the participants did not exert influence on achievement in English language comprehension among the students with VI used for the study. The finding of this study concurs with that of a study by Williams and Morris (2013) who found that significant difference did not exist in the emotional intelligence and achievement in comprehension levels of students with VI that participated in the study. This finding corroborates with the study of Parker (2004) in which emotional intelligence did not significantly affect achievement in comprehension of participants with blindness. The finding of this study also supports the empirical evidence reported by Eniola and Busari (2014) that enhanced emotional intelligence had no significant effect on self-efficacy measures of students with VI used for the study.

Likewise, the outcome of this study agrees with those of Xu (2018) who found that low or high achievement in comprehension among students is not attributed to levels of emotional intelligence of those students. This study's findings are in line with those of Catalina Stanescu and Mohorea (2012), and Erol and Kyari (2014), who discovered that emotional intelligence was not associated with low or high comprehension achievement among VI students. In addition, the finding aligns with the finding of a study by Okoye and Tanimola (2014) who reported that emotional intelligence had no significant impact on achievement in comprehension of the participants. On the other hand, the result is not consistent with the finding of Tabrizi and Esmaeili (2016) who maintained that a close relationship existed between emotional intelligence and achievement in comprehension among students with VI. In the same vein, Fernandez and Sheikhzadeh (2017); Abdolrezapour and Tavakoli (2012); Kumar and Singh; (2013) found that high or low academic achievement among students with VI is attributed to emotional intelligence levels of the students.

4.3.4 Interaction effect of treatment and onset of VIon the achievement in English language comprehension of students with VI

The treatments and onset of VI interaction effect on English language comprehension among students with VI was significant. This implies that the interaction of the treatment (Braille reading and digital audio-player) and onset of VI (congenital and adventitious) has a significant interaction effect in enhancing the achievement in English language comprehension among students with VI. The independent variable (onset of vi) interacting with the dependent variable (achievement in English language comprehension) had an interaction effect on the dependent variable. Onset of VI (congenital or adventitious) influenced the ability of the students with VI to enhance their achievement in English language comprehension. Exposing students with congenital or adventitious blindness to adjustment-based counseling services will nullify the difference that exists in the abilities of the two groups of students with VI.

This finding corroborates that of Argyropoulos and Papadimitriou (2015) who reported that students with congenital blindness who were exposed to an intervention programme benefited better than students with adventitious blindness that were exposed to the same programme. This finding is also in tandem with that of Komolafe and Tajudeen (2018) who determined the adjustment levels of students with congenital blindness and students with adventitious blindness and found that students with congenital blindness had higher self-concept and adjust better than students with acquired blindness. The result is consistent with the findings from research such as Moreno, Vermeulen and Jordano (2016); Frieger, Roder, Hilyard, and Neville (2006); Kensuke, Tetsuya, Shigeru, Yasushi and Nakano (2014); Hupp (2003) which found that onset of VI influenced comprehension abilities among students with congenital blindness and students with adventitious blindness and that students with adventitious blindness achieved higher than students with congenital blindness.

However, the finding from this study negates the findings of Daneman (1988); Smed (2015) Postma, Zuidheok, Noordzijo and Kapper, (2007) who established that onset of VI does not affect individuals' intellectual ability and attitude rather VI and other underlying factors may influence the intellectual ability and attitude of the affected.

4.3.5 Interaction Effect of Treatment and Emotional Intelligence on the Achievement in English language Comprehension of Students with VI

This result supports the finding of a study conducted by Al-Tai, Jawaldeh, Al-Taj and Maharmeh (2017) who affirmed that vision loss does not really hinder or obstruct the development of emotional intelligence in individuals with sight loss, and so this category of students can develop high emotional intelligence and interact effectively with people. The result also corroborates with the study of Kumar and Singh (2013) who concluded that the ability of students with VI to adjust to situations, environments, cope with challenges and adapt behaviour does not depend on their emotional intelligence status. Likewise, the finding of this study agrees with the finding of Parween (2015) who reported that economic status, education level of parents and school type have no effect on emotional intelligence of students with VI in higher institutions. The result concurs with the findings of Karaman (2012) in which emotional intelligence did not impact on achievement in English language of the students used for the study. In addition, the finding is in line with the study by Kumar and Kumar (2013); Degghan and Nazarim (2012) who confirmed that how students with VI interact with their peers, relate with teachers and cope with their studies do not actually depend on knowledge and management of emotions.

4.3.6 Interaction effect of onset of VI and emotional intelligence on the achievement in English language comprehension of students with VI

The result indicates that onset of VI and emotional intelligence (independent variables) working together did not influence achievement in English language comprehension (dependent variable) of the participants; that is achievement in English language comprehension of experimental groups is not dependent on onset of VI and emotional intelligence. This present finding corroborates the finding of Arshad and Lodhi (2015) who concluded that involvement in voluntary activities, relationship pattern among people, ability of adolescents to cope with adolescence and adjusting to academic stress among students with congenital blindness, adventitious blindness and sighted students is not shaped by or based on emotional intelligence or ability to manage emotions rather, it is traced to personality enduring characteristics and individual differences. The result is

consistent with the finding of Garcia (2017) that high or low achievements in comprehension among students with VI do not depend on whether the students were born with blindness or acquired blindness.

The present study also confirms the finding of Mansy, Halim, and Wahab, (2017) that onset of VIand levels of emotional intelligence do not prevent students with VI from achieving their goals in life as a good number of students with VI have graduated from local and foreign universities and are doing well in their respective fields VI not withstanding also agrees with the finding from this study. This finding lends support to the finding of Parker (2004) who affirmed that emotional intelligence does not determine comprehension abilities of students with congenital blindness or that of those with adventitious blindness. Finding of this study corroborates findings of researches by Catalina, Stanescu and Mohorea (2012); Postma, Zuidhoek, Noordzijo and Kappers (2007); Marpsein (2003) who concluded that students with VI are capable of adapting to school environment and utilizing their remaining senses in actualising their life ambition and contributing to the development of their society in spite of onset of vi, emotional intelligence, family background and pubic attitude. However the present finding negates the results of Moreno, Vermeulen and Jordano (2016); Onu, Asogwa and Obetta (2013) who found that onset of impairment and emotional intelligence affect not only achievement in comprehension of both students with congenital and those with adventitious blindness but also influence their academic achievement and adjustment levels.

4.3.7 Interaction effect of treatment, onset of VI and emotional intelligence on the achievement in English language comprehension of students with VI

The interaction effect of treatments, onset of VI and emotional intelligence did not play any significant role in the achievement in English language comprehension among the participants. This empirical discovery is peculiar as it emerged from experimental research that practically involved students with VI. The discovery is also unique in the sense that it adds to the existing sparse literature and forms the basis for further studies. Moreover, the study revealed that enhancing achievement in English language

comprehension among students with VI with the use of Braille reading and digital audio-player does not depend on onset of VI and emotional intelligence.

This finding concurs with that of Stanfa and Johnson (2015) who maintained that though teachers complain about the difficulty and time involved in transcribing print to Braille for reading, other factors rather than onset of VI account for the variance in mean scores of students with VI. The study also supports the finding by Khoirunisa,Gunarhadi, Choiri and Sunarrdi (2017) who concluded that provision of learning resources in Braille for students with VI is the only way the students irrespective of time of onset can participate in the classroom and benefit from comprehension exercise. However, this finding contradicts the studies by Attri and Rai (2013); Byran et al (2017) in which interaction effect of the treatments, onset of VIand emotional intelligence influenced the study outcome. The result of this study agrees with the findings from the studies of Iheme and Olee-Onwubiko (2013); Silverman and Bell (2018) that lack of the use of digital audio-player in teaching students with VI accounts for underachievement among them rather than emotional intelligence levels. This finding corroborates with the studies by Efstathiou and Polichronpoulou (2015); Ochigbo (2016); Ibeabuchi (2013) who noted that examining students on a topic they were not taught is a frantic effort and attributed learning challenges facing students with VI to non-availability of study materials in accessible format (Braille and digital audio-player). The researchers advised teachers to utilize Braille reading and digital audio-player in teaching students with VI.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary, implications of findings, limitations of the study, conclusions, recommendations, contribution to knowledge, and suggestions for further research are presented in this chapter.

5.1 Summary

This study examines the effect of Braille reading and digital audio-player on achievement in English language comprehension among students with VI in Imo state, Nigeria. The study also determined the interaction effect of onset of VI and emotional intelligence in enhancing achievement in English language comprehension among the participants. A quasi-experimental research design with a pretest-posttest control group was used and seventeen students with total blindness were purposively selected for the study from three integrated secondary schools in Imo State, Nigeria. The participants were assigned to experimental and control group and one control group at random. and the treatment lasted for eight weeks. Bar-On emotional quotient Inventory: Youth version (Bar-On EQI-YV) and achievement in English language comprehension test were the instruments used for the study. Descriptive statistics and inferential statistics were used to analyze data obtained from the study. The study is concluded with summary, implication of findings and recommendations.

5.2 Implication of Findings

The study revealed that Braille reading, and digital audio-player are effective in enhancing achievement in English language comprehension among the participants. It also demonstrated the fact that onset of VI and emotional intelligence do not have significant effect in enhancing achievement in English language comprehension among students with VI. The study has been able to prove the fact that students with VI can score high marks in English language comprehension if adequate strategies are used in teaching

them. The effectiveness of the Braille reading and digital audio-player in enhancing achievement in English language comprehension among students with VI is a source of encouragement and has built hope in them.

Students with VI are now aware through the training that English language comprehension passages could either be Brailled or recorded on digital audio-player for them which affords them the opportunity to study English language comprehension alongside sighted students in the classroom. Students with VI becoming aware of the fact that Braille reading and digital audio-player place them on the same platform with sighted students in the classroom, create room for their independent study which in turn increases their achievement in English language comprehension. It also boosted their self-esteem, particularly underachievers among them. The study has enlightened parents of students with VI on the potency of Braille reading and digital audio-player in enhancing achievement in English language comprehension among their children and encouraged them to enroll such students in special training centres and special primary schools for them to acquire Braille reading and listening skills.

The study has also revealed the importance of teaching students with VI Braille reading and digital audio player in various special training centres and primary schools as these strategies are fundamental for their academic progress. Special educators and regular teachers at secondary and post-secondary school levels have been sensitized that for students with VI to make good grades in an examination, they must be included in the activities that go on in the classroom by providing them with learning resources in Braille or digital audio-player. Poor performance of the control group has shown that students with VI do not benefit from conventional teaching methods; rather, it does exclude them from English language comprehension exercises in the classroom. Indeed, this study portrays the significance of teaching would-be-teachers of students with VI Braille reading, writing and the procedures for recording on digital audio-player for students with VI and ensuring that they learn it.

Findings of this study have implications for all education stakeholders particularly school administrators and education policy makers as it has proved the efficacy of Braille reading and digital audio-player in improving achievement in English language comprehension of students with VI. This helps school administrators see the importance

of recommending to the government special training for students with VI for them to acquire Braille reading and listening skills, provision of special equipment, tools and technical advice to them. The effectiveness of the intervention in enhancing achievement in English language comprehension among students with VI encouraged education policy makers to make policies that would support the use of Braille reading and digital audio-player in teaching students with VI in the classroom alongside their sighted counterparts.

5.3 Limitations of the Study

The findings have provided insight into the effectiveness of Braille reading and digital audio players in enhancing achievement in English language comprehension among students with VI. However, there was a constraint because the study was limited to only students with visual impairment in Imo state, and the sample size was small. In addition, getting the consent and cooperation of students with VI for this study was not easy because most of them complained of the need for a sighted guide that will take them to the location of the intervention. In addition, the treatment concentrated only on English language comprehension abilities neglecting other aspects of the English language. The study was carried out for 8 weeks which may not be enough to provide meaningful intervention on achievement in English language comprehension among students with VI who even need more time and attention to learn.

5.4 Conclusion

This study determines the effect of Braille reading and digital audio-player on the achievement in English language comprehension of students with VI in Imo state, Nigeria. The study affirmed that Braille reading and digital audio-player are effective in enhancing achievement in English language comprehension among students with VI but pointed out that Braille reading was more effective than digital audio-player. This finding shows that using Braille reading and digital audio-player in teaching students with VI in the classroom is a right step in the right direction towards ameliorating poor achievement in English language comprehension among students with VI.

Onset of VIand emotional intelligence were used as moderating variables of the study. The result revealed that onset of VIand emotional intelligence had no effect on the

achievement in English language comprehension of students with VI. This indicates that neither onset of VI (congenital and adventitious) nor emotional intelligence (high and low) determines achievement in English language comprehension among students with VI. The interaction between treatment and onset of VI had significant influence on the achievement in English language comprehension of the participants while treatment and emotional intelligence did not significantly impact achievement in English language comprehension of the participants. Interaction between treatment, onset of VI and emotional intelligence on the achievement in English language comprehension of students with VI was not significant.

5.5 Recommendations

The following recommendations are made based on the results of this study:

i. Teachers should use Braille reading and digital audio-player in teaching students with VI to enhance their achievement in English language comprehension in particular and their overall academic success.

ii. Students with VI should learn Braille reading and how to use digital audio-player in special training centres and primary schools so that they can use them for their studies.

iii. Parents should be willing to learn Braille reading and how to use a digital audio player to help their children with VI do their assignments at home.

iv. The curriculum planners should ensure that Braille reading and digital audio players are incorporated into the curriculum so students with disabilities can progress academically.

v. Policymakers should ensure that policies regarding including Braille reading and using digital audio-player in the education system are formulated and adequately implemented.

vi. The government should fund the provision of Perkins Brailler, a digital audio player and other special related equipment for students with VI.

5.6 Contribution to Knowledge

The following contributions have been made to existing knowledge as a result of this study:

i. Braille reading effectively enhances achievement in English language comprehension among students with VI.

ii. Digital audio supported reading techniques also enhance achievement in English language comprehension among students with VI, but Braille reading was more effective than a digital audio player.

iii. In addition, this study has established that the onset of VI does not affect achievement in English language comprehension among students with VI.

iv. Emotional intelligence also does not affect achievement in English language comprehension among students with VI.

5.7 Suggestions for Further Studies

Based on the limitations the following suggestions are suggested:

I. The scope of the study should be extended to other towns and states in Nigeria.

II. The sample size of the study was small therefore other researchers are encouraged to use a larger sample size and include more variables.

III. The study should be replicated using longitudinal research design.

REFERENCES

Abdolrezapour, P. and Tavakoli, M. 2012. The relationship between emotional intelligence and efl learners' achievement in reading comprehension. *Innovation in Language learning and teaching,* 61:1-13.

Adebiyi, B.A. and Abilu, R.A. 2009. A guide to braille reading and writing with activities. D-Tech Computer.

Adio, O.A. and Komolafe, R.D. 2015. The state of paediatric eye care in Nigeria: A situational review and call for action. *Nigerian Journal of Health,* 13(1):1-6.

Afolabi, R. K. 2017. Psychosocial factors Affecting Students in Secondary School's Academic Achievement in Kwara State. *Journal of Education and Psychology,* 3(9)191-207.

Agesa, L. 2014. Challenges Faced by Learners with Visual Impairments in Inclusive Setting in Trans-Nzoia Country**.** *Journal of Education and Practice,* 529: 115-119.

Akpan, J.P. and Beard, L. 2013. Overview of Assistive Technology Possibilities for Teachers to Enhance Academic Outcomes of all Students. *Universal Journal of Educational Research,* 12:113-118.

Alper, G.H. and Raharinirina, S. 2006. Assistive Technology for Individuals with Disabilities: A Review and Synthesis of the Literature. *Journal of special Education Technology,* 212:47-64.

Al-Tai, S., Jawaldeh, F., Al-Taj, H. and Maharmeh, L. 2017. Emotional Intelligence Levels of Students with Sensory Impairment. *International Journal of Educational Studies,* 108:145-153.

American Foundation for the Blind. 2016. What Is Braille? Retrieved on 1/06/2016 from http://www.afb.org/default.aspx.

An, S. 2013. Schema Theory in Reading. *Journal of Theory and Practice in Language Studies,* 31:130-134.

Anyanwu C.J. (2013). Integrating information and communication technology (ICT) in special education: The Imo state experience. *National Journal of education student ,* 2(*3):* 44-51.

Argyropoulos, V. and Papadimitriou, V. 2015. Braille Reading Accuracy of Students who are Visually Impaired: the Effects of Gender, Age at Vision Loss and Level of Education. *Journal of Visual Impairment and Blindness,* 1092:107-118.

Argyropoulos, V., Martos, A., Sideridis, G., Kouroupetroglou, G., Nikolaraizi, M. and Papazafiri, M. 2015. Reading Comprehension Issues and Individuals with Visual Impairments: The Effects of Using 8-dot and 6-dot Braille Code through a Braille

Display. In: The Low use of Sign Writing Computational Tools from HCL Perspective, pp.71-81.

Arlinwibowo, J. and Retnawati, H. 2015. Developing Audio Visual Tactile for Visually Impaired Students. *International Journal on New Trends in Education and their Implication*, 64:18-30.

Armstrong, T. 2014. You are Smarter than you Think: A Kid's Guide to Multiple Intelligence. Minnea Polis, MN: Free Spirit.

Arshad, M. and Lodhi, M.U. 2015.Congenital Blind and Sighted Emotional Intelligence Difference. *The Professional Medical Journal*, 2210:1336-1344.

Arslantas, T.K. 2017. Foreign Language Education of Visually Impaired Individuals: A Review of Pervasive Studies. *Ihiara Journal of Educational Research*, 22:95-104.

Attri, A.K and Rai, B.K. 2013. Emotional Intelligence of Visually Impaired Adolescents Studying in Inclusive and Exclusive Settings. *International Journal of Educational Research.* 12:33-39.

Awshee, L. 2018. Fun Activities to strengthen your Child's Vision. Accessed on 14/05/2019 from http://thinkfun.com.

Baddeley, A.D. 2001. Is Working Memory Still Working? *American Psychologist*, 561:851.

Bar-on, R. and Parker, J. 2000. The Emotional Quotient Inventory: Youth version: Technical Manual, Toronto, On: Multi-Health Systems.

Bernable, N.N., Lei, D., McKerracher, A. and Orel-Bixler, D. 2019. The Impact of Presentation Mode and Technology on Reading Comprehension among Blind and Sighted Individuals. *Journal of Optometry and Vision Science*, 95(5):354-361.

Bhatti, A. and Kumar, A. 2015. Assistive Technology for the Visually Impaired children for their Academic Excellence. *Global Journal of Medical Case Report*, 2(3):229-237.

Block, D. (2003). The social turn in second language acquisition Washington, DC: Georgetown University press.

Bola, L., Siuda-Krzywicka, K., Paplinska, M., Sumera, E., Harizur, P. and Szwed, M. 2016. Braille in the sighted. Teacher tactile reading to sighted adults. *Journal of Public Library of Science*, 115: 1-7.

Borg, J., Lindstrom, N and Larsson, S. 2011. Assistive technology in developing countries; a review from the perspective of persons with disability.*Pubmednus National Library of Medicine National Institute of Health*. 351:20-29.

Bourne, R.R.A., Taylor, H.R., Flaxman, S.R., Keeffe, J.L. Leasher, J. and Naidoo, K. 2016. Number of People Blind or Visually Impaired by Glaucoma Worldwide and in the Worlds Regions 1990-2010: A Meta-Analysis. *Journal of Pre-Reviewed Open Access Scientific*, 11(10): 1-16.

Brailey, L. and Lovie-Kitchin, J.E. 1976. New Design Principles for Visual Acuity Letter Charts. *American Journal of Optometry and Physiological Optics*. 53(11):740-175.

Bretas, C.C. and Soriano, R.N. 2016. Amblyopia: Neural Basis and Therapeutic Approaches. *Journal of Arquivos Brasileros de Oftalmologia,* 795:346-351.

Byran, C.V., Louise, D.A., Grace, E.S., Melanie, B.K., Mae, B.V., Angela, M.B. and Dhenise, C.M. 2017. Adventitious Blindness: The Road to Self-Acceptance. *International Journal of Research Studies in Psychology*, 62:85-102.

Carrell, P.L. 1991. Some Causes of text-Boundedness and Schema Interference in ESL Reading. In Carrell, P.L., Devine, J. and Eskey, D.E. eds, I*nteractive Approaches to Second Language Reading.* Cambridge: Cambridge University Press.

Catalina, C.C., Stanescu, F.D. and Mohorea, L. 2012. Academic Self-efficacy, emotional Intelligence and Academic Achievement of Romanian Students. Results from an Exploratory Study. *Journal of Educational Science and Psychology,* 21:41-51.

Cheon, H. 2008. Socio-cultural Theory and Computer-Mediated Communication-based language Learning. *Journal of Linguistics and Literature*, 11:21-28.

Craik, F.I. and Lockhart, R.S. 1972. Levels of Processing: A Framework for memory Research. *Journal of Verbal Learning and Verbal Behaviour,* 116:671-684.

Damon R. 2012. *Braille is spreading but who's using it? Retrieved on 22/08/2016 from bbc.co.uk.*danielandbright.com.

Daneman, M. 1988. How Reading Braille is both like and unlike Reading Print. *Journal of Memory and Cognition*, 166:497-504.

David. M. 2019. Information Processing Theory. Accessed on 12/05/2019 from http://learning-theories.com.

De Freitas, A.C, Martins, G., Rabeluo, S., Rodrigues, F., Gonsparetto, M., Monteriode, C.K. 2009. Assistive technology applied to education of students with vision impairment. Rev. Pan Ain Salud Publication, 26: 146-52.

Deen, B., Saxe, R., Bedny, M., 2015. Occipital cortex of blind individuals is functionally coupled with executive control areas of frontal cortex. *Journal of Cognitive Neuroscience,* 278: 1633–1647.

Degghan, M. and Nazarim, M. 2012. The Comparison of Emotional Quotients in Blind and Low Visions with Normal Sighted People in shahroud Welfare Organisation. *Iranian Journal of Rehabilitation Research in Nursing*, 31: 49-54.

Dietrich, S., Hertrich, I. and Ackermann, H. 2013. Ultra-fast Speech Comprehension in Blind Subjects engages Primary Visual Cortex, Fusiform Gyrus and Pulvinar- a Functional Magnetic Resonance Imaging FMRI Study. *Journal of Neurosceince,* 14:74.

Efstathiou, A. and Polichronpoulou, S. 2015. Teaching English as a Foreign Language to Students with VI. Teaching Materials used by Teachers of English. Proceedings of International Conference of Enabling Persons with Visual Impairment, Athens, Greece.

Ekeh P.U and Oladayo, O.T. 2013. Academic Achievement of Regular and Special Needs Students in Inclusive and Non-Inclusive Classroom Settings. *European Scientific Journal*, 98:141-150.

Elige, R. and Nwamtina, U. 2017. Teaching Comprehension to the Blind. *Journal of Elementary Education,* 42:139-155.

Eniola, M.S. 2000. General introduction to special Education: Professional practice. Ibadan: Centre for External studies University of Ibadan.

Eniola, M.S. 2007. The Influence of Emotional Intelligence and Self-regulation Strategies on Remediation of Aggressive Behaviours in Adolescent with Visual Impairment. *Journal of Ethno Medicine* 11:71-77.

Eniola, M.S. and Busari, A.O. 2014. Emotional Intelligence in Promoting Self-efficacy of the visually Impaired Fresh Students of Federal College of Education Special Oyo, Nigeria. *International Journal of Humanities and Social Sciences, 414:170-178.*

Erol, F. and Kyari, G. 2014.The influence of Emotional Intelligence and Self-efficacy on Reading Comprehension of Sighted and Blind Students. *Journal of English Language and Sciences*, 13:29-35.

Espanol, E. 2016. Optic Nerve Atrophy. American Association for Pediatric Ophthalmology and strabismus. Accessed online from https://www.aapos.org/terms/conditions/81. On 29, March 29, 2018.

Eyisi, J., Adepoju, T., Adam, Q., Adekunle, A., Ademola-Adeoye, F., Eto, J. 2014. New Concept English for Senior Secondary Schools Students' Book1. Lagos: Learn Africa Plc.

Fansury, H., Lutfin, N. and Arsyad, S.N. 2019. Audio Books Teaching Media to Blind Students in Learning EFL. *Journal of Education, Language, Teaching and Science,* 11:1-9.

Fernandez, Z. and Sheikhzadeh, E. 2017. The Impact of Emotional Intelligence on the Level of Reading Comprehension and Vocabulary Knowledge: The Case of Iranian EFL Learners in Azad Universities of Tehran. Retrieved on 4/03/2019 from https://www.studocu.com /en/u/3564259.com.

Feroze, K.B. and Kaufman, E.J. 2019. Xerophthalmia. In: StatPearls. Treasure Island: StatPearls Publishing.

Finley, T.R. 2003. A descriptive Study of Utilisation of Technology from a Perspective of Full-time Faculty in Virginia's Higher Education Teacher Education programmes. Doctoral Dissertation, the George Washington University.

Freitas, D. and Kouroupetroglou, G. 2008. Speech Technologies for Blind and Low Vision. *Journal of Technology and Disability*, 20:135-156.

Frieger, A., and Roder, B. and Hilyard, S.A. and Neville, H.J. 2006.Auditory Spatial Tuning in Late-onset Blindness in Humans. *Journal of Cognitive Neuroscience*, 182:149–157.

Gagate, P., and Gilbert, C. and Zin, A. 2011. Severe Visual Impairment and Blindness in Infants: Causes and Opportunities for Control. *Middle East African Journal of Ophthalmology*, 182:109-114.

Garcia, L.G. 2004. Assessment of text reading comprehension by Spanish-speaking blind Persons. *British Journal of Visual Impairment*, 221:4-12.

Garcia, L.G. 2005. Use of a Standard Reading Comprehension Test to Assess Braille Reading Comprehension. Conference on Reading Zagreb, Croatia.

Garcia, L.G. 2017. Reading Speed and Comprehension in Braille. A Paper Presented at the National Organization of Spanish Blind Conference University of Santiago DeCompostela.

Gardner, H. 2006. Multiple Intelligence: New Horizons in Theory and Practice. New York: Basic Books.

Gilakjani, A.P. and Sabouri, N.B. 2016. Learners Listening comprehension Difficulties in English Language Learning: A Literature Review. *Journal of English Language Teaching*, 96:123-133.

Gold, O. 2002. Finding a New Path: Guidance for Parents of Young Children who are Visually Impaired or Blind. The Canadian National Institute for the Blind.

Good, W.V. and Carden, S. M. 2016. Retinopathy of Prematurity. *British Journal of Ophthalmology*, 903:254-255.

Hallahan, D.P. and Kauffman, J.M. 2006. Exceptional Learners: An Introduction to Special Education. 10th edition. Pearson Education, Inc.

Hans, A and Hans, E. 2015. Different Comprehension Strategies to Improve Student's Reading Comprehension. *International Journal of English Language Teaching*, 36:61-69.

Hansen, K.E. 2016. Guided Reading and how it affects Reading Comprehension in Struggling, Middle Level and High Level Readers. Department of Literary Education, School of Arts and Science Ralph C. Wilson, Jr. School of Education.

Hason, U. Andric, M., Atilga, H. and Collignon, O. 2016. Congenital Blindness is Associated with Large-Scale Reorganization of Anatomical Networks. *Journal of Neuroimaging*, 128:362–372.

Hersh, M.A. 2016. Travel and Information Processing by Blind People: A New Three-component Model. Glasgow University. UK.https://www.int/news-room/fact-sheets/detail/trachoma.

Herzberg, T.S., Rosenblum, P. and Robbins, M.E. 2017. Teachers' Experiences with Literacy Instruction for Dual-Media Students Who use Print and Braille. *Journal of Visual Impairment and Blindness*, 17:49-59.

Hupp, G.S. 2003. Cognitive Differences between Congenitally and Adventitiously Blind Individuals. Dissertation. University of North Texas.

Hussin, A. 2013. Experiences of Students with VIs in Adoption of Digital Talking Textbooks: An Interpretative Phenomenological Analysis. Unpublished dessertation, Colorado State University, Fort Collins, Colorado.

Iroegbu, V.U. 2009.Braillle Reading Efficiency and Achievement amongst Primary Five Adventitiously Blind Children in School for the Blind, Gindiri. *Journal of Educational studies*, 141:21-26.

Jackson, R. 2012. Audio-Supported Reading for students who are blind or visually impaired. Wakefield., MA: National Centre on Assessing the General Curriculum. Retrieved on 2/5/19 from http://aem.cast.org/about/publication/2012/supportedreadingforstudentswhoareblind or visuallyimpaired-asr.html.

Jarjoura, W. and Karni, A. 2014. Braille Reading in Blind and Sighted Individuals: Educational Considerations and Experimental Evidence. In: Handbook of Arabic Literacy-Insights and Perspectives, eds Saiegh, E. and Joshi, M. Chapter 18, pp 395-408.

Jimoh, A.M. and Oyerinde O.G. 2013. Effects of Emotional Knowledge, Self -Efficacy and Parental Involvement on Goal Setting Behaviour among Adolescents in Ibadan Area of Oyo State. *European Journal of Business and Management*, 56:95-103.

Johnstone, C., Altman, J., Timmons, J. and Thurlow, M. 2009. Students with VIs and Assistive Technology: Results from a Cognitive Interview Study in Five States.

Minneapolis, M.N: University of Minnesota, Technology Assisted Reading Assessment.

Kacorri, H. and Kouroupetroglou, G. 2013. Design and Development Methodology for 8-dot Braille Code Systems. Universal Access in Human-Computer Interaction. Applications and services for Quality of Life: 7th International Conference. Held as part of HCI International 2013, Las Vegas, NV, USA, July 21-26, 2013, Proceedings, part111 pp.331-340.

Kaludov, A. 2019. Braille Alphabet 8 Dot System. Retrieved on 12 July 2019 from http://www.123rf.com.

Karaman, E. 2012. Turkish Undergraduate Students' Emotional Intelligence and their Performance on English Language Test. Submitted to the Department of English Language, Institute of Graduate Studies and Research.

Kathleen, F.F., Roy, G.O., Eleanor, E.F., George, L.G. and Joan, A.S. 2007. Optometric clinical practice guideline care of the patient with visual impairment low vision rehabilitation. Prepared by the American optometric association consensus panel on care of the patient with low vision U.S.A. American optometric association.243N.Lindbergh Blvd., St. Louis, Mo63141-7881.

Kensuke, O., Tetsuya, A., Shigeru, I. and Yasushi, Nakano. 2014. Tactile Sensitivity and Braille Reading in People with Early Blindness and Late Blindness. *Journal of Visual Impairment and Blindness*, 1082:122-131.

Khoirunisa, E., Gunarhadi, G., Choiri, A.S. and Sunardi, S. 2017. The use of Cooperative Integrated Reading and Composition CIRC Method to Improve Reading Comprehension Ability of Visually Impaired Students in the 3rd Grade OfSdSlb A Ykab Surakarta, Indonesia. *European Journal of Special Education Research*, 21:59-70.

Kloc, J. 2011. Reading Braille Activates the Brain's Visual Area. Retrieved from http://www.scientificamerica.com on 25/01/2019.

Koeswiryono, D. P., Asrori M. and Setyaningsih, E. 2014. Teaching and Learning Process of Reading Comprehension to Students with VI. *Journal of English Education*, 23:347-355.

Komolafe, A. F. and Tajudeen, O. A. 2018. Differential Adjustment of Students with Congenital and Acquired Blindness in Oyo and Lagos States, Nigeria. *International Journal of Engineering and* Science.152:21-27.

Kozulin, A. 1990. Thinking and Speech. In R.W. Rieber and A.S Carton Eds. *The Collected Works of Lev Vygotsky.*, volume 1: Problems of General Psychology pp.39-285. New York: Plenum Press.

Kumar, A.A. and Kumar, B.R. 2013. Emotional intelligence of visually impaired adolescents studying in inclusive and exclusive setting. *International Journal of Educational Research, 1*2: 37-43.

Kumar, S. and Singh, J. 2013. Emotional Intelligence and Adjustment among Visually Impaired and Sighted School Students. *Asian Journal of Multidimensional Research,* 28:1-8.

Lakshmi, N. and Anuradha, K.I. 2014. Self-Esteem among Physically Disabled and Visually Disabled Late Adolescents, *International Journal of Technical Research and Applications, Special Issue,* 10:31-39.

Lourenco, O.M., Machdo, A. and Silva, F. 2000. Facts, Concepts and Theories: The Shape of Psychology's Epistemic Triangle. *Journal of Behaviour and Philosophy,* 28:1-40.

Lovi, M. 2013. Aspects of Teaching and Learning as a Foreign Language In the Case of Blind and Visually Impaired Learner in Estonia. A Masters Theses Submitted to the Department of English Language and Literature, University of Tartu.

Mamour, C. T. 2008. The Relevance and Implications of Vygotsky's Socio-cultural Theory in the Second Language Classroom. *Annual Review of Education, Communication and Language Sciences,* 5:244-262.

Mansy, M.A., Halim, Z.A. and Wahab, E.A. 2017. Emotional Intelligence among Visually Impaired and Sighted Female Adolescents. *Egyptian Journal of Nursing,* 142:70-77.

Marpsein.V. 2003. Difference in Braille Reading Fluency of Students with VI in Sweden. *Journal of Educational Developments* 5(3):524-533.

McVee, M.B., Dunsmore, K. and Gavelek, J.R. 2005. Schema Theory Revisited. *Reviews of Educational Research,* 754:531-566.

Meijer, J. and Elshutt, J.J. 2001.The Predictive and Discriminant Validity of the Zone of Proximal Development. *British Journal of Educational Psychology,* 7(11):93-113.

Miller, G.A. 1956. The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information. *Journal of Psychological Review*, 622:81.

Mirizon, S., Diem, C.D. and Vainty, M. 2018. Students' Specific Comprehension Skills in English Based on School Location, Grades and Gender. *Indonesian Journal of Applied linguistics,* 73:538-548.

Mirzae, S. and Saeedi, R. 2013. Comparison of Emotional Intelligence and Personality Traits of the Successful and Normal Individual with Visual Impairments in Tehran City. *International Journal of Applied Psychology,* 33: 83-87.

Mohammed, Z. and Omar, R. 2011. Comparison of Reading Performance between Visually Impaired and normally sighted in Malaysia. *The British Journal of Visual Impairment*, 293:196-207.

Monga, P. K. Parwal, B.P. Rohatgi, J. and Dhaliwal, U. 2009. Current Guidelines for Categorization of Visual Impairment in India Appropriate? *Indian Journal of Ophthalmology,* 576:423-426.

Moreno, A.I. and Vermeulen, A. and Jordano, M. 2016. Using Audio Description to Improve FLL Students' Oral Competence in MALL: Methodological Preliminaries. In: APareja-Lora, C. Celle-Martinez, and P. Rodrigue-AranconEds, *New Perspectives on Teaching and Working with Languages in the Digital era pp. 245-256.* Dublin: Research -Publishing.net.

Morris, C.D., Bransford, J.D. and Frank, J.J. 1977. Levels of processing Versus Transfer Appropriate processing. *Journal of Verbal Learning and Verbal Behaviour,* 165:519-533.

Mulloy, A.M., Gevarter, Hopkins, M., Sutherland, K.S. and Ramdoss, S. 2014. Assistive Technology for Students with VIs and Blindness. *Journal of Assistive Technology for People with Diverse Abilities, Autism and Child Psychopathology*, 61:113-156.

Munoz, M.L. 2010. Second Language Acquisition and Children with Visual and Hearing Impairments.SpanishVersion. Retrieved on 22/08/2016 from http://www.tsbvi.edu.

Murthy, G.V.S., John, N., Gupta, S.K., Vashist, P. and Roa, G.V. 2008. Status of Pediatric Eye Care in India. *Indian Journal of Ophthalmology*, 56: 481-488.

Nashleanas, A.N. 2018. Graph Accessibility and Comprehension for the Blind: A Challenge of its Own. IOWA State University Capstones. Retrieved on 12/07/2019 from https://lib.dr.iastate.edu/etd/16425.com.

Nwamuo, A. P., Ugwuegbulam C. N. and Okoro, U. N. 2012. Counselling special needs persons. JocMankpa publishers.

Obiagwu, A. 2018. Effective Teaching Methods for Students with VI Nigerian Association for the Blind, Owerri, Imo state.

Ochigbo, A.O. 2016, The Impacts of Braille Reading and Writing on the Academic performance of students with VI in Jos Metropolis. A Research Project Submitted to the Department of Special Education, University of Jos.

Oira, M. 2016. Use of Modern Assistive Technology and its Effect on Educational Achievement of Students with VI at Kibos Special Secondary School Kisumu County, Kenya. A Research Thesis at Kenyatta University.

Okoye, B.U. and Tanimola, C.A. 2014. Some Psycho-social Factors Influencing Fluent Reading in Visually Impaired Students. *Journal of Cognitive Education,* 15:11-19.

Okwudire, A.N., James, S., and Unogwu, H. 2013. Inclusive education and special needs education. Access and quality of special educational needs service delivery in Nigeria. Published by Glory-land publishing company, Gbadebostreet, Mokola, Ibadan.

Olatunji, S.O. 2011. Reading Comprehension and Summary Skills. In Olaosun, I., Olanrewaju, E.M., and Odekunle, O.A. Eds. *English Language and Communication Skills for Tertiary Education,* Ibadan: Joytal Educational Services, pp: 203-226.

Oliveira, T. and Martins, M. 2011. Literature Review of Information Technologies Adoption Model at Firm Level. *The Electronic Journal Information System,* 141:110-121.

Omer, S., Eralpa, I. Alven, A. 2010. Developing ICT skills of students with VI. 1877-428 published by EIAEVER Ltd. Faculty of Education, computer Education and Institutional Technologies, Ege University, Bornova\Rmir Turkey.

Omilani, A.S. 2015. Effect of Visual Impairment on Academic Achievement of the Affected Individuals. *Journal of Continuing Education,* 3:34-39.

Onu, F.M., Asogwa, V.C. and Obetta, E.J. 2013. Emotional Intelligence, Locus of Control and Self- efficacy as Determinants of Graduates' Self Employment in Agricultural Occupations in South-East Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies,* 46:872-877.

Onyemerekeya, N.P. 2011. Fundamentals of Special Education. Published by Versatile Publishers, 5b Anokwu Street, Owerri.

Oueini, H., Bahous, R. and Nabhani, M. 2008. Impact of Read Aloud in the Classroom: A Case Study. *Journal of Reading Matrix,* 8(1):140-157.

Ozoji, D.E., Unachukwu, G.C. and Kolo, I.A. 2016. Modern Trends and Practices in Special Education. Education of children with Visual Impairment chapter 5.p 82-118.Published by Foremost Education Services Ltd. Lagos.

Ozoji, E.D., Ozoji, B.E. and Jurmang, I.I. 2015. Challenges of Teaching Science and Mathematics to Students with VI: The Need for a Directorate of Resource Centre Services. *Journal of Educational Psychologist,* 91:85.

Parween**,** S. 2015. Variables Influencing Emotional Intelligence of Visually Impaired Students in Higher Education. *Journal of Asian Pacific Disability Rehabilitation Journal,* 261:97-108.

Pascolini, D. and Mariotti, S.P. 2012. Global Estimates of Visual Impairment. *British Journal of Ophthalmology,* 96:641-648.

Peterson, R. 2015. Students with VI Braille Reading and Comprehension. *Journal of cognitive research in Education and sciences,* 82:227-234.

Piggio, M., Juddio, C. and Grudin, A. 2011.The Barriers to and Benefits of Use of ICT for People with Visual Impairment. Proceedings of the 6th International Conference Universal Access in Human Computer Interaction: Design for all and e-inclusion 1:452-462. Springer-verlag Berlin, Heidelber.

Postma, A. Zuidhoek, S., Noordzijo, M.L. and Kappers, A.M. 2007. Differences Between Early-Blind, Late-Blind, And Blindfolded-Sighted People In Haptic Spatial-Configuration Learning And Resulting Memory Traces Use Of A Standard Reading Comprehension Test To Assess Braille Reading Comprehension. *Journal of Perception*, 36:1253 -1265.

Radojichikj, D.D. 2015. Students with VIs: Braille reading rate. International *Journal of Cognitive Research in Science, Engineering and Education*, 31:1-5.

Retorta, M.S. and Cristovao, V.L. 2017.Visually-Impaired Brazilian Students Learning English with Smartphones: Overcome Limitations. *Journal of Languages,* 212:2-27.

Roit, M.L. 2016. Effective Teaching Strategies for Improving Reading Comprehension in K-3 Students. Open Court Reading. Accessed on 2/05/2019 from http://opencortreading.com.

Royal Nation Institute of the Blind. 2019. How we see Differently. Retrieved on 7/8/2019 from rnib.org.uk.com

Rumelhart, D.E. 1980. Schemata: The Building Blocks of Cognition. In: R.J. Spiro. eds Theoretical Issues in Reading Comprehension, Hillsdale, N.J: Lawrence Erlbaum.

Rumelhart, D.E. and McClelland, J.L. 1988. Parallel Distributed Processing. *Journal of Cognitive Sciences*, 1:354-362.

Salehi, S. Ghazizadeh, M.J. and Tabesh, M. 2017. A Comprehension Criteria-based Multi-attribute Decision-making Model for Rehabilitation of Water Distribution Systems. *Journal of Structure and Infrastructure Engineering*, 146:743-765.

Sánchez-Álvarez N, Berrios Martos MP and Extremera N (2020) A Meta-Analysis of the Relationship Between Emotional Intelligence and Academic Performance in Secondary Education: A Multi-Stream Comparison. Front. Psychol. 11:1517. doi: 10.3389/fpsyg.2020.01517

Sarid, A. 2017. A Theory of Education. *A Cambridge Journal of Education,* 484:479-494.

Schofield, J. 2018. Are there any good portable MP3 players for blind and visually impaired people? Retrieved on 12 July 2019 from http.//www.supporttheguardian.com.

Shamim, F., Sarwar, F. and Chaudhary, M.A. 2020. Relationship of Braille reading Skills with Onset of VIin Mainstream Setting, *Journal of Inclusive Education, 4(1)*:113-128.

Sharma, K. and Agarwal, R. 2016. A Comparative Study of Academic Achievement Relation to Emotional Intelligence of Visually Impaired and Normal Students at Secondary Level on Peer Ground. *International Research Journal of Management Sociology and Humanity*, 76:229-305.

Shnikat, F. 2015. Emotional Intelligence Difference between the Normal, the Blind and the Deaf in Adolescence in a Jordanian Sample. *International Journal of Education,* 72:392-414.

Sight Savers International. 2007. National Blind and Visual Impairment Survey. Retrieved on 9/6/2019 from blogs.ishtm.ac.uk.com.

Silman, F., Yaratan, H. and Karanfiller, T. 2017. Use of Assistive Technology for Teaching-Learning and Administrative Processes for the Visually Impaired People. *Journal of Mathematics, Science and Technology Education*, 138:4805-4813.

Silverman, A.M. and Bell, E.B. 2018. The Association between Braille Reading History and Well-Being for Blind Adults. *Journal of Blindness Innovation and Research,* 81: 8-10.

Smed, H. 2015. Blindness and Second Language Acquisition. Studies of Cognitive Advantages in Blind L1 and L2 Speakers. Doctorial Dissertation. Department of Swedish Language and Multilingualism Stockholm University. Center for Research on Bilingualism. Retrieved on 4th August, 2019 from http://urn.kb.se/resolve?urn=nbn:se:su:diva-114199.

Stanfa, K. and Johnson, N. 2015. Improving Braille Reading Fluency: The Bridge to Comprehension. *Journal of Blindness Innovation and Research*, 52:2155-2894.

Strickling, C. 2014. Impact of Visual Impairment on Development**.** Texas School for the Blind and Visually Impaired TSBVI. Assessed on 05/07/2018from http://www.tsbvi.edu/infants/3293-the-impact-of-visual-impairment-on-develop**.**

Susanto, S. and Nanda, D.S. 2018. Teaching and Learning English for Visually Impaired Students: An Ethnographic Case Study. *Journal of English Review,* 71:83-92.

Tabrizi, A.R. and Esmaeili. L. 2016. The Relationship between the Emotional Intelligence and Reading Comprehension of Iranian EFL Impulsive verses Reflective Students. *International Journal of English Language,* 66:221-229.

Teemant, A. 2005. Evaluation socio-cultural pedagogy in a distance teacher education program. *Journal of Teacher education Quarterly*, 323:49-64.

Thorne, S. T. 2006. Pedagogical and praxiological lessons from internet-mediated intercultural foreign language education research. In J. Belzand S. Thorne Eds., Internet-mediated intercultural foreign language education pp. 2-30. Boston, MA: Thomson and Heinle.

Uwakwe, P. and Okorie, T. 2015. Literacy for Students with VI. *Journal of Education Vocations,* 41:47-54.

Uzma, H.G and Tajamma, H. 2013. A Comparative Study of Intelligence Quotient and Emotional Intelligence; Effect Employee's Performance. *Asian Journal of Business management,* 51:153-162.

Vashist, P., Senjam, S.S., Gupta, V., Gupta, N. and Kumar, A. 2017. Definition of Blindness under National Programme for Control of Blindness: Do we need to Revise it? *Indian Journal of Ophthalmology,* 652:92-96.

Wachiuri, R.N. and Imonje, R. 2017. Relative Advantage of Assistive Technology in the Teaching and learning of integrated English among the Visually Impaired Learners in Special Secondary Schools in Kenya. *Journal of US-China Education Review,* 71:39-48.

West African Examination Council. 2012. WAEC English language Examination Section B Comprehension Passage. http://myschool.ng.com.

West African Examination Council. 2014. WAEC English language Examination Section B Comprehension Passage. http://myschool.ng.com.

West African Examination Council. 2015. WASSCE English language Examination Section B Comprehension Passage. http://myschool.ng.com.

Williams, O. and Morris, R. 2013. Emotional Intelligence, Self Efficacy and Braille Reading Comprehension. *Journal of International Studies,* 34:33-41.

Woitaszewski, S. A., and Aalsma, M. C. (2004). The contribution of emotional intelligence to the social and academic success of gifted adolescents as measured by the multifactor emotional intelligence scale - adolescent version. Roeper Rev. 27, 25–30.

World Blind Union. 2015. The Blind. Retrieved on 20/6/2019 from www.worldblindunion.org.

World Health Organisation. 2018. Trachoma. Retrieved on 2/6/2019 from https://www.int/news-room/fact-sheets/detail/trachoma.

World Health Organization. 2005. Vision 2020 the Right to Sight. Geneva: World Health Organization.

Xu, J. (2018). Emotion regulation in mathematics homework : an empirical study. J. Educ. Res. 111, 1-11. doi: 10.1080/00220671.2016.1175409

Yusuf, S.A., Baba, A. and Isa, A. (2021). Mass Failure of Student in English language in Senior School and Technical College Potiskum, Yobe State. *Dustin-Ma Journal of English Language and Literature*, 1:312-322.

Zhao, X. and Zhu, L. 2012. Schema Theory and College English Reading Teaching. *Journal of English Language Teaching*, 511:111-117.

APPENDIX I

LogMAR Chart

APPENDIX II

Bar-On Emotional Quotient Inventory: Youth Version (BarOn EQ –I :YV)

Please rate the following statements as applicable to you. Very seldom true of me – 1, seldom true of me – 2, often true of me – 3, very often true of me -4.

S/N	ITEMS	1	2	3	4
1	I can control my emotions.				
2	I easily express feelings sometimes.				
3	When I am angry with others, I can tell them about it.				
4	It is a problem controlling my anger.				
5	I don't feel good about myself.				
6	I am sure of myself in most situations.				
7	I do not understand the way other people feel.				
8	I am unable to show affection.				
9	It is hard for me to share my deep feelings with others.				
10	I like to get proper understanding of a problem before trying to solve it.				

APPENDIX III

Achievement in English language Comprehension Test

Section A

Personal Data

Age:

Date:

Age of onset of vi: Congenital ( ) Adventitious ( )

Gender: Male ( ) Female ( )

Section B

Passage 1

Answer the following questions after carefully reading the passage.

Dysentery is a very deadly infection that spreads rapidly and can claim many lives without delay. This disease is more prominent in underdeveloped nations where it has actually destroyed many communities. Therefore, every possible step should be taken in ensuring that dysentery is eradicated.

Usually, the infection is transmitted by bacteria that flourish in dirty and unsanitary environments. Flood from heavy rainfall contaminates drinking water which can result in the spread of dysentery in a community. It can be transmitted from infected humans to non-infected ones. Flies perch on excretes and vomits of an infected individual from where they carry the dysentery bacteria which are deposited on uncovered drinking water or food. Individuals who consume this infected water or food can develop dysentery within a short period of time. The infected individuals might unwittingly be transmitting the disease to others. Generally, the major symptoms of dysentery include bloody watery stool and nausea, which can cause emaciation. The patients suffer from diarrhea which drains so much fluid from the body leading to rapid dehydration, fatigue and emaciation. Dehydration can lead to loss of life unless the lost fluid is quickly replenished.

Anybody suffering from dysentery should first of all replace the lost fluid by taking oral rehydration therapy frequently and then consult a doctor.

Comprehension Questions

1) Choose the most suitable title for this passage
    a) Ruin of several communities
    b) Dysentery outbreak
    c) Spread of dysentery infection
    d) Prevention of dysentery

2) Where do dysentery bacteria usually breed?
    a. Floods
    b. Uncovered food
    c. Unsanitary environment
    d. Infected water

3) Mention one main carrier of dysentery bacteria.
    a. Human
    b. Vomit
    c. Contaminated water
    d. Stool

4) Which of the following is an effect of dysentery?
    a) Diarrhea
    b) Hairy legs
    c) Frequent stool
    d) Dehydration

(5) What advice does the writer give to the dysentery patient?

Passage 2

Answer the following questions after carefully reading the passage.

Uba moaned and stood up from his bed. The room was not bright and there was no clock, though he was aware that he was at least an hour late to work. Uba was a public bus transporter who worked between the hours of 4:30 am and 10:00 pm in order for him to meet up with the amount of money required from him by the bus owner on a daily basis.

That night he went to a get-together organized by his friend who returned from London where he drank himself to stupor and staggered home at about 2:30am. Uba stood up feeling dizzy, poured water on his face, wore the charm he has always worn on his arm to protect him from accidents and rushed out to work. There was also another charm hidden in his pigeon hole. While going to work, he bruised his foot against a rock and suspected danger. It was not a good omen, Uba ought to return home and start the journey anew. But he did not because of lack of time.

At the park, he loaded his vehicle hurriedly and zoomed off without making the required checks on his bus. He wanted to regain the wasted time. It was a busy time, so passengers exceeded the bus capacity with many standing. The tires were faulty, the brakes were in bad condition, the road was not dry and Uba, still feeling a little dizzy, zoomed off. Several passengers complained about his speeding, but he ignored them believing in his charm.

At the junction before the last bus stop, a vehicle stationed in front blocked his lane. Normally, the driver was supposed to stop the vehicle safely, but this was an abnormal situation. The hurtling bus bumped into the stationed vehicle, deviated from the road and landed inside a deep hole. What baffled Uba before he became unconscious was the inefficacy of his expectedly safeguarding charm.

Comprehension Questions

1. Give two reasons why Uba drove recklessly.

2. Why did Uba wake up late?
    a) He was drunk
    b) He did not sleep on time
    c) He attended an all-night party
    d) He was not aware of the time

3. Why was Uba unable to stop his faulty vehicle?
    a) The bus was capacity was exceeded
    b) A vehicle stationed blocked his lane

c) He was feeling a little dizzy

d) He was over speeding

4. What was Uba's condition after the accident?
    a) He sank into unconscious
    b) He was surprised
    c) He landed inside a deep hole
    d) He deviated from the road

5. … *he bruised his foot against a rock and suspected danger*. What does this tell us about Uba?
    a. Religiously inclined
    b. Socially inclined
    c. Politically inclined
    d. Traditionally inclined

Passage 3

Answer the following questions after carefully reading the passage.

The big house along the road in my community brings to my memory a mansion in the city, many years ago. The obvious mansion built by the expressway in the state capital was a big problem to people using the road. The house was owned by Chief Dada, a man **dreaded** by all in the society. Everybody was loyal to him. Drivers always avoided the house. People erroneously believed going near it might cause death.

But there was a Governor who wanted to expand all the main roads in the city. He maintained that all the buildings within thirty metres from the middle of the road would be pulled down. Nevertheless, Chief Dada was not pleased by the compensation promise made by the Governor. He warned that nobody should touch his building and threatened to deal mercilessly with anyone who did.

Few days later, journalists had a field day pondering on the unusual **conflict** between the Chief and the demolishers. It was not quite long, when information started spreading about his assertion that anyone who tried him would surely end up where others like them ended up. The news was well understood, those who dared him would surely die! Thus,

journalists were begging for a new way to avoid the mansion. Meanwhile, the governor insisted on the widening of the roads.

After some time, the road expansion plan began. The first to be demolished was a supermarket followed by a restaurant within the specified area. People felt that the mansion belonging to the man who stomached no **insolence** would not be demolished. With time, the road plan drew nearer to the large building, with the bulldozer demolishing the affected building. Soon, it was the turn of Chief Dada's mansion and the driver of the heavy machine demanded for a leave. When the governor heard this, he instructed him to do his work first. The driver sent representatives to the governor to save him from death, considering the fact that his offspring are still kids.

The next morning, people were shocked at the governor's action, who **reported at** the scene and wanted to demolish the mansion himself. Weighing extensively on the likely outcome, the driver mounted the bulldozer with tears in his eyes begging the governor to take care of his kids when he was gone. The governor proclaimed that he and not the driver should bear the consequence. Then, the driver **resumed** duty and bulldozed the mansion.

Reporters gathered at the site with the intention of capturing Chief Dada fulfilling his claims. Yet, nothing unprecedented happened and in a short while the large building fell like a card house.

The consequence: the truth is that both the governor and the driver are still in town.

Comprehension Questions

1. For each of the following words, find another word or phrase which means the same and which can replace it as it is used in the passage:
    a. Dreaded
    b. Conflict
    c. Insolence
    d. Reported at
    e. Resumed
2. What opinion did people have of Chief Dada?
    a) Obvious
    b) Unusual

c) Dreaded

d) Merciless

3. Why was it necessary to demolish buildings?

a) To dare Chief Dada

b) To widen major roads

c) To bulldoze the mansion

d) To compensate people

4. When the driver said that his offspring are still kids, what did he imply?

a) His kids live in the mansion

b) He is not afraid of death

c) The governor should please care for his kids

d) He is afraid of death

5. What figure of speech is used in the sixth paragraph of the passage?

a) Simile

b) Personification

c) Irony

d) Sarcasm

APPENDIX IV

BRAILLE READING PACKAGE

Session 1

Objectives: the objectives of this session include to:

a) get acquainted with the research assistants and the participants
b) explain to the participants what they stand to gain from the training.

Step I: Introduction

The researcher greets the students and introduces herself to them once again. The researcher explains to the students the importance of English language comprehension as a vital aspect of English language. She tells them that the training will improve their achievement in comprehension and help them perform better in English language in both local and foreign examinations. You would be given six comprehension passages to study and each passage contains five questions. The research assistant would be available to assist you whenever you need assistance.

Step II: The participants were asked to introduce themselves.

The researcher asks them how they cope with English language comprehension passages in the classroom.

The researcher asks them whether their teachers provide them with Brailled English language comprehension passages.

The participants were encouraged to cooperate with the researcher and the research assistant throughout the training sessions.

Step III: Bar-On emotional quotient inventory: youth version was administered on the students and achievement in English language comprehension test was administered for pretest.

Step IV: Assignment: The researcher asks the participants to write down four reasons why a student should read an English language comprehension passage.

Session 2

Objectives: Participants will be able to:

a. apply the rules guiding Braille reading
b. answer the questions from the passage correctly.

Step I: Participants are welcomed by the researcher.

Step II: The researcher distributes a Brailled English language Passage (instructional material) to each of the participants.

Step III: Efficient Braille reading tips were given to the participants

Step IV: The researcher instructs the participants to read their passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to read more English language comprehension passages.

Session 3

Objectives: At the end of the session the participants should be able to:

a. make effective use of read and reread strategy when reading an English language comprehension passage.

b. answer the questions from the passage correctly.

Step I: The researcher greets the participants.

Step II: The researcher issues another Braille passage (instructional material) to the participants.

Step III: The researcher provides the participants with tips on read re-read and its effectiveness in understanding English language comprehension passages.

Step IV: The researcher asks the participants to read their passage.

Step V: Questions and answers

Step VI: Assignment: The researcher instructs the participants to read more English language comprehension passages.

Session 4

Objectives: Participants should possess the following abilities at the conclusion of the session:

a. identify main idea in an English language comprehension passage

b. answer the questions from the passage correctly.

Step I: This session is opened by welcoming the participants.

Step II: The researcher asks the participants to come forward and collect a new Braille passage (instructional material).

Step III: The participants are provided with tips on how to identify main ideas in a passage.

Step IV: The researcher instructs the participants to read their passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to read more English language comprehension passages.

Session 5

Objectives: Upon completion of this session, participants should be able to:

a. identify main idea in an English language comprehension passage
b. answer the questions from the passage correctly.

Step I: Participants are welcomed by the researcher.

Step II: The researcher provides a similar Braille passage (instructional material) to the participants.

Step III: The participants are provided with tips on how to identify main ideas in a passage.

Step IV: The researcher instructs the participants to read their passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the Participants to read more English language comprehension passages.

Session 6

Objectives: By the end of this course, the participants should be able to:

a. mention reasons why students should read English language comprehension passages
b. answer the questions from the passage correctly.

Step I: The researcher greets the participants.

Step II: The researcher distributes the fifth Braille passage (instructional material) to the participants.

Step III: The researcher gives the participants reasons why students should read English language comprehension passages.

Step IV: The researcher instructs the participants to read their passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to list five words they did not understand in the passage and look them up in the dictionary.

Session 7

Objectives: Participants will be able to:

a. make predictions
b. confirm predictions (draw conclusion or answer questions)

Step I: The researcher welcomes the participants.

Step II: The researcher distributes the last Braille passage (instructional material) to the participants.

Step III: The researcher gives the participants tips on making and confirming predictions.

Step IV: The researcher instructs the participants to read their passage.

Step V: Questions and answers

Step IV: Assignment: The researcher asks the participants to practice more prediction and confirmation of predictions.

Session 8

Step I: The researcher asks the participants questions on some of the tips given to them during the training and wrong answers were corrected by the researcher.

Step II: the researcher administers achievement in English language comprehension test for posttest on the participants. This terminates the training.

APPENDIX V

DIGITAL AUDIO-PLAYER PACKAGE

Session 1

Objectives: the objectives of this session include to:

a) get acquainted with the research assistants and the participants
b) explain to the participants what they stand to gain from the training.

Step I: Introduction

The researcher greets the students and introduces herself to them once again. The researcher explains to the students the importance of comprehension as a vital aspect of English language. She tells them that the training would improve their achievement in English language comprehension and help them perform better in English language in both local and foreign examinations. Six comprehension passages recorded on digital audio-player would be given to you to study and each passage contains five questions. The research assistant would be available to assist you whenever you need assistance.

Step II: The participants were asked to introduce themselves.

The researcher asks them how they cope with comprehension passages in the classroom.

The researcher asks them whether their teachers provide them with recorded English language comprehension passages.

The participants were encouraged to cooperate with the researcher and the research assistant throughout the training sessions.

The researcher asks the participants to bring out their digital audio-players.

Step III: Bar-On emotional quotient inventory: youth version was administered on the students and achievement in English language comprehension test was administered for pretest.

Step IV: The researcher asks the participants to bring their digital audio-player anytime they are coming to the session.

Session 2

Objectives: At the end of the session, the participants should be able to:

a. apply the rules guiding listening to comprehension passages on digital audio-player

b. answer the questions from the passage correctly.

Step I: Participants are welcomed by the researcher.

Step II: The researcher distributes a comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: Tips for accessing comprehension passage on digital audio-player are given to the participants.

Step IV: The researcher instructs the participants to listen to the passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to study more English language comprehension passages.

Session 3

Objectives: At the end of the session, the participants should be able to:

a. make effective use of the listen and listen again strategy when listening to English language comprehension passage.
b. answer the questions from the passage correctly.

Step I: The researcher greets the participants.

Step II: The researcher gives another comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: The researcher provides the participants with tips on listen and listen again and its effectiveness in understanding English language comprehension passages.

Step IV: The researcher asks the participants to listen to the passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to study more English language comprehension passages.

Session 4

Objectives: At the end of the session, the participants should be able to:

a. identify main idea in an English language comprehension passage
b. answer the questions from the passage correctly.

Step I: This session is opened by welcoming the participants.

Step II: The researcher asks the next English language comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: The participants are provided with tips on how to identify main ideas in a passage.

Step IV: The researcher instructs the participants to listen to the passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to study more English language comprehension passages.

Session 5

Objective: At the end of the session the participants should be able to:

a. identify main idea in a comprehension passage
b. answer the questions from the passage correctly.

Step I: Participants are welcomed by the researcher.

Step II: The researcher distributes a similar comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: The participants are provided with tips on how to identify main ideas in a passage.

Step IV: The researcher instructs the participants to listen to the passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the Participants to study more English language comprehension passages.

Session 6

Objectives: At the end of the session, the participants should be able to:

a. mention reasons why students should listen to English language comprehension passages
b. answer the questions from the passage correctly.

Step I: The researcher greets the participants.

Step II: The researcher distributes the fifth English language comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: The researcher gives the participants reasons why students should listen to English language comprehension passages.

Step IV: The researcher instructs the participants to listen to the passage.

Step V: Questions and answers

Step VI: Assignment: The researcher asks the participants to list five words they did not understand in the passage and look them up in the dictionary.

Session 7

Objectives: At the end of the session, the participants should be able to:

a. make predictions
b. confirm predictions (draw conclusion or answer questions)

Step I: Introduction by the researcher to the participants.

Step II: The researcher distributes the last English language comprehension passage recorded on digital audio-player (instructional material) to each of the participants.

Step III: The researcher gives the participants tips on making and confirming predictions.

Step IV: The researcher instructs the participants to listen to the passage.

Step V: Questions and answers

Step IV: Assignment: The researcher asks the participants to practice more prediction and confirmation of predictions.

Session 8

Step I: The researcher asks the participants questions on some of the tips given to them during the training and wrong answers were corrected by the researcher.

Step II: the researcher administers achievement in English language comprehension test for posttest on the participants. This terminates the training.

APPENDIX VI

English language Comprehension Passages for Braille Reading Group

Tips on Braille Reading

a) One handed Braille readers use the index finger of the right hand to begin and finish a line.

b) Two handed Braille readers use the right index finger to read while the left index finger is used to locate the next line.

c) Do not use wet hands to read Braille.

d) Reading of Braille requires mild finger touch on the dots

Passage 1

I did not understand the experiences I had in my family when I was growing up. Now, those childhood occurrences I viewed as normal are **clearer** to me as an adult. Being the first child in a polygamous home and the first daughter of my father's second wife I faced a lot of challenges while growing up. My father married three wives, the first has no child, my mother has five girls and the third wife has three sons.

As a child, I did not accept my father's sons as my brothers even though we lived in the same house. My father was a policeman, who travelled from one city to another with the third wife and her sons, while we lived in my father's family house in the village with the first wife.

At the age of forty eight, my father decided to **withdraw** from active service, even though he has not worked for up to thirty five years. My uncle opened a textile industry in our village and he was made the manager of the industry. Now, my father, his three wives and the children live in the same house. We started facing the reality of a polygamous home. My father loved the third and gave **preferential** treatment to her sons. He attended ceremonies with her, trained her three sons to university level and never complained about whatever she did. There was a wide communication gap between him and his other wives, he never went out with them and always complained about whatever they did.

My experience early in life was full of screaming and shouting as my mother and the third wife were always fighting. My only escape was my mother's shop where we often sleep because of the trouble at home.

Several years later, my father was involved in a **fatal** accident which no one believed he could survive. He was hospitalized for three months after which it was clear that he could no longer use his legs. My father could not stand the sight because he had a condescending attitude towards people. He was always complaining about one thing or the other, sometimes refused to eat and never allowed people to see him even his close friends. He died a year after.

We discovered that we are not worthless as assumed by my father who **trained** only the boys. I and my four sisters are now very successful, married with kids and even contributed more during his burial. The most surprising thing to us was that his first son who traveled abroad did not come for his burial.

Comprehension questions

1. From the options below select the most suitable title for this story?
    a. Past experiences in the family
    b. Occurrences in the family
    c. Enmity in the family
    d. Polygamy in the family

2. The family had family meetings?
    a. Often
    b. Yearly
    c. Never
    d. Every three months

3. Which of the following sentences shows that the writer of the passage is unhappy?
    a. Being the first child in a polygamous home
    b. I faced a lot of challenges while growing up
    c. My uncle opened a textile industry
    d. My father was a policeman

4. Why did the writer's father assume that his second wife's children are worthless?
    a. Because they are not from his first wife

b. Because of their mother
c. Because of his work
d. Because they are girls

5. For each of the following words, find another word or phrase which means the same and which can replace it as it is used in the passage:
    a. Clearer
    b. Withdraw
    c. Preferential
    d. Fatal
    e. Trained

Passage 2

The second wife became sick shortly after the death of her father. She claimed that the elder wife was responsible for her sickness. On hearing this, Muhammad chased the elder wife out of his house.

At this same time, Ronkie's daughters, Sola and Dupe were about to complete their programme in the university. His only son who lived in the city was so angry at his actions that he refused to talk to him. Muhammad was left with his sick wife who was unable to give birth to a child. This did not trouble him, not until all his efforts to get the attention of his son proved **abortive**. He has long decided not to marry another wife, so the thought of who would carry on his family name **weighed** him down. His son had **declined** marriage, after all his father did not make a good home. Muhammad became addicted to playing draft, smoking and drinking, gradually he turned into a street person. This way he totally destroyed his life.

But for Ronkie the elder wife, she was a very hard working woman, her business flourished and her children prospered. Meanwhile, Muhammad was rescued by his only son Adamu. The son learnt about his father's condition and decided to pay him a visit. Muhammad was pleased with his son's decision, he conceived that he had a **brave** son. He began his trade again which flourished better. Still, he was burdened about one thing. The thought of who would carry his family's name on.

During his son's visit he discussed marriage with him. His son agreed that he would marry but he was not yet ready. Muhammad did not want to wait so he married a **charming** young lady for him and took her to him.

Comprehension questions

1. Muhammad chased the elder wife out of his house because?
    a. The younger wife claimed that she was responsible for her sickness
    b. The death of her father
    c. Her son refused to talk to his father
    d. She could no longer have children

2. How did Muhammad destroy his life?
    a. By turning into a street person
    b. By chasing his wife out of the house
    c. By smoking and drinking
    d. By rejecting his children

3. Who narrated the story?
    a. Sola
    b. Adamu
    c. Ronkie
    d. Muhammed

4. What did Dogo intent to do to continue his line
    a. Marry another wife
    b. Get his son a wife
    c. Bring back his first wife
    d. Give his daughters out in marriage

5. Give another word or phrase similar to each of the following words that can suitably replace it in the passage.
    a. Brave

b. Abortive
c. Weighed
d. Declined
e. Charming

Passage 3

For many years now, Nduka had always been a zealous evangelist whose preaching moved people. He had at all-time supported, stood by and upheld the right and grounds of the government. He unexpectedly, became reticent, concerned himself more with personal inward thoughts and was never curious about all activities in his environment.

Nduka was envenomed and subsequently became an opponent of everything he had initially admired. Whenever he had the chance, he criticized, poured his anger on the constituted government and the rulers of the faithful. Each time the government representatives' endevoured to convince him to bolster one approach or another, he sought to be spared the blame of eating with wolves in sheep's clothing and misleading people.

As it were, the time Nduka yielded to discuss with the authorities of the administrative course, he affirmed that he would concur with people who apparently govern the state if earnest answers were given to his inquiries. Nduka questioned whether the individuals who advise others not to rub do not embezzle public funds and people who educate others not to make equivocal statements are not con artists.

Nduka credited the crisis in the country and the dispassionate mien of the people to the dismissal of the ancient, out of date proverb *"follow my instructions not my actions".* He asserted conclusively that residents ought not be required to maintain the precepts which the authorities are liable to abuse.

Comprehension Questions

1. What did Nduka subsequently become?
    a. Envenomed
    b. Opponent
    c. Reticent
    d. Zealous

2. Nduka did not direct his anger to?
    a. Constituted government
    b. Evangelists
    c. Rulers of the faithful
    d. Representatives

3. What condition did he give to support the government?
    a. If they spared him the blame
    b. If he ate with misleading people
    c. If he was given the chance
    d. If earnest answers were given to his inquiries
4. *"Follow my instructions not my actions"* used in this passage implies?
    a. People should obey the laws the leaders have made
    b. People should not obey the laws leaders do not obey
    c. People should obey the laws whether the leaders obey them or not
    d. People should not obey the laws leaders obey

5. In your own words, what were Nduka's inquiries?

Passage 4

At about 5pm she stood with her heart racing, certain that her child had been adopted by kidnappers. She was sure that her child could be dead. She started running, then she stopped a cab and proceeded to her pastor's house. The pastor tried to conceal his own fright and they headed to the Sunday school teacher's house.

The Sunday school teacher had not noticed anything unusual and was confused by the whole situation. Both the woman and the pastor persuaded the Sunday school teacher to think and recall anything at all. The man eventually recalled that a young girl left the premises with a child. The woman started to cry and was completely devastated. The pastor was confused and began to think of what might have happened. The pastor decided to go to the nearest police station with the woman and the Sunday school teacher to report the case. The officer on duty asked the woman *for how long has your child been missing*? The woman explained with distress in her voice that it has been about eight hours now.

The officer told them that someone is only declared missing after twenty four hours and asked them to return if they do not see the child after twenty four hours. On their way to the woman's house the pastor spotted the child playing with other children in the neighbor's compound. He suddenly turned to the woman and asked her if this is not the child she was looking for. He then said to her you ought to raise the alarm only when you are sure your child is missing.

Comprehension questions

1. Who did she report to first?
    a. The Sunday school teacher
    b. The kidnapper
    c. The police
    d. The pastor
2. Who left the premises with a child
    a. The man
    b. The child's mother
    c. The Sunday school teacher
    d. The police

3. Why was the woman's heart racing?
    a. Because she could not find her child
    b. Because she thought her child was dead
    c. Because she thought her child has been kidnapped
    d. Because a young girl left the premises with a child

4. Where did they report the case?
    a. The pastor's house
    b. The Sunday school teacher's house
    c. The neighbor's compound
    d. The police station

5. When should a missing person be reported to the police as missing?

Passage 5

Aisha was a beautiful girl of nineteen years of age. She was the first daughter of Mr and Mrs Abubakar. Mr Abubakar was a famous man who worked in one of the well-known oil companies in the country. He hails from Ongloda in Woloya local government area Kano state and he was the chairman of Kano oil and gas association Port Harcourt branch. Mrs Abubakar was a successful real estate agent who owned one of the biggest real estate agencies in the state.

Aisha's parents spent money recklessly on her and she never lacked anything because she got anything she asked for. She never did anything for herself because she was surrounded by servants. She was indecent and lacked ethical standards.

Aisha did not mingle with people of reputable character in school. She never took her studies seriously and in her second year she joined the most notorious cult in her school. She did her possible best to hide her evil deeds from her parents and succeeded for as long as she could.

A family friend tried to inform Aisha's parents of their daughter's behaviour in school but no, her parents wouldn't listen. They do not want to let anyone say any unpleasant word about any of their children. One fateful day there was a clash among cult members in the school in which Aisha and some other students lost their lives. The next morning Aisha's parents received the shocking news about their daughter's death.

An incident that was very difficult for the parents to manage. Mrs Abubakar blamed her husband for not listening to their family friend Dr. Salamu while Mr Abubakar blamed his wife for improper upbringing of her daughter.

Comprehension questions

1. Mrs Abubakar was a ---?
    a. Chairman
    b. Cult member
    c. Real estate agent
    d. Family friend

2. Why did Aisha not mingle with people of reputable character

a. She was the first daughter
b. Her parents were wealthy
c. She got all she wanted
d. She lacked ethical standards

3. Aisha was a member of _____ in school?
    a. Oil and gas association
    b. Real estate agency
    c. Cult group
    d. Unethical
4. What was difficult for Aisha's parents to manage
    a. Aisha's evil deeds
    b. Clash among cult members
    c. The death of Aisha
    d. Aisha never took her studies serious
5. Why did Aisha's parents not listen to their family friend?

Passage 6

My family has a mansion situated in one of the remotest areas in Enugu, where corporate and business activities take place. It is the most solid and fabulous house in the area. The house is seven years older than me and three years older than my elder sister.

The exterior is painted gray and ash while the interior is painted yellow, white and blue. All the windows are made of glass and the doors are iron doors. It has a very high fence with a gigantic green gate. There is an installation of alarm wires on the fence. The house is decorated with natural and scintillating plants. The night guard's house is quite obvious from the gate.

The house contains a lot of rooms set aside for various uses. The house is roomy with two sitting rooms, eight bedrooms, a big kitchen, a dining room and an ample guest room. The house is furnished with expensive and unique electronic gadgets and furniture. My father imported the electronic appliances from the USA while the furniture was procured from the best furniture store in the state.

My elder sister's room is next to my mother's room while my room is next to the guest room. One of the spare rooms used to be a movie theater. It is a fifteen capacity

theater with a very large HD television and speakers. It is close to the kitchen so it is easy to grab snacks for a movie. This is strange to the neighbourhood who often visit our house to watch movies.

My father's house is in a reserved area surrounded by trees and we always enjoy the cool breeze in the evening. The area is so quiet that we can hear the birds sing at a distance. However, the community lacks good roads, modern schools, hospitals and markets. The only hospital accessible to us is a general hospital in the neighbouring community that is not even well equipped. I often wish the house is in a town with busy roads, commercial activities and provision of social amenities. In spite of this, I admire our family house; it is outstanding and second to none.

Comprehension questions

1. When was the writer's Family's house built?
    a. Three years before the writer was born
    b. Shortly before the writer's father moved to Enugu
    c. After the writer was born
    d. Before the writer was born

2. Which of the following best describes the house?
    a. The exterior is painted yellow and white
    b. The exterior is painted gray and ash
    c. The exterior is painted white and ash
    d. The exterior is painted blue and gray

3. The mother's room is next to whose room?
    a. The guest room
    b. The dining room
    c. The writer's room
    d. The writer's sister's room

4. Expensive and unique describes what?
    a. The furniture

b. The house
c. The theater
d. The room

5. How does the writer feel about their house?

Appendix VII

English language Comprehension Passages for Digital audio-player Group

Tips for accessing English language comprehension passage on digital audio-player:

a. Press play to listen to the comprehension passage
b. Whenever you are distracted rewind to the point of distraction
c. Pause when you want to reflect on the topic

Passage 1

I did not understand the experiences I had in my family when I was growing up. Now, those childhood occurrences I viewed as normal are **clearer** to me as an adult. Being the first child in a polygamous home and the first daughter of my father's second wife I faced a lot of challenges while growing up. My father married three wives, the first has no child, my mother has five girls and the third wife has three sons.

As a child, I did not accept my father's sons as my brothers even though we lived in the same house. My father was a policeman, who travelled from one city to another with the third wife and her sons, while we lived in my father's family house in the village with the first wife.

At the age of forty eight, my father decided to **withdraw** from active service, even though he has not worked for up to thirty five years. My uncle opened a textile industry in our village and he was made the manager of the industry. Now, my father, his three wives and the children live in the same house. We started facing the reality of a polygamous home. My father loved the third and gave **preferential** treatment to her sons. He attended ceremonies with her, trained her three sons to university level and never complained about whatever she did. There was a wide communication gap between him and his other wives, he never went out with them and always complained about whatever they did.

My experience early in life was full of screaming and shouting as my mother and the third wife were always fighting. My only escape was my mother's shop where we often sleep because of the trouble at home.

Several years later, my father was involved in a **fatal** accident which no one believed he could survive. He was hospitalized for three months after which it was clear that he could no longer use his legs. My father could not stand the sight because he had a condescending attitude towards people. He was always complaining about one thing or

the other, sometimes refused to eat and never allowed people to see him even his close friends. He died a year after.

We discovered that we are not worthless as assumed by my father who **trained** only the boys. I and my four sisters are now very successful, married with kids and even contributed more during his burial. The most surprising thing to us was that his first son who traveled abroad did not come for his burial.

Comprehension questions

6. From the options below select the most suitable title for this story?
    e. Past experiences in the family
    f. Occurrences in the family
    g. Enmity in the family
    h. Polygamy in the family

7. The family had family meetings?
    e. Often
    f. Yearly
    g. Never
    h. Every three months

8. Which of the following sentences shows that the writer of the passage is unhappy?
    e. Being the first child in a polygamous home
    f. I faced a lot of challenges while growing up
    g. My uncle opened a textile industry
    h. My father was a policeman

9. Why did the writer's father assume that his second wife's children are worthless?
    e. Because they are not from his first wife
    f. Because of their mother
    g. Because of his work
    h. Because they are girls

10. For each of the following words, find another word or phrase which means the same and which can replace it as it is used in the passage:
    f. Clearer
    g. Withdraw
    h. Preferential
    i. Fatal
    j. Trained

Passage 2

The second wife became sick shortly after the death of her father. She claimed that the elder wife was responsible for her sickness. On hearing this, Muhammad chased the elder wife out of his house.

At this same time, Ronkie's daughters, Sola and Dupe were about to complete their programme in the university. His only son who lived in the city was so angry at his actions that he refused to talk to him. Muhammad was left with his sick wife who was unable to give birth to a child. This did not trouble him, not until all his efforts to get the attention of his son proved **abortive**. He has long decided not to marry another wife, so the thought of who would carry on his family name **weighed** him down. His son had **declined** marriage, after all his father did not make a good home. Muhammad became addicted to playing draft, smoking and drinking, gradually he turned into a street person. This way he totally destroyed his life.

But for Ronkie the elder wife, she was a very hard working woman, her business flourished and her children prospered. Meanwhile, Muhammad was rescued by his only son Adamu. The son learnt about his father's condition and decided to pay him a visit. Muhammad was pleased with his son's decision, he conceived that he had a **brave** son. He began his trade again which flourished better. Still, he was burdened about one thing. The thought of who would carry his family's name on.

During his son's visit he discussed marriage with him. His son agreed that he would marry but he was not yet ready. Muhammad did not want to wait so he married a **charming** young lady for him and took her to him.

Comprehension questions

6. Muhammad chased the elder wife out of his house because?
    e. The younger wife claimed that she was responsible for her sickness
    f. The death of her father
    g. Her son refused to talk to his father
    h. She could no longer have children

7. How did Muhammad destroy his life?
    a. By turning into a street person
    b. By chasing his wife out of the house
    c. By smoking and drinking
    d. By rejecting his children

8. Who narrated the story?
    e. Sola
    f. Adamu
    g. Ronkie
    h. Muhammed

9. What did Dogo intent to do to continue his line
    e. Marry another wife
    f. Get his son a wife
    g. Bring back his first wife
    h. Give his daughters out in marriage

10. Give another word or phrase similar to each of the following words that can suitably replace it in the passage.
    a. Brave
    b. Abortive

c. Weighed

d. Declined

e. Charming

Passage 3

For many years now, Nduka had always been a zealous evangelist whose preaching moved people. He had at all-time supported, stood by and upheld the rights and grounds of the government. He unexpectedly became reticent, concerned himself more with personal inward thoughts and was never curious about all activities in his environment.

Nduka was envenomed and subsequently became an opponent of everything he had initially admired. Whenever he had the chance, he criticized, poured his anger on the constituted government and the rulers of the faithful. Each time the government representatives' endeavored to convince him to bolster one approach or another, he sought to be spared the blame of eating with wolves in sheep's clothing and misleading people.

As it were, the time Nduka yielded to discuss with the authorities of the administrative course, he affirmed that he would concur with people who apparently govern the state if earnest answers were given to his inquiries. Nduka questioned whether the individuals who advise others not to rub do not embezzle public funds and people who educate others not to make equivocal statements are not con artists.

Nduka credited the crisis in the country and the dispassionate mien of the people to the dismissal of the ancient, out of date proverb *"follow my instructions not my actions".* He asserted conclusively that residents ought not be required to maintain the precepts which the authorities are liable to abuse.

Comprehension Questions

6. What did Nduka subsequently become?

e. Envenomed

f. Opponent

g. Reticent

h. Zealous

7. Nduka did not direct his anger to?
    e. Constituted government
    f. Evangelists
    g. Rulers of the faithful
    h. Representatives

8. What condition did he give to support the government?
    e. If they spared him the blame
    f. If he ate with misleading people
    g. If he was given the chance
    h. If earnest answers were given to his inquiries
9. *"Follow my instructions not my actions"* used in this passage implies?
    e. People should obey the laws the leaders have made
    f. People should not obey the laws leaders do not obey
    g. People should obey the laws whether the leaders obey them or not
    h. People should not obey the laws leaders obey

10. In your own words, what were Nduka's inquiries?

Passage 4

At about 5pm she stood with her heart racing, certain that her child had been adopted by kidnappers. She was sure that her child could be dead. She started running, then she stopped a cab and proceeded to her pastor's house. The pastor tried to conceal his own fright and they headed to the Sunday school teacher's house.

The Sunday school teacher had not noticed anything unusual and was confused by the whole situation. Both the woman and the pastor persuaded the Sunday school teacher to think and recall anything at all. The man eventually recalled that a young girl left the premises with a child. The woman started to cry and was completely devastated. The pastor was confused and began to think of what might have happened. The pastor decided to go to the nearest police station with the woman and the Sunday school teacher to report

the case. The officer on duty asked the woman *for how long has your child been missing*? The woman explained with distress in her voice that it has been about eight hours now. The officer told them that someone is only declared missing after twenty four hours and asked them to return if they do not see the child after twenty four hours. On their way to the woman's house the pastor spotted the child playing with other children in the neighbor's compound. He suddenly turned to the woman and asked her if this is not the child she was looking for. He then said to her you ought to raise the alarm only when you are sure your child is missing.

Comprehension questions

6. Who did she report to first?
    e. The Sunday school teacher
    f. The kidnapper
    g. The police
    h. The pastor
7. Who left the premises with a child
    e. The man
    f. The child's mother
    g. The Sunday school teacher
    h. The police

8. Why was the woman's heart racing?
    e. Because she could not find her child
    f. Because she thought her child was dead
    g. Because she thought her child has been kidnapped
    h. Because a young girl left the premises with a child

9. Where did they report the case?
    e. The pastor's house
    f. The Sunday school teacher's house

g. The neighbor's compound

h. The police station

10. When should a missing person be reported to the police as missing?

Passage 5

Aisha was a beautiful girl of nineteen years of age. She was the first daughter of Mr and Mrs Abubakar. Mr Abubakar was a famous man who worked in one of the well-known oil companies in the country. He hails from Ongloda in Woloya local government area Kano state and he was the chairman of Kano oil and gas association Port Harcourt branch. Mrs Abubakar was a successful real estate agent who owned one of the biggest real estate agencies in the state.

Aisha's parents spent money recklessly on her and she never lacked anything because she got anything she asked for. She never did anything for herself because she was surrounded by servants. She was indecent and lacked ethical standards.

Aisha did not mingle with people of reputable character in school. She never took her studies seriously and in her second year she joined the most notorious cult in her school. She did her possible best to hide her evil deeds from her parents and succeeded for as long as she could.

A family friend tried to inform Aisha's parents of their daughter's behaviour in school but no, her parents wouldn't listen. They do not want to let anyone say any unpleasant word about any of their children. One fateful day there was a clash among cult members in the school in which Aisha and some other students lost their lives. The next morning Aisha's parents received the shocking news about their daughter's death.

An incident that was very difficult for the parents to manage. Mrs Abubakar blamed her husband for not listening to their family friend Dr. Salamu while Mr Abubakar blamed his wife for improper upbringing of her daughter.

Comprehension questions

6. Mrs Abubakar was a ---?

e. Chairman

f. Cult member

g. Real estate agent

h. Family friend

7. Why did Aisha not mingle with people of reputable character

e. She was the first daughter

f. Her parents were wealthy

g. She got all she wanted

h. She lacked ethical standards

8. Aisha was a member of _____ in school?

e. Oil and gas association

f. Real estate agency

g. Cult group

h. Unethical

9. What was difficult for Aisha's parents to manage

e. Aisha's evil deeds

f. Clash among cult members

g. The death of Aisha

h. Aisha never took her studies serious

10. Why did Aisha's parents not listen to their family friend?

Passage 6

My family has a mansion situated in one of the remotest areas in Enugu, where corporate and business activities take place. It is the most solid and fabulous house in the area. The house is seven years older than me and three years older than my elder sister.

The exterior is painted gray and ash while the interior is painted yellow, white and blue. All the windows are made of glass and the doors are iron doors. It has a very high fence with a gigantic green gate. There is an installation of alarm wires on the fence. The house is decorated with natural and scintillating plants. The night guard's house is quite obvious from the gate.

The house contains a lot of rooms set aside for various uses. The house is roomy with two sitting rooms, eight bedrooms, a big kitchen, a dining room and an ample guest room. The house is furnished with expensive and unique electronic gadgets and furniture. My father imported the electronic appliances from the USA while the furniture was procured from the best furniture store in the state.

My elder sister's room is next to my mother's room while my room is next to the guest room. One of the spare rooms used to be a movie theater. It is a fifteen capacity theater with a very large HD television and speakers. It is close to the kitchen so it is easy to grab snacks for a movie. This is strange to the neighbourhood who often visit our house to watch movies.

My father's house is in a reserved area surrounded by trees and we always enjoy the cool breeze in the evening. The area is so quiet that we can hear the birds sing at a distance. However, the community lacks good roads, modern schools, hospitals and markets. The only hospital accessible to us is a general hospital in the neighbouring community that is not even well equipped. I often wish the house is in a town with busy roads, commercial activities and provision of social amenities. In spite of this, I admire our family house; it is outstanding and second to none.

Comprehension questions

6. When was the writer's Family's house built?
    e. Three years before the writer was born
    f. Shortly before the writer's father moved to Enugu
    g. After the writer was born
    h. Before the writer was born
7. Which of the following best describes the house?
    e. The exterior is painted yellow and white
    f. The exterior is painted gray and ash
    g. The exterior is painted white and ash
    h. The exterior is painted blue and gray
8. The mother's room is next to whose room?
    e. The guest room
    f. The dining room
    g. The writer's room
    h. The writer's sister's room
9. Expensive and unique describes what?
    e. The furniture
    f. The house
    g. The theater
    h. The room
10. How does the writer feel about their house?