

**EFFECT OF INFOGRAPHICS ON ACADEMIC PERFORMANCE OF SENIOR
SECONDARY SCHOOL STUDENTS IN ENGLISH LANGUAGE IN KATSINA
STATE, NIGERIA**

BY

**Jibril SULAIMAN
P15EDFC8093**

**DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM
(INSTRUCTIONAL TECHNOLOGY SECTION)
FACULTY OF EDUCATION,
AHMADU BELLO UNIVERSITY,
ZARIA**

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE
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JUNE, 2021

DECLARATION

I hereby declare that this research on Effect of Infographics on Performance of Senior Secondary School Students in English Language in Katsina State, Nigeria was carried out by me in the Department of Educational Foundations and Curriculum, Faculty of Education, Ahmadu Bello University, Zaria. All citations were duly acknowledged and no part of this work was previously presented for another degree in this or any other university.

Jibril SULAIMAN

Date

CERTIFICATION

This research work on: EFFECT OF INFOGRAPHICS ON PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ENGLISH LANGUAGE IN KASTINA STATE, NIGERIA by Jibril Sulaiman (P15EDFC8093), meets part of the regulations governing the award of the degree of Masters in Instructional Technology in Ahmadu Bello University, Zaria, and it is approved for its contribution to knowledge and literacy presentation.

Dr. S. A. Zubairu
Chairman, Supervisory Committee

Date

Prof. A. K. Tukur
Member, Supervisory Committee

Date

Dr. A. A. Dada
Head of Department

Date

Prof. S. Abdullahi
Dean, School of Postgraduate Studies,
Ahmadu Bello University, Zaria

Date

DEDICATION

This work is dedicated to my father and mother late Malam Jibril Abdullahi Matazu and Malama Ramlatu Sani Matazu.

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ABSTRACT

This study examined the effect of infographics on performance of Senior Secondary School Students in English language in Katsina state, Nigeria, particularly Funtua educational zone. The objectives of this study were specifically to: find out effect of infographics instructional strategy in comparison with instructional video strategy in facilitating performance of Senior Secondary School students' at the level of gender (male and female) in Katsina state. The study was guided by three research questions and three null hypotheses tested at 0.05 level of significance. Works related to the study were reviewed. The study employs factorial 2x2 research design. The sample population for the study is 242 SSII students, 118 male and 124 female using four intact classes from 2 Senior Secondary Schools in Funtua educational zone. The students from both schools were assigned into experimental groups one and two. Students of group one were taught using infographics instructional strategy (IIS), while those of group two using video instructional strategy (VIS). The instrument used for data collection titled English Language Achievement Test (ELAT) was adapted from WAEC and NECO past question papers. It was validated by experts of Instructional Technology and English language simultaneously with the treatment instruments. It was pilot tested using test-retest method in one of the schools under this study, but not part of the sampled schools. Pearson Product Moment Correlation (PPMC) reliability of 0.76 was recorded. Mean and standard deviation were used to answer the research questions, while t-test for null hypotheses testing. The findings of the study revealed that students taught using infographics instructional strategy recorded almost the same level of performance (p -value = 0.279) with those taught using video instructional strategy. The findings further revealed that gender has a significant effect on performance of students when taught using both infographics and video instructional strategies (p -values = 0.000). It was recommended that; teachers of English language should be encouraged to employ and use more infographics and video in teaching subject with the hope that, performance of students in the subject could be improved, teachers of English should be exposed to workshops and seminars on how to use infographics and video instructional strategies in teaching the subject to improve the performance of students in the subject and regardless of gender of students, infographics and video should be used in teaching English language at senior secondary school level as both were found to be almost equally effective in teaching.

TABLE OF CONTENTS

	Page
Title page	i
Declaration	ii
Certification	iii
Dedication	iv
Acknowledgements	v
Abstract	vii
Table of Contents	viii
List of Appendixes	xi
List of Tables	xii
List of Figures	xiii
Operational Definition of Terms	xiv

CHAPTER ONE:INTRODUCTION

1.1	Background to the Study	1
1.2	Statement of the Problem	6
1.3	Objectives of the Study	9
1.4	Research Questions	9
1.5	Research Hypotheses	9
1.6	Significance of the Study	10
1.7	Scope of the Study	11

CHAPTER TWO:REVIEW OF RELATED LITERATURE

2.1	Introduction	13
2.2.0	Theoretical Framework	13

2.2.1	Paivio's Dual Coding Theory	13
2.2.2	Walberg Theory of Academic Achievement	17
2.2.3	Gender Schema Theory	19
2.2.4	Conceptual Framework	22
2.2.5	Concept of Infographics	23
2.3	Principles and Elements of Infographics Design	28
2.4	Infographics Design in Education	29
2.5	Flexibility of Infographics in Classroom	33
2.6	Conditions for Proper Integration of Infographics in Classroom	36
2.7	An Overview on Instructional Video	37
2.8	Concept of Academic Performance	42
2.9	Factors that Influence Students' Academic Performance	44
2.10	Students' Academic Performance Base on Gender Difference	52
2.11	The Place of English Language in Nigerian Secondary Education	53
2.12	Empirical Review on Infographics	55
2.13	Empirical Review on Instructional Video	59
2.14	Summary	63

CHAPTER THREE: RESEARCH METHODOLOGY

3.1	Introduction	68
3.2	Research Design	68
3.3	Population for the Study	69
3.4	Sample and Sampling Technique	69
3.5	Instrumentation	60
3.5.1	Validation of Research Instrument	71

3.5.2	Pilot Testing	71
3.5.3	Reliability of Research Instrument	72
3.6	Procedure for Data Collection	72
3.7	Procedure for Data Analyses	73

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1	Introduction	74
4.2	Analyses of Research Questions	74
4.3	Null Hypotheses Testing	77
4.4	Summary of Findings	80
4.5	Discussions of Findings	80

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1	Introduction	83
5.2	Summary	83
5.3	Conclusion	85
5.4	Recommendations	85
5.5	Limitations of the Study	86
5.6	Contribution to Knowledge	86
5.7	Suggestions for Further Studies	87
	References	88

LIST OF APPENDIXES

Appendix A	English Language Achievement Test (ELAT) For SSII Students	102
Appendix B	Marking Scheme for English Language Achievement Test	104
Appendix C	Test-Retest Result of the Instrument for Data Collection	105
Appendix D	Pearson Product Moment Correlation (PPMC) Result for (ELAT)	106
Appendix E	SPSS Output for Data Analyses	107
Appendix F	Population and Schools Distribution	109
Appendix G	Percentage Pass of Student's Performance in English Language for WAEC in Nigeria for Five Years	110
Appendix H	A Copy of Introduction Letter to the Zonal Coordinator, Zonal Quality Assurance (ZEQA) Funtua	111
Appendix I	Pictures of Students for Both Experimental Groups	114
Appendix J	Lesson Plans for both Treatment Groups (Operational Guide)	116

LIST OF TABLES

Table 3.1	Research Design Outline	68
Table3.2	Population of Students Based on Gender	69
Table 3.3	Sampled Schools and Students' Distribution	70
Table 3.4	Treatment Plan	73
Table 4.1	Mean and Standard Deviation of Students' Scores Taught English using Infographics and Video Instructional Strategies	74
Table 4.2	Test Scores of Male and Female Students Taught English Using Infographics Instructional Strategy	75
Table 4.3	Test Scores of Male and Female Students Taught English Using Video Instructional Strategy	76
Table 4.4	Two-tailed T-test Result of Difference in English Mean Score between Students Taught Using Infographics and Video Instructional Strategies	77
Table 4.5	Two-tailed T-test Result of Difference in English Mean Score between Male and Female Students Taught Using Infographics Instructional Strategy	78
Table 4.6	Two-tailed T-test Result of Difference in English Mean Score between Male and Female Students Taught Using Video Instructional Strategy	79

LIST OF FIGURES

Figure 1	Structural Model of Dual Coding Theory	15
Figure 2.2	Conceptual Framework	22
Figure 2.3	Image Interpretation and Analysis	31

OPERATIONAL DEFINITION OF TERMS

For the purpose of this study, the following terms were operationally defined in relation to how they were used for clarifications:

1. **Infographics:** This refers to visual display accompanied with short texts used during treatment to explain phonetic concept and symbols.
2. **Instructional Video:** This implies the audio-visual package used for teaching students during treatment to explain phonetic concept and symbols.
3. **Instructional Strategy:** This is a technology/medium the researcher used to teach students during lesson presentation which comprises the use of either infographics or video.
4. **Academic Performance:** This refers to the score obtained by students from administration of the English Language Achievement Test (ELAT) after the treatment.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

There is no doubt that human beings are blessed with the ability to share their innate feelings through different means especially spoken language. Language can be seen as a medium through which people communicate their views about the world around them for the purpose of better and peaceful coexistence in the world generally. One of the most important and treasured possessions of human being is language. Through language, people have the ability for dealing with modifications in their surroundings in order to organize themselves and to address other various challenges for survival. Furthermore, it is repeatedly debated that for any country to achieve meaningful development, it ought to strive to be well established in science and technology. One of the avenues of attaining that is the language in which the ideas are articulated (Husain, 2015).

Communication is an indispensable tool in the existence of any set of individuals. The fact that people communicate through language; it serves as a significant component in Nigeria's consciousness and development. Nigeria is naturally divided by the rivers Niger and Benue into three major parts. These divisions relate to the three main language groups in the country namely: the Hausa in the North, the Igbo in the East and the Yoruba in the West. Apart from these three main language groups, the country is comprised of individuals with an estimation of more than 500 languages. Unlike a homogenous society that has less or no problem related to communication having a single and common language (British Council, 2018).

The issue of multiplicity of language in Nigeria is evident that, within the major linguistic communities, there exist variations in the languages and dialects. The

circumstance is that, some of the dialects within the same linguistic community are not equally understandable although the speakers belong to that same linguistic community. Such circumstance is appear to be a barricade to the unity and development the country. To halt such language barrier, a common language is required to ease common and effective communication. In spite of this, the question one may ask is: which language should to be used as national language in the country? Without a common language, the flimsy unity which currently binds the nation together might have collapsed. Think of what the fortune of the presidency, both the states and the National Assemblies could be, the law courts, education as well as other areas of national communication. Bearing in mind, the aforementioned situation, adopting a particular indigenous language as national language becomes a challenging if not an impossible undertaking. The reason is that the choice of a particular native language as a state language will definitely bring about what linguists referred to as linguistic chauvinism, a condition that generates evil feelings of distrust, resentment and fear of language supremacy among individual language speakers in the country (Ihejirika, 2017).

A lot of reasons were forwarded for such loss of choice. These reasons among other arguments include; political affiliations, economics and linguistic questions. Other linguistic communities precisely pointed out that any chosen indigenous language will take up upper position and all other languages will later on function in a subordinate capacity. Therefore, Nigeria should proffer a solution to its language problem and come up with a particular language to serve as national one. Certainly, it should not be any of the indigenous languages in the country because none of them is neutral politically to serve this purpose. The only choice that remains for Nigeria is to take of a nonaligned language. English language enthusiastically gained acceptance to perform this function, because the

missionaries had already introduced the language to serve for communication purpose of in the country. Because of its neutrality, English language gained acceptance as a common language among different linguistic communities in the country. Having adopted language, a number of challenges often brought about by absence of a common language in diverse populations such as Nigeria are suppressed. The language has remained one of the major tools for unity and development in the country. The language persistently plays such a unifying role to the point that it now functions as a second language in the country. It is usually argued that the quality of a country's education system may significantly be determined by considering the superiority of the language it embraces. The position of English as a global language makes available a number of opportunities for worldwide communication, international business, science and technology, human development and diplomatic relations which might have been hard to achieve if English had not adopted as a second language in Nigeria (British Council, 2018).

Having adopted English as a national language, Nigeria hopes to become one of the world largest economies as made available in its pioneer National Vision 20:20, medium term implementation blueprint manuscript (NV 20:20, 2009). The country, therefore, have to ensure appropriate modification mechanisms are put in place for integration into the universal system for higher gains (Iheriohanma, 2011). This position was further declared in the country's National Policy on Education (FRN, 2013) where it stated that "from the fourth year, English language would progressively be a subject in the curriculum and a medium of teaching nearly all the school subjects". According to Olusoji (2012), English is used by a substantial population world-over. This offers Nigerians an added advantage of developing their capabilities and participating in international affairs which would have been a mirage without such a language. Teaching and learning of language as a core subject

and medium of instruction positioned it above all other indigenous languages in the country and it suppresses the supremacy tussles among the native linguistic communities.

Evidence have shown that the field of education, as any other field of human endeavors has been affected by Information and Communication Technology (ICT) which certainly is reflected in teaching, learning, research and organization since last decade (Aristovnik, 2012). Most of the countries of the world had strategized their education in such a way that it suits their teaching-learning requirements. Therefore, such transformations can also make instructional delivery at secondary level of education more interesting and relevant in Nigerian so as to meet both the societal needs and enhance the relationship of the country with international communities (Ajelabi & Aghatogun, 2010). With a better education system, countries will benefit from more economic opportunities and be active players in their own economy which in turn leads to decrease in the rate of unemployment in such countries (World Bank, 2010).

The National Policy on Education (FRN, 2013) states that “the broad aims of Secondary Education within the overall national objectives are to prepare its citizens for useful living within the society and for higher education”. This aim remains constant in all reviews. Therefore, this denotes that the success in school activities is a foremost aim notwithstanding the diverse mixture of guidelines and assumption handled by an educational institution. The policy specifies the 6-3-3-4 structure, Universal Basic Education, core and elective subjects for every student, better access to post-primary education to citizens regardless of their sex, social, religious and ethnic upbringing; and obligatory completion of year three of junior secondary level of education for all. The secondary level of education is of six-year duration given in two phases; junior and senior secondary school levels, each level being of three year duration.

As one of the core subjects, however, it is perceptibly expected that students' level of attainment in English will be ascertained on their performance in other subjects of study in the school. For the teaching of English Language to produce the desired result and accomplishment of the predetermined aim, are part of the major concern currently in education. The condition is usually attributed to ineffective traditional teaching strategies employed by teachers of English Language in the country (Ohia & Duff, 1997). Infographics as visual exhibitions of basic content information intended to direct students and to augment their comprehension is hoped to provide solution to such inefficiency caused by the use of traditional teaching strategies related to lower achievement recorded by students at secondary level of education. They are at times called cognitive maps, concept maps, or content maps, but they all function as one. They are intended to assist learners to speedily and evidently create in their mind complex information which comprises photos, maps, charts and signs. They can present to students how thoughts are organized surrounded by a text or within a concept. Using infographics, students learn about the structure of abstract concepts. An infographic (information graphics) is a representation of information in a graphic form designed to make the data easily comprehensible at a glance (Naparin & Saad, 2017).

To Lyra, Reis, Jaques and Bitencourt (2016), infographics is a type of information visualization that uses graphic design to enhance human ability to identify patterns and trends. The visual representation of infographics provides learners with a structural framework of information to be learned. This helps to direct the learners' attention to key concepts and conceptual relationships. The use of such infographics, thus promotes understanding, and enhances organization and long term retention of information. It stresses meaningful learning which serves to facilitate learning and minimize

boredom. Currently, infographics are broadly integrated in teaching-learning process. They are applied in teaching to provide students with a tangible essential framework of information and help to focus the attention of learners on main ideas as well as the conceptual relationships between these ideas rather than the apparently quarantined facts (Delrose, 2011).

It is evidently known that verbal means of lessons presentation have for long dominated educational practices, although the inclusion of pictures or visual forms of presentation have to a large extent enhanced students' performance. In that case, infographics illustrations are more favored as a means of addressing such difficulties that arise when presenting instructional contents in a traditional way (Visme, 2017). In fact, infographics have the potentials of making the contents of instructions impact positively on students in a memorable way that can greatly enhance students' comprehension of information, acquisition of contents in subjects such as English language as well.

1.2 Statement of the Problem

The falling standard of performance of students in English language creates worry due to the status of the language in the country's educational system. Considering the fact that at least, a pass at credit level in English is necessary among other vital requirements for admission to study in any of the Nigerian tertiary institutions. To Olusoji(2012), a major problem related to the learning of the English in language Nigeria initiates in the fact that the language is learned as a second language (L2) by almost all learners who are previously proficient in the use of one mother tongue (L1) as their first language of communication. The general problem related to this is the mother tongue interference in an attempt to learn the target language which is English. Majority of the teachers of the language are incompetent. In spite of this, the teachers of the language too are to some degree sufferers of

inept teaching. On the other hand, the problem in the learning of the language is found in the difficulty inborn in the language itself such as irregular forms nouns or verbs. For instance, the plural of woman is 'women' but the plural of bat is not 'bet' (Ali, 2015).

There is high concern by governments, parents and guardians about this condition. Massive failure of students in final year examinations have been ascribed to several reasons which among others are: teachers' factors that has to do with low qualification, lack of experience, poor salaries and allowances, poor supervision and organizational climate. Students' factors which comprise of poor ability of students, under age, unwillingness to learn, bad peer influence among others. The predicament of poor academic achievement is so vast that it becomes necessary for students to pass certain required number of subjects for admission into any tertiary institution at once (Yusuf & Adigun, 2010).

It had been observed that students' academic performance in English is becoming worse in public secondary school examinations. Noting that some parents prefer to enroll their children in Government Colleges where better academic performance is guaranteed for their children. It also appears that some parents believe that their children cannot perform very well academically in co-educational school. Some of them would prefer to register their children in single sexed schools for Senior School Certificate Examination to enhance better academic performance. Some parents believe that the academic performance in urban schools is poor compared to academic performance of students in rural schools. Therefore, some parents enroll their wards in the rural schools for Senior School Certificate Examinations (Yusuf & Adigun, 2010).

There is ample evidence indicating to Senior Secondary School Students' difficulty in achieving lofty academic performance in the English language in Nigeria.

Chibuzor(2015) for instance, correlated this issue of poor performance of students in English language in the National Examinations to an inadequate number of qualified teachers of the subject, lack of instructional materials and obstructive learning environment. This lack of instructional materials and obstructive learning environment is hoped be tackled through the application of infographics as an essential tool for improving academic performance of students in the language. Ahmed and Emeke (2010) further winded up that the performance of students in particularly English language in the two major examination bodies inNigeria for the Senior Secondary Certificate Examination(NECO and WAEC) had been awfully poor in the last decade although little improvement is being recorded recently. For the case in view, the WAEC results for Senior Secondary School Certificate from 2015 to 2019 in Nigeria shows conflicting and poor percentage rate of pass. Thus: 38.68%, 52.9%, 59.22%, 49.98% and 64.18% students passed English with at least a credit for 2015, 2016, 2017, 2018 and 2019 respectively in the country (WAEC Report, 2019).

Considering the aforementioned problems,for teaching of English language to yield the desired result which has been a contemporary issue in education,the blame for such a situation is on ineffective traditional strategy for teaching used by teachers of the language. Therefore, it becomes crucial to examineeffect of infographics on students' performance in English language for teachers and school administrators to press forward the basis for proper incorporation of such new strategies in teaching-learning process for attainment of the predetermined instructional objectives in the language.

1.3 Objectives of the Study

The main objective of this study was to investigate the Effect of Infographics on Performance of Senior Secondary School Students in English language in Katsina state. Specifically, the study was to:

- (i) Compare performance of students taught English using infographics and that of those taught using instructional video.
- (ii) Distinguish between performance of male and female students taught English language using infographics instructional strategy.
- (iii) Differentiate between performance of male and female students taught English language using video instructional strategy.

1.4 Research Questions

The study generated answers to the following research questions:

- (i) What is the difference between performance of students taught English using infographics and those taught using video instructional strategies?
- (ii) What is the difference between performance of male and female students taught English using infographics instructional strategy?
- (iii) What is the difference between performance of male and female students taught English using video instructional strategy?

1.5 Research Hypotheses

Based on the research questions, the following null hypotheses were developed and tested at 0.05 level of significance:

HO: There is no significant difference in the mean score of students taught English using infographics and those taught using video instructional strategies.

HO2: There is no significant difference in the mean score of male and female students taught English using infographics instructional strategy.

HO3: There is no significant difference in the mean score of male and female students taught English using video instructional strategy.

1.6 Significance of the Study

The findings of this study are expected be of immense benefits to the curriculum planners, teaching and learning of English language in secondary schools, teachers, researchers and the nation in these directions:

The findings from this study would hopefully encourage curriculum planners owing to the usefulness of infographic and or instructional videos as instructional media to be include it in the curriculum in order to enhance effective teaching and learning of English at secondary level. For that reason, the government may make available the required financial and moral support to teachers for the procurement and proper application of such language teaching and learning materials. In that direction, it is hoped that the falling standard in the performance of students in English language in Senior School Certificate Examinations (SSCE) would be reduced to a minimal level considering the degree of concern shown by government, parents and general public over students' poor performances for years.

The result of this study is expected to impact positively on teaching and learning of English language in secondary schools for it should re-emphasize the need for teachers to at all times enrich their instructions with relevant instructional media. In that direction, students' attention should be captured, retained and promote harmonious interaction between students and the materials to be learnt. In the same vein, excessive wordy explanations and passivity could be minimized in teaching in such a way that it would eliminate boredom and detest from the minds of students for English language.

The outcome of this study is expected to energize teachers who serve as the active implementers of curriculum to use multiple instructional media, particularly ICT in lesson presentations to students. At the same time, it would assist teachers in time and energy saving in the course of instructional delivery, diversify their instructional approaches, develop creative skills as well as making English language lessons very interesting which in turn would result in the attainment of teachers' predetermined instructional objectives. It would assist teachers to progress from simple to complex learning tasks with their students and broaden teachers' ICT skills for utilizing such packages in teaching.

The findings from this study would provide additional literature for review to further researchers that would support the existing ones in the area of instructional infographics as well as instructional videos. Finally, parents and other non-governmental organizations could be stimulated by the study to make appropriate gesture in providing better instructional media to schools for English language and create platforms for training and re-training of teachers to keep them up to date in contemporary advances in teaching-learning processes and strategies.

The findings of this study should benefit the nation in such a way that it might create a turnout in the performance of students in the national examinations. This would allow them in getting the basic required credit grades in English language to be able to secure admission into any of the country's higher institutions.

1.7 Scope of the Study

This study is limited to investigating the Effect of Infographics concurrently with instructional videos on Performance of Senior Secondary School Students in English language in Katsina State, Nigeria, particularly, Funtua Educational Zone. Senior Secondary School one and three (SS 1 & 3) are not included in this study. Therefore, only SS 2

students are part of this study. This is due to the fact that they must have spent at least one year in the senior secondary school and will soon be preparing for qualifying examination and later on the Senior School Certificate Examination by the two examination bodies (WAEC & NECO). It is also intended to use static infographics (computer generated) and instructional video. The topics treated in the research are limited to phonology (consonant sounds) of the English language.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter examined literatures that are considered relevant to this study. These were discussed under the following sub-headings: theoretical framework, conceptual framework, concept of infographics, concept of academic performance, principles and elements of infographics design, infographics in education, flexibility of infographics in classroom, conditions for proper integration of infographics in classroom, an overview on instructional videos, factors that influence students' academic performance, students' academic performance based on gender difference, empirical studies and summary of the chapter.

2.2.1 Theoretical Framework

Taking into consideration, the theme concerning this research work, it has been based on Dual Coding Theory (DCT) by Allan Paivio. A theory initiated in the 1960s in an effort to clarify the powerful effects that mental imagery has on human memory. It is a cognitive theory on how humans process and represent verbal and non-verbal information in separate but related systems. Therefore, for example, when somebody sees a "car", he/she should have the word "car" in his/her mind. The theory explains the psychological phenomena through collective actions of verbal and non-verbal systems specifically for imagery and linguistic information processing (Paivio, 1991). The hypothesis of DCT is that the development of the verbal system is influenced by the richness of a non-verbal base. The memory emphasis advanced into wider use of imagery intended to hasten the knowledge acquisition by learners. It is usually referred to as theory of mental imagery, particularly visual imagery. The theory consists of a set of suppositions on how

knowledge is perceived and preserved in human memory (Sadoski and Paivio, 2001). The theory is on the assumption that human memory is made up of two isolated and distinctive mental representations which Paivio termed as verbal and non-verbal codes. The verbal code or system is "language-like" which specializes in linguistic activities associated with words, sentences, and other linguistic elements. The nonverbal code or system on the other hand comprises memory for all non-verbal phenomena such as emotional reactions, images, and other picture related representations of information.

Dual coding theory proposes the idea that knowledge is represented on a concreteness-abstractness continuum and that human cognition is inclined to storing mental representations in one of the two forms related to the ends of the range. At one end are the visually based representations in which knowledge is stored in concrete and non arbitrary ways. At the other end are the verbal or semantic representations in which knowledge is stored in separate and arbitrary ways. According to this theory, the basic units of the memory are referred to as 'logogens' in the verbal system and 'imagens' in the visual system (Reiber, 2000). Both the verbal and the visual subsystems have unique properties. Logogens are stored in the verbal system as isolated elements, resembling words and sentences, whereas imagens are stored as continuous units in the visual system having an "all-in-oneness" quality. Dual coding predicts that three distinct levels of processing can occur within and between the verbal and visual systems: representational, referential, and associative (Paivio, 1991).

Representational processing describes the connections between incoming stimuli and either the verbal or visual system. Verbal stimuli directly activate verbal memory codes, whereas visual stimuli activate visual memory codes. For example, hearing the word "bicycle", at first activates the verbal system, but seeing a picture of a bicycle rightly

activates the visual system. Referential processing is the building of connections between the verbal and visual systems. Hearing or reading the word "bicycle" will arouse the appropriate logogen in the verbal system. Consequently, forming a mental image of a bicycle means that the verbal system has straightforwardly activated the imagen related to bicycle. Associative processing of information results in the activation of informational units within both of the systems (Paivio, 1991). These procedures are hereby diagrammed in figure 2.1

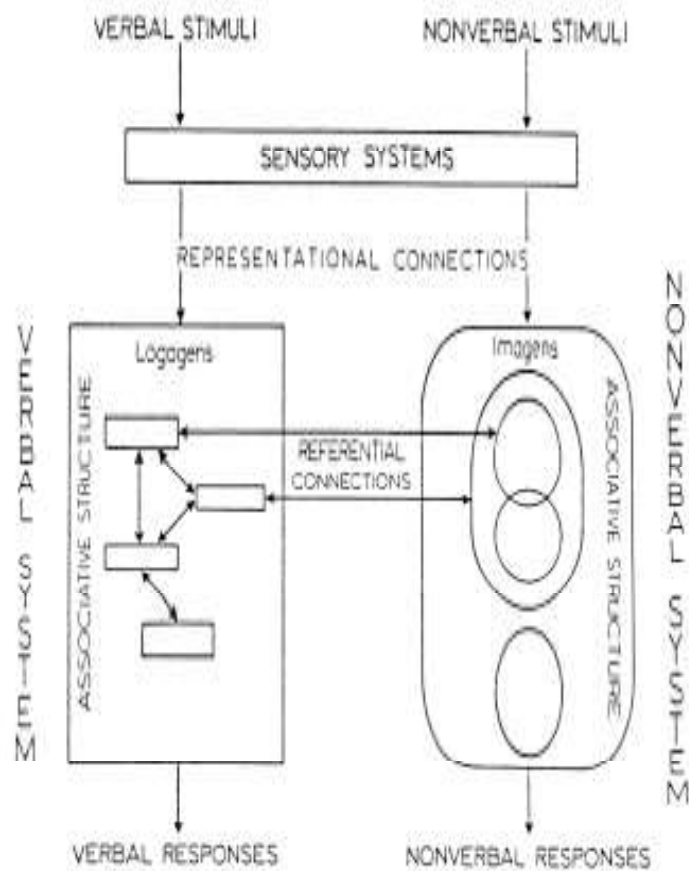


Figure 2.1: Structural model of dual coding theory showing the representational units, their referential and associative interconnections. Source: Paivio(2006)

Paivio hypothesizes that the central idea behind dual coding theory of memory is very uncomplicated and clear. He advocates that the human mind operates through two separate modules of mental representation (codes): verbal representations and mental images and that the human memory, therefore, consists of two functionally independent even though inter-related systems (verbal memory and image memory). Imagery facilitates the recall of the verbal material because when a word call to mind an associated image either suddenly or deliberately, both separate but connected memory traces are laid down, one in each of the memory stores. It is clearly that, the possibility that information could be retained and retrieved better if stored in the two distinct functional units rather than in one alone (Thomas, 2010).

In view of the assumptions from dual coding theory, Teachers ought to be more interested in application of innovations to raise up the likelihood that information to be dually encoded in the long-term memories of the students. Information encrypted in both verbal and visual forms accompanied by powerful and flexible connections between the codes is hoped to increase retention, retrieval and transfer of the information by students. To Kuo & Hooper (2004), coding is expected to occur most where the content provides itself with imaging. For the case in view, tangible concepts, like "book" or "horse" are stress-free for individual learners to envision, just for the fact that they are concrete objects having a physical shapes. On the opposing side, individual learners do not at a glance form internal images for intangible concepts, like "love" and "honesty." In such contexts, it is pertinent to make available to student a sample image that interconnects the most central features or aspects of such concepts. For instance, two individuals hands in shaking to exemplify friendship among other instances. Such exemplary imagines are frequently analogical to the concepts. For the case in view, a portrait of the blindfolded woman holding a set of

scales clearly represents justice. In the same vein, it is relatively a difficult task for dual coding to work when we utter more abstract words such as “love”. Hardly can we arrive at the non-verbal image for love in our minds. Therefore, we may not be able to identify the bodily image of “love” in our minds. For such a case, in an effort to arrive at meaning, abstract words like this should obviously be accompanied with verbal connotations, so that a better access to meaning can be arrived at by giving possible definitions of the concept using synonyms or antonyms (Aslandag & Yanpar, 2014).

Based on the DCT, it is obvious that a theoretical foundation of dual coding theory has clear-cut implications on the significance and utilization of instructional media, infographics and videos inclusive. Marzano, Pickering and Pollock (2001) asserted that instructional video augments the enhancement of non-linguistic representations in students, thus increasing the development of the concepts to be learned. Application of instructional media also by teachers in content delivery assists students in generating linguistic representations of information. Therefore, it improves students’ performance consequently. Visual materials help students in processing and remembering the content learnt by assisting the development and presentation of content-related images. Likewise, being a linguistic tool, text-based instructional videos augment the development of logogens by dually coding of information. Therefore, the DCT makes available a reasonable clarification and empirical proof that concepts are better called to mind once presented in both verbal and visual forms.

2.2.2 Walberg’s Academic Achievement Theory

The theory of educational productivity by Walberg (1981) was empirically verified to be one of the theories that try to throw light on academic achievement by the learners in educational institutions. The theory postulates that the psychological features of individual

students coupled with the immediate psychological environments within which they operate greatly influence their educational attainments; cognitive, behavioral, and attitudinal (Reynolds & Walberg, 1992). Furthermore, research by Walberg recognized nine main variables that determine educational achievements of individual students, thus: student ability/previous attainment, motivation, development stage/age, nature of instruction in terms of quantity, quality of instruction, classroom environment, home climate, peer influence, as well as contact to mass media beyond school environment (Walberg, Fraser and Welch, 1986).

Studies of learning environments have been concerned with conceptualization and theory development. Student ratings have also been traditionally included in faculty and course evaluation in higher education settings. Research on learning environments (Astin, 1993; Fraser, Walberg, Welch, 1987 and Hattie, 1987; Fullarton, 2002) show that psychosocial characteristics of classroom learning environments demonstrate incremental validity in predicting student achievement. These psychosocial characteristics, such as self-concept, attitudes, behaviors, intrinsic motivation, and overall student engagement in learning are useful in curriculum evaluation studies, and can provide teachers with useful information to arrange more optimally functioning classrooms.

Researchers working on the assessment of learning environments have also developed and validated constructivist-based, personal forms of learning environment measures to tap students' individual, rather than collective perspectives of classroom life (Rugutt, Ellett and Culross, 2003). Atmosphere for learning is frequently been studied in order to ensure better achievement by students in their educational undertakings. Moreover, learning is usually viewed as an extremely individual development that takes place surrounded by a wider atmosphere. It is therefore facilitated by interactions an

individual student undergoes and his/her views of the atmosphere beyond classroom (Olivier, 2001).

Studies showed that academic atmospheres influence the attainments of interests, attitudes and abilities of students (Feldman, 1988; Feldman, Ethington and Smart, 2001). In the same vein, Holland (1997) noted that environments foster the development of competencies, motivate people to engage in different activities, and reward people for their display of values and attitudes. Environment therefore influences personal and professional self-perceptions, competencies, attitudes, interests, and values. Holland (1997) further indicated that a college student's experiences include, but are not limited to: (a) a student's search for academic environments that match their patterns of abilities, interests, and personality profiles; (b) effects of academic environments on student's social behavior in an effort to acquire the desired abilities, interests and values; and (c) a student achievement to include a function of personality type and the academic environment. It is therefore important to consider involving students in learning. For example, working on self-determining projects, discussion, knowledge construction by students by relating new ideas to prior existing ones, integration and assimilation of fresh information with previous knowledge, coursework with other students, as they play a key role in academic accomplishment of students.

2.2.3 Gender Schema Theory

Gender Schema Theory, formally introduced in 1981 by Sandra Bem is a cognitive theory to elucidate how persons come to be gendered in the social order, and how sex-related features are preserved and transferred to other members of a society. The theory maintained that gender-connected information is mainly transformed in the society by

means of schemata, or information linkages which permit some information to be adapted easily than others. Bem (1981) maintains that individual dissimilarities exist in the extent to which societies embrace the concept of schemata related to gender. Such variances are demonstrated using the level in which persons are sex-typed. Other theories like functionalists, conflict theorists, feminists and integrationists take different views on gender stereotyping though all agree that our society treats women and men unequally.

Basic gender characteristic is linked up with the sex typing that a particular person goes through. Sex typing can greatly be affected by school, media, child upbringing and other means of cultural diffusion. Bem (1981) states four classifications in which an individual person may be found: sex-typed, cross-sex-typed, androgynous, and undifferentiated. Sex-typed individuals process and integrate information that is in line with their gender. Cross-sex-typed individuals process and integrate information that is in line with the opposite gender. Androgynous process and integrate traits and information from both genders. Finally, undifferentiated individuals do not show efficient processing of sex-typed information.

There have been various ideologies, terms and theories developed from various perspectives in sociology to explain gender stereotyping. Haralambos (1984) provided such phrases and terms as: “gene and biology”, “the human biogrammer” by Lionel Tiger and Robin Fox; “biology and practicality” – Gregory Peter Murdock; - child bond by John Bowlby which explained variations in women and men. All the postulations explained the differences between men and women in physiological and sociological terms. All these elucidations apply to the generality of the human race and therefore, applicable to the Nigerian society. The gender schema theory (Bem 1981) is a theory of process and not

content, this theory can help explain some of the process by which gender stereotypes become so psychologically entrenched in our society. Specifically, having strong gender schemata provides a filter through which we process incoming stimuli in the environment. This leads to an easier ability to assimilate information that is stereotype congruent, hence further solidifying the existence of gender stereotypes. Within adolescent development, Bem hypothesizes that children must choose among a plethora of dimensions, but that gender schemas lead to the regulation of behaviors that conform to the cultural definition of what it means to be male or female.

Furthermore, Bem emphasizes that there is also a heterosexuality sub-schema, which likely stimulated the development of gender schemas. Most societies give exclusive heterosexuality as the yardstick for appropriate masculinity and femininity – that is, heterosexuality is the norm. Furthermore, the heterosexuality subschema asserts that men and women are supposed to be different from one another. It is hypothesized that this is why cross sexed relations are likely to be implied sexually. Sex-typed individuals have a general willingness to summon the heterosexuality sub-schema in social dealings, behaving differently towards individuals of the opposite sex that they find attractive or unattractive.

According to Jack (2010) the important factors that develop gender differences are parents who do not want to spend much on female education compared with that of the male child because of their (parents) social or cultural beliefs. This contributes to gender stereotype in schools. Jackson (2012) added that as soon as a child is born a female, people start limiting her possibilities, regardless of what she displays. Since infographics instructional strategy and instructional video strategy involve teaching heterogeneous group settings (male and female), the issue of gender stereotyping can be reduced because the

strategies are learner centered which allow learners to organize their cognitive frameworks into more powerful integrated patterns irrespective of gender. Supporting this, Ayeni (2012) observed that difference in the academic achievement of male and female students in diverse areas of knowledge could greatly be improved by means of superior methods, materials and suitable strategies for teaching.

2.2.4 Conceptual Framework

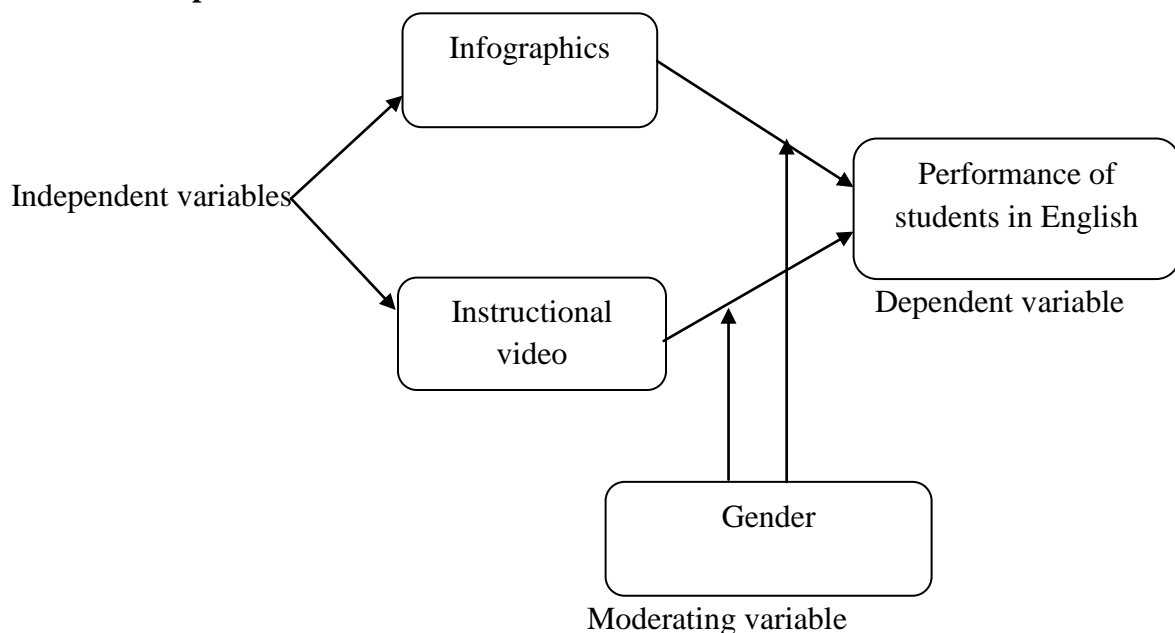


Figure 2.2:Conceptual Framework

As shown in figure 2.2, this research work intended to examine the effect of two instructional strategies; infographics and video as the independent variables, gender (male and female) as moderating variable on performance of students in English as dependent variable. The study aimed at comparing the two powerful technologies in teaching and learning English language, especially its phonological aspect.

2.2.5 Concept of Infographics

In terms of comprehension, human mind is determined by individuals' capability to relate a strange experience with the already established one through a specific medium according to his mental disposition. Fleming (2011) for instance, opined that people learn in three different ways, although most learners through a combination of visual, auditory or kinesthetic learning. About 65% of people are mainly visual learners in that they easily pick up information with their eyes than with other medium. He further asserted that visual learners usually associate the things they learn through images they saw when they first learn the material.

Antecedently, infographics is a short form for information graphics. The term **information** originates from the Latin "*informare*" (*in* + *formare*), meaning "to give form, shape, or character to" something. Nevertheless, for centuries, the term information has been used to denote knowledge and traits of awareness like meaning, instruction, communication, representation, signs, and symbols among other things (Rocha and Schnell, Und). On the other hand, graphics is derived from Greek, "*Graphikos*" meaning "something written". The basic idea behind infographics is the intention of writing, which regards all forms of written and drawn elements as writing. It can be termed as opticalimageries or designs on some surfaces, likestones, papers, screens, walls and among others with the sole aim of informing, illustrating, or entertaining. In modernapplications, infographics comprises ofpictographic data illustration as in computer-aided design,instructional and software for entertainment (Clark, 2010).

We might have heard the phrase "a picture is worth a thousand words," a statement that expresses the worth and efficacy of communication visually. Infographics as a form of depiction that mixesfigures with designs, facilitatingpersons and organizations

succinctly pass messages to the intended audience. It can be termed as a picturing of ideas or data aimed at conveying multifaceted information to an intended audience in a way that it can be easily conceived. In the past, images reigned as ways of communicating thoughts. Images still reign. For the past years 35,000, societies painted notable images on walls and rocks for the purpose of communication among themselves. Individuals fancy seeing picturing of information in books, e-reader, newspapers, and particularly automated books making it concise and speedily understood (Smiciklas, 2012).

Presently, it is factual that technological gadgets are extensively employed in teaching and learning in view of the fact that Information and Communication Technology (ICT) usage is emphasized within the second language/foreign language classrooms. Considering the strong magnetism such technological gadgets deliver to students, infographics being part of the visual multimodal learning resources, they play a very vital function here. Norris (2011) argued that context and communication are undoubtedly associated because visual elements are mixed up in the environment, but most significantly, communicative modes are part of this process.

As for the technological point of view, infographics which is part of multimodal learning materials can be applied by the use of computers and mobile phones as made known from a study by Guichon and McLornan (2014). These researchers explored the advantages of CAL (Assisted learning/Computer Aided) as an approach to learning a second language/foreign language. In that process, they maintained that multimodal learning resources enable us to gain information and generate communication among diverse designs of information. In that direction, they advocated that, infographics as part of multimodal resource, CAL offers a number of aids. Thus; a) learners can use different

channels, b) the information is in hands of learners, c) in order to improve their comprehension, learners are able to directly go to dictionaries or maps available in the internet, d) so not to get different pieces of information, learners are also able to mix different formats or select one of them. Therefore, learning could be enhanced and increased through verbal and visual multimodal learning which include infographics.

Infographics is incredibly powerful resource. Smiciklas (2012) termed infographics (an abbreviation of information graphic) as an image that contains not only data but also a design. This design could have the format of static infographic, an infographic video or even an interactive infographic. Thus, this combination enables the audience to better understand complex message. Furthermore, through this combination, infographics could act as a source of information, enjoyment, or persuasion. Actually, they have the power of catching the attention of the audience, allowing them to know in some way what to do with the new data acquired having been exposed to the infographics (Krum, 2013). Based on that, infographics are best known to be addressed to business or even press. However, taking into consideration, its potentials it should be mentioned and possibly implemented into the EFL classrooms, even though no study had been published on this tool and its relation with learning of FL. In that direction, infographics could have a positive effect on any aspect of the teaching and learning of a FL. The infographics could become a supportive resource for the teacher to explain new and complex concepts or ideas that appear on the textbook, grammar or even abstract vocabulary better.

Infographics are graphical exhibitions of main content information aimed at guiding students and to enrich their comprehension of the message intended to pass across. They are usually called cognitive maps, content maps, or concept maps, though all used for the same function. They are all intended to ease students' perception of information

structured contained in a text or a concept (Bishop 2013). By using such knowledge designers, students grasp the construction of intangible ideas. They are usually taken as a form of depiction design purposely to inform. They incorporate numerous forms of portrayals such as charts, cartoons, graphs, and brief texts among others (Bazara'a, 2013).

Contemporary development of technology and the expanding body of knowledge necessitates the acceptance and application of innovative means of information dissemination these days. In relation to this practice, infographics, which present to users multifaceted material in an eye-catching and artistic form, have achieved prominence. Li, Carberry, Fang, McCoy and Peterson (2014) believed that infographics targeted at portraying powerful and compound information on a particular theme to an audience in a better comprehensible and optical forms. Furthermore, these authors specified that infographics contains varieties of characteristics that allow for clear, comprehensible and appealing information in a visual form. As long as it is professionally structured in terms of visual, content and usefulness, it can serve as a vital instrument for mobilization, persuasion, and guidance of individuals. As an extremely valuable medium for transmission of knowledge, infographics contribute to presentation of message portrayed in compounded and elongated manuscripts by shortening the data in a straightforwardly consumable format. Therefore, it could be applied not only for instructional purposes, but also for social media among other important aspects of daily activities (Ozdamli, Kocakoyun, Sahin & Akdag, 2016; Uygurer & Uzunboylu, 2017). Infographic is an imagining apparatus used purposely for information sharing to audience largely. Moreover, it is observed as a novel area of expertise for instructors. It gains popularity both in form of printed as well as digital form. It is applied in data illustration. (Islamoglu, Ay, Ilic, Mercimek, Donmez, Kuzu & Odabasi, 2015). An added purpose of infographics is the ability to create in mind, contents

accompanied by comprehensive and compound constructions in such a way that they can simply and swiftly be observed and understood by the audience it is meant for (Dunlap & Lowenthal, 2016).

On the other hand, Lankow, Ritchie and Crooks (2012) opined that infographics that are created by using graphic elements (typography, color) comprising of a mixture of content-related design elements (tables, schemes, maps, etc.) are indispensable apparatuses for educational practice through comprehensive explicit design elements they deliver to the learners. Infographics are graphical transformation of data prearranged and existing to viewers in a graphic discipline, convey a story or augments such story by a nonverbal communication (Lapum and St-Amant 2016). Furthermore, infographics is an amalgamation of words and illustrations that swiftly deliver both qualitative and quantitative data to learners (Li, 2013).

Infographics is a graphic exhibition that illustrates the linkages among ideas, facts, or terms contained a teaching-learning process. The graphic illustration of infographics offers students an organizational structure of information to be studied. This aids students by focusing their attention to main ideas and intangible connections. The application of such infographics, thus, supports comprehension and boosts organization and long term recall of what has been learnt by the learners. It emphasizes meaningful learning that seeks to aid learning and decreased dullness on the part of learners in instructional delivery (Afify, 2018). Naparin and Saad (2017) further described infographics as visuals capable of significant amount of information and transmission of information based on a subject matter quickly and more efficiently far than wordy expressions subject to the quality of the material. Individuals use infographics to hastily pass information, to shorten the demonstration of bulky volumes of facts, to view of arrangements data and associations, and

to observe variations in variables after a period of time. They are available virtually everywhere in the environment; subway maps, traffic signs, weather charts, musical scores and tag clouds examples amongst a large quantity of instances they are found. They are used at all stages of administration for high-level visualisation of statistics. They comprise of histograms, pie charts, line charts, tree diagrams, bar charts among others. They usually form part of corporate intellectual system (Rezaei and Sayadian, 2015).

A number of studies revealed that the application of infographics could be of great value for accomplishment of a variety of predetermined instructional objectives in different subjects. For instance, Saurbier (2014) used infographics to incorporate high-order intellectual expertise in student leadership training. She finally established that infographics enhanced the disciplinary competency, boosted the achievement, the skills and creativity of her students. Davis and Quinn (2014) further stated that infographics has the capacity of excellently enhancing basic language skills and capable of simplifying complex courses including Math, Science, History, among others at the same time supporting critical thinking skills in the learners. Furthermore, Dur (2014) observed the contemporary and potential growth of infographics in education and wrapped up that further to their function in improving academic accomplishment of students, they could equally increase students' professional attitudes and skills. To Davidson (2014), infographics could as well be applied in cooperative learning, problem solving and to boost insightful and creative skills of students.

2.3. Principles and Elements of Infographics Design

Ritchie & Crooks (2012) stated that, unlike other visualization methods, infographics are effective in the understanding and learning processes of intense and sometimes complex information with a plain typography and page order. It is to some

extent recognized that the elements used in the design of infographics are really not entirely new. Quite a lot of elements used in the design of an infographics, such as pictures, shapes, symbols, graphics, and text, are used individually or in combination with the purpose of transferring information. From this point of view, it can be claimed that the improvement brought by infographics in the transfer of information is the way these elements are utilized and the building of the substance in the mind of viewers (Dick, 2013). In addition, Tuncali (2016) explained that infographics transform information, resources and data into a graphic format and that sophisticated information in the graphic is transferred in a simple, explanatory visual narration.

Furthermore, to the definitions and characteristic explanations of infographics, Rajamanickam (2005) is of the opinion that the following basic principles should be observed in a well-designed infographics: Organization of information, creation of content, simplification, addition of emphasis, display of cause and effect relationship and creation of integrated graphics. Krum (2013) further added that, beside these characteristics, an infographics includes an introduction, key message and conclusion parts, which coincide with the story format. Similar to this information, Davis and Quinn (2014) also affirmed that factors such as determining the purpose, deciding on the elements to be used in the relevant infographics, determination of the type of infographics, and the presentation of information in a manner that audience will understand are important aspects in designing an effective infographics material.

2.4. Infographics Design in Education

In recent times, infographics has broadened throughout several fields in life. It is being used in mass media, education, awareness campaigns, entertainments, environmental protection sensitization rallies among other human activities and occasions. In Education

the concept of infographics can be simply used in visual giving of information. Knowledge constructed in educational courses could be applied in the visual design form represented in the static and motion infographics. To Al-Mohammadi (2017), such learning schemes improve the human levels of understanding and recognition as well as imagination. In addition, they have the ability to relate the various elements of different educational subjects together. The usage of infographics while producing electronic content in a fast and easy way is widely spread. The importance of using infographics in education has increased as learners' desire to understand certain topics by viewing rather than reading, has increased. In fact, the school environment and the family members share the responsibility of preparing the young persons for living in a world of powerful images, words and sounds.

In education, infographics are used to demonstrate the complex information in a condensed form. This characteristic enables teachers to make ready a variety of learning activities and summaries of the components in order to keep students with the course contents and create more chances for communication (Varichvasin, 2013). However, to Schrock (2015), in order to enhance students' visual communication skills, it can be required to design an infographics based on their visual knowledge and skills such as thinking, learning and expression. Hence, infographics can be used as an alternative tool and also make students be able to illustrate their highest achievements in education.

Visual literacy has to do with the ability of an individual to encode and interpret visual messages and also to be able to encode and compose meaningful visual communications positively. This would include the ability to visualize internally, communicate visually, read and interpret visual images as intended by the communicator. This brought about the need to generate a vital presentation support for the development of

visual literacy skills to support the opinion of Hattwig, Bussert, Medaile and Burgess (2012), who discovered the capability to understand and analyze the meaning of visual media as part of the essential standards that a visually-literate student requires. That capability is intended to assist students to realize how image creation is influenced by cultural values and social constructs. Thus:

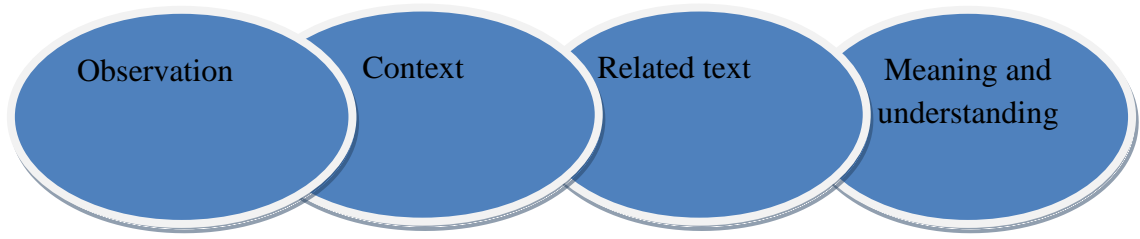


Figure 2.3:Image Interpretation and Analysis. Source: Hattwig et al. (2012).

As revealed in Figure 1, a student who is visually literate is required to: First and foremost develop observation skills to be able to make meaning out of any form of image. Second step has to do with the ability to locate an image in its cultural, social, and historical background. Such historical and cultural aspects may be of great value for making meaning from an image. Third step means the students’ quest to “identify various pictorial, graphic, and design components of visual materials, and examine any related visuals and text” (Hattwig et al., 2012). Students should become skilled on how to observe the details that may be missing at a glance of an image. Fourth step is proposed to help students in validating the interpretation and analysis they have of image related to the visual materials analyzed in the previous steps.

Therefore, instructors need to provide and design a learning environment that enhances their students’ experiences as well as their capacity of choosing, developing and integrating visual materials in their daily instructions. As a result, visual literacy skills which infographics is a segment play a very significant role in the digital-age instructors’

toolbox. To achieve better results, instructors are looking for a way to combine the applications and tools and afterwards satisfy the visual learners' needs using infographics in their classrooms. Moreover, they are utilizing the influence of infographics as a way of communication. Infographics reinforces the conception speed of information, elevates the chance of sharing and fuels the information in an ample mixture of digital channels (Smiciklas, 2012).

Al-Mohammadi (2017) opines that infographics can be easily used in visual presentation of information. Knowledge constructed in academic courses could be applied in the visual design form represented in the static and motion infographics. Such learning schemes improve the human levels of understanding and recognition as well as imagination. In addition, they have the ability to relate the various elements of different educational subjects together. The usage of infographics while producing electronic content in a fast and easy way is widely spread. The importance of using infographics in education has increased as learners' desire to understand certain topics by viewing rather than reading, has increased.

As an instructor, one needs to make decisions about what topics to include and which to leave, the order in which those topics will be presented; which pedagogical methods to be used (e.g. lecture, discussion, experiment etc), appropriate means of assessing the students, materials and technology to be employed, how to get feedback among other things needs to be bored to mind. Studies by for instance Fredrick, (2013), Sudakov, Bellsky, Usenyuk, & Polyakova, (2016) have confirmed Meacham's statement that infographics could be used as a starting point for a discussion and as a concluding practice of reliable learning by permitting students to exhibit their ability to completely grasp a topic and go over the main points of its central themes in a brief manner. Al Hosni

(2016), Alotiabi (2016), Rezaei&Sayadian (2015) and Vanichvasin (2013) asserted that Infographics have been effective when used to teach English grammar to learners of English as a foreign language.

Wasilewska (2017) concluded that these days, coursebooks, the board and the teacher may be inadequate to cater for the desires of students. Further ahead, sound and image are starting point. Teachers should logically exploit vision as a learners' motivator, captivator of their attention, and generator of language (Mauchline, 2015). Likewise, Jones (2013) argue that "the power of an image often doesn't lie in the image itself, but in its ability to trigger images and stories in the minds of our students and create a need and a desire to communicate." To this end, Wasilewska (2017) stated also that the power of an image is something he confidently believed in and it forms the basis of his blog on teaching teenagers through images and videos. Romero and Bobkina (2017) established that the benefits of integrating multimodal texts in the EFL/ESL classroom in order to ensure a holistic acquisition of the language are evident. It was on that basis that their study tried to raise teachers' consciousness of the need to consider language learners as viewer learners in need of visual literacy further than conventional linguistic skills.

2.5 Flexibility of Infographics in Classroom

One fascinating ingredient of infographics in teaching is that they are instructional apparatus that are very flexible and cost effective especially static ones. Marabella (2014) cited Fleming (1992), who defined four main types of learning styles, known as the "VARK" styles of learning. The acronym stood for Visual, Auditory, Read/Write and Kinesthetic. He suggested that every individual has a tendency to learn better using one of these four functions, but each has the ability to use more than one style. Kishiouloudies (2010) found that students from all varieties of learning style respond well to detailed, high-

quality visual aids, because this format interacts well with other styles. According to him, a professor may pass out a physical copy of a visual aid to assist kinesthetic learners, while verbally explaining the material for auditory learners. Infographics may also comprise space for students to write their own information for read/write learners. They are powerful tools for students from all learning styles when used properly. George (2013) indicated that people retain visual illustration more precisely, more promptly, and for a lengthy period of time than words alone. Furthermore, between 80 and 90 percent of information received by the brain comes through the eyes (visual).

Marabella (2014) further stated that visual aids must be created and used affectively or the device may distract students rather than assist their learning. Effective illustrations are truly visual, not verbal. They do not rely on symbolic association and can thus be interpreted correctly without a verbal step. If a visual aid is unclear or hard for students to understand, it may divert from the learning process. Infographics attempt to educate an audience about a specific topic or issue in a visually interesting and easily navigable manner through a combination of words and visuals. Infographics often communicate complex, quantitative and/or qualitative information quickly for their audience. They typically combine data displays, lists, graphics, and other visual elements to make a point; they intend to inform, and frequently persuade their intended audience about a focused topic (Toth, 2013).

These visual aids are distinctive way to teach audience in a quick and straightforward approach that sounds well with modern audiences. They are easily shared when formed in digital designs and can be spread via social media or email platforms Marabella (2014). Because of their clarity and illustrative value, infographics are commonly used in news, websites, broadcasts, newspapers, weather charts, traffic signs, tag

clouds, and subway maps (Davidson 2014, Rezaei&Sayadian, 2015). Because of these outstanding features, infographics may be a promising technique for instruction and could serve a variety of purposes. Lamb and Johnson (2014) proposed five uses for infographics:

First, infographics can organize ideas in a useful and coherent manner by visually illustrating key concepts and rearranging ideas. Abilock and Williams (2014) referred to this process as "Crystallizing information". Infographics can also visually display complex relationships.

Second, when browsing the Internet, a variety of useful and attractive infographics can be found illustrating biographical, scientific, art and design, historical, and social studies concepts, which demonstrates the power of infographics for explaining complex relationships.

Third, infographics can be used to compare information and effectively illustrate the most discriminate features of a topic.

Fourth, infographics can make data meaningful by providing analogies, examples, and themes; plain data can be transformed into meaningful information. Elaborating on this use of infographics, writers generally refer to good design is clear thinking made visual Rosenberg (2015).

The fifth use of infographics is for telling a story in an exciting manner that blends words and pictures. A story-like presentation of infographics uses an introduction, a plot, and a resolution, mimicking the trajectory of stories, which adds vividness and attracts audiences to infographics.

Considering the purposes and benefits of infographics as well as the characteristics of today's students, Alrwele(2017) believes that infographics may be used as a tool to help students comprehend the information provided in a specific course and that it would be

valuable to investigate students' perceptions of infographics as a teaching and a learning tool.

2.6 Conditions for Proper Integration of Infographics in Classroom

For effective application of infographics as instructional media in the class by the teacher, it is required that he should ensure adequate preparation ahead of the actual time for the lesson presentation. It is in accordance with this that Tukur (2012) posited some preparatory measures a teacher should ensure for effective application of such instructional media. These among others are: The teacher should be mentally and physically fit to carry out the teaching. He should have well prepared lesson plan or notes and most importantly be knowledgeable in the subject area. Other identified necessary requirements include: resourcefulness in creating and handling the selected media, tactfulness in lesson preparation, conversant with the selected media to be used, appropriate preparation of the environment, learners' mental and physical state that has to do with being free from possible interference and learners' motivation.

Abdullahi (2013) further opines that using instructional material should not be anyhow without any planning. It is a fact that there are many teachers who use the instructional materials without referring to the guiding principles of how the information contained in the material they will use will be useful to their students. For any successful integration of instructional material in the classroom, the teaching must be planned on the basis of what it is that the learners are to do, or produce, or become. Therefore, if the materials are to be used to facilitate teaching and learning, their use must be planned very carefully because they have a facilitating potential. For effective plan and use of instructional material, teacher must clearly state his objectives, identify his students' characteristics (in terms of age, gender, interest, social background and special needs),

select the material, and bring about responses from learners during and after the entire lesson presentation. Furthermore, after selecting appropriate material for lesson presentation by the teacher, it is important for him/her to preview the material before taking it to the classroom. Embedding a relevant infographics to a lesson enables teachers to stimulate the verbal and visual processing channels of students and in addition guide them to improve meaningful learning (Uyan, 2014).

The age groups of learners being taught these days appear to be completely special, unlike those taught in those days. With the current advancement in technology, mobile phones in particular, have prepared students to identify reality in an entirely unusual manner. These days, images have taken over the world of communication. This fresh generation of learners thinks and communicates through pictures. Teachers nowadays need to learn this latest language of communication and be conscious of the reality that pictures in course books are inadequate to make lessons eye-catching to students. Students nowadays take along with them their mobile phones everywhere they go. Such movable phones enclosed a number of photos. Some of the applications that students use on a daily basis nowadays include: WhatsApp, Facebook, Pinterest, and Instagram to name but a few prove valuable. Teachers can and should exploit them in their lessons efficiently to present a number of activities that can make their lessons more striking and fully engaging (Wasilewska, 2017).

2.7 An Overview on Instructional Video

In the 21st century, embracing and applying technology based instructional strategies which stimulate students, hold students' interest and boost their academic achievement and retention should be encouraged (Gamabri, Shittu, Daramola and Adeyi, 2016). The use of technology is a major instructional trend because technology maintains

students' attention, increases their motivation, facilitates presentation of figures and graphs, and provides more active teaching environments (Microsoft Cooperation, 2015).

Information Communication Technology (ICT) transforms almost every sector of human activities across the globe. ICT also transforms educational sector at all levels through the dynamic application of vast number of facilities it provides (Aristovnik, 2012). Technology also influences instructional materials and instructional delivery strategies. It influences the way through which students learn. Researchers recommend that exposure to technological gadgets influences students' attention span. To capture and retain students' attention, integration of videos in classroom teaching has been suggested and literature supports that instructional videos can have room for the requirements and preferences of young students for effective learning (Pai, 2014). Instructional videos are usually in a short form and are intended to teach a particular skill. They are usually short between 3 to 4 minutes and to the point. They are designed to focus on one or two main ideas. They are designed purposely to capture and hold viewers' attention for the duration video is played. A single clip may make available knowledge about several topics. Integration of instructional videos into the classroom is not a new concept but one that is progressively more fashionable (Shipper, 2013).

According to Gambari et al. (2016), in video instruction, teacher produces an instructional video package which is played on a video player connected to a television monitor which is put on, for the learner to view. At interval he may choose to stop playing and explain certain points or factors or probably wait till the end of the lesson. Such technology uses texts, graphics, animation and other media all together as one technology to present knowledge content comprehensively for students to attain instructional objective. Multimedia presentations could either be computer-based or video-based instructions.

Instructional Video can be seen as a form of multimedia presentation that can convey verbal and non-verbal information through a combination of Audio and Visual resources (Jarosievitz, 2015). Multimedia technology nowadays uses a variety of sensory organs that stimulate the audience at a time. Being interactive in nature, it enables instructors to control the flow of information and content through the use of forms of communication media such as computers and videos (Shah,&Khan, 2015).

The reason for such development may perhaps be that videos worked well for the human brain in terms of information processing. Research declares that every human brain possesses three central parts of intelligence: verbal, visual, and musical, thus, videos incorporate all the three. Furthermore, videos also set both left and right brains to action at once. The left brain is viewed as the verbal, mathematical, and logical side of information processing part, whereas the right brain on the other hand is viewed as non-verbal, creative, and musical module of the brain (Purcell et al., 2012). To Gamabri et al.(2016), multimedia presentation means presenting both words and pictures that are intended to foster learning: The word can be printed such as on-screen text, or spoken such as narration. The picture can be static such as illustrations, graphs, charts, photos, or maps, and dynamic such as animation, video, or interactive illustrations. Animation here means computerized simulation of processes by means of images to figure unreal movable images.

Holmes, Clark, Burt, and Rienties (2013) reported that the Information System Committee JISC project identified five additional value characteristics of videos in educational setting. Thus, visualization in which video as a moving image helps students to visualize a process better than the text or verbal format; illustration where video enhances the power of a still image; validation in the sense that video reinforces and validates content knowledge through moving images; explanation because video explains the process or

event through a “show and tell” style; and motivation for video motivates students by making content alive through moving images. Berk (2009) outlined 20 values for the application of videos in classrooms. Thus: grabbing students’ attention; focusing students’ concentration; generating interest in class; creating a sense of anticipation; energizing or relaxing students for learning exercises; drawing on students’ imagination; improving attitudes toward content and learning; building a connection with other students and the instructor; increasing memory of content; increasing understanding; fostering creativity; stimulating the flow of ideas; fostering deeper learning; providing an opportunity for freedom of expression; serving as a vehicle for collaboration; inspiring and motivating students; making learning fun; setting an appropriate mood or tone; decreasing anxiety and tension on scary topics; and creating memorable visual images.

There are a number of important motives for using instructional videos in order to enhance the teaching and learning process. First, instructional videos could make learning more efficient. Pictures and other visuals assist to trim down the requirement for long textual descriptions from the part of the learners. In that direction, a picture could be "worth a thousand words". Therefore, application of instructional video could result to more efficient processing of information on the part of the learners through audio visual channel. Second, suitable instructional video can organize complex materials so that important features are readily established and understood as it shows relations between important elements that otherwise may not be discovered by the learners, active processing assumption, well-designed instructional video programme may provide the needed structure that allows learners to effectively select, organize, and integrate new information(Shipper, 2013).

It is obvious that a few years ago the availability and application of online videos have greatly increased. The role of videos or non-textual instructional materials is ever-increasing in teaching learning process and research in different fields (DeCesare, 2014; Johnson, Adams, & Cummins, 2012; Pai, 2014). Currently, the application of instructional videos has increased majorly because of their enormous benefits and their apparent connection with the human brain. Kaufman and Mohan (2011) reported that 40% of the faculty surveyed believed they would use more online video in the future. Moran, Seaman and Tinti-kane (2012) reported that 90% of surveyed faculty found videos online for teaching purposes. About 41% of faculty in traditional classes as opposed to online and blended classes used videos regularly. The 2013 “Online Video 2013 Report” from the Pew Research Center reported that the percentage of adults with online access who watch or download videos has increased from 69% in 2009 to 78% in 2013. People from ages 18-49 watch online videos at the highest rate. YouTube is the driving force among adult users for posting, watching, and downloading online videos (Purcell, 2013). Pai (2014) further suggested YouTube, Google videos, PBS, and a number of other educational websites as the easiest means of accessing videos for teaching as many videos are readily accessible for free on such sites initiated by YouTube in 2005.

Statistics Brain Research Institute (2016) reported that the “hours of video uploaded per minute” on YouTube has increased from 13 hours in 2008 to 300 hours in 2016; YouTube is the third most visited website in the world. Almost 5 billion videos are watched on YouTube every single day. Kaufman and Mohan (2011) reported that for 17% of faculty the primary source for videos is YouTube. The study also reported that faculty identified many obstacles to video usage, such as not having quality/appropriate material (43%), not having one central place to find videos (10%) and more. Similarly, Holmes, Clark, Burt,

and Rienties (2013) reported problems with YouTube, particularly finding appropriate content, and the ethical issues regarding uploading student material to a place which is publicly open. Jones and Cuthrell (2011) refer to this as the two sides of YouTube. On one side it is a treasure, an excellent source of online videos for teaching and learning; on the other side, it is a vast badlands of refuse, unsuitable, unreliable and bad-mannered videos.

In spite of the challenges, it is obvious that the production and use of instructional videos is ever increasing. Pai (2014) revealed that videos are considered most powerful medium of learning. Likewise, Sherer and Shea (2011) encouraged faculty and students to incorporate online videos in college courses to enhance lectures, assignments, class discussion, class examinations, and at the same time assist students attain the predetermined learning objectives of the course. Allison (2015) reported from a study by that, 85% of teachers use instructional videos, specifically once a week, and even more use them once a month. The study also found that teachers use videos to reinforce, to motivate, and to provide real content. According to teachers, the advantages of using instructional videos are maximizing instructional time, using multi-modal instruction, as well as promoting motivation on the part of the students.

2.8 Concept of Academic Performance

Academic performance has often been related to the evaluation on tests results, which are those matching to intelligent quotient of students. Based that, other personal characteristics of the individual learners are usually not taken into consideration. Such characteristics among others; the importance of emotional intelligence is worth highlighting which include: management, facilitation, understanding and perception, dimensions associated to personality traits: emotional impulsiveness, respect for others, sociability, negotiating skills, openness to experience and self-confidence (Noemy, Ines, Christina and Patricia, 2017).

It can be seen as how one performs in school or level of attainment in examination. Hence, the success of an individual in school is generally determined by his academic performance in all the subjects taken. This ability is evaluated by the marks and grades that the learner attained in a test or examination which is done at the end of a topic, school term, school year or education cycle. The scores and grades that each pupil obtains measure the degree of achievement. Academic performance relates to the outcome of education; the extent to which the student, teacher or institution have achieved their educational goals. It is the capacity of students to learn, maintain and offer positive responses to facts and being capable to demonstrate knowledge and skills acquired either orally or written as required (Anticevic, Kardum, Klarin, Sindik, and Barac, 2017).

Furthermore, academic performance of students is seen as the yardstick for testing the educational quality of not only an individual student or school, but a nation as a whole Alrehaili(2015). Therefore, it is devised to maintain a high performance in internal and generally external examinations. Academic performance has to do with success in children's lives; it does not only depend on cognitive ability but also the emotional skills (Gliebe, 2012). It includes the capacity by an individual to achieve when one is tested on what one has been taught which relates to curriculum content, the learner's intellect, and hence depends on the learners' competence. It also refers to academic achievement or scholastic functioning (Babatunde&Olanrewaju, 2014). Academic performance is measured in terms of examination scores, the rating that concern mainly with the capability of an individual to utilize the knowledge and skills he/she gained in school. In the case of usual grading, students exhibit the knowledge and skills they acquired through written and oral tests, making presentations, homework, class works and group/classroom discussions (Opoku-Asare and Siaw, 2015).

As for educational research, academic performance can be considered as the noticeable and assessable actions of a student in a particular condition. Such academic performance of a student may include scores obtained from teacher – made test, first term examination, mid semester test among other assignments aimed at ascertaining the level of attainment of the predetermined objectives. On the other hand, standardized tests usually offer a better and direct representation of the student’s knowledge and skill than their individual grades obtained in schools (Yusuf, 2010).

2.9 Factors that Influence Students’ Academic Performance

A lot of studies were conducted on students’ academic performance from which different factors were identified to have influence on academic performance in schools. However, controversy exists among researcher as to what contributes singly or together to students’ poor academic performance. Some of their findings revealed that students motivation, parents educational background, age of pupils, family income, school location, distance from home to school, provision of basic school needs, condition of school environment, teacher qualification and teacher-pupils ratio are major factors that influence students’ academic performance in different situations. Most of the students from disadvantaged socio-economic and educational backgrounds accomplished comparatively higher than those from wealthy socio-economic and educational settings. Wendy (2011) further affirmed that, declining sense of obligation to ones parents is associated with a similar decline in his/her academic achievement.

An increase in time spent on home/work/test impacted positively on students’ achievement. Personal aspiration on the part of pupils motivates them to learn better. It is an inherent toward learning and success. Children’s learning out come and educational performance are influenced by the nature and standard of the school attended by an

individual. Hence, academic achievement of students is as well affected by the type of school they attended. However, availability of facilities in schools usually defines the quality of the school. It likewise impacts on the students' academic accomplishment (Ali, Zubair, Fahad, Hamid and Awais, 2013).

Mhiliwa (2015) pointed out in a study that, lengthier distance covered by students to and from school causes them lateness and arrive in hunger. School location leads to massive underachievement to many of the students owing to long tacking. It also causes dropout from and many among female students were impregnated as a result of pre-marital sexual intercourse. This makes it challenging for most of those affected to attend higher educational institutions. He further added that, corporal punishment, peer influence, malnutrition, and weariness appeared as a result of cautious investigation as key teething troubles upsetting performance students adversely. For that reason, students' lateness in attending school, they mostly complained of being penalized, as such they slack interest and attentiveness to school activities. It was also observed from the study that, majority of the students that go to school late lost the first periods because of the far distances they cover to school. Losses of the first periods on a daily basis by such students creates higher challenges on the part of the students and in turn affect them negatively for they hardly recover what they lost easily. For such incapability to compensate their loss, this set of students finds it tough to prepare adequately for final examinations.

Another study by Nyagosia, Waweru and Njuguna (2013) portray seven correlates of effective schools as powerful indicators of successful places where all children learn, regardless of socio-economic position or background. One of the powerful among them is the strong instructional leadership. They maintained that the central role of the instructional head is to ensure the accomplishment of the predetermined aims and objectives through

creating a good environment for the schools by supervising teachers' works through inspecting their records such as schemes of work, lesson plans, records of work covered, class attendance registers/records, and clock in/clock out book. Effective administration is an indispensable characteristic of a victorious school. Therefore, administrators of schools that poorly perform in examination have to lay down proper coordination in place to achieve effective teaching and learning.

Effective participation of all stakeholders in the management of the education of the learners is essential to improve the academic performance of learners in the matrix examination. It was exemplified that when there is active participation of parents in the education of their children, it would essentially improve the discipline of the school as well as the academic performance of the learners. The other involved ensuring quality subject delivery by educators in the classroom. Further ahead, poor socio-economic conditions can positively or negatively influence the academic performance of learners (Amadi and Ani, 2017).

Nyakundi (2018) found from a study that low motivation, student characteristics, principal's characteristics and home background factors greatly influence students' performance. Therefore, the recommendations from the study were; that Teachers Service Commission should consider expanding performance appraisal for teachers in Secondary Schools, all stakeholders should participate in capacity building programs to strengthen the performance management process; content-oriented professional development had significant impact on student achievement. Teamwork amongst teachers was found to influence student achievement and teachers who perform effectively impact positively on student learning achievement. Therefore, teacher performance in the classroom predicts

student achievement than anything else, and that students will profit greatly if they are constantly taught by teachers who perform well.

Kimani, Njagi and Kara (2013) studied the relationship between students' academic achievement and selected teachers demographic characteristics and classroom instructional practices respectively. The findings from the study revealed that teachers' age, gender, professional qualifications and teaching skills were not significantly related to academic achievement. Furthermore, Teachers' job group had significant and positive relationship with students' academic achievement in secondary schools. Teachers' weekly teaching workload, administration of students' classroom assignments, evaluation of students' Continuous Assessment Test (CATs) results, provision of individualized attention to weak students, time of completion of Form Four syllabus and setting performance targets for KCSE significantly affected students' academic achievement. Other studies showed that whether teachers perform their teaching activities effectively or not depends on their qualifications, professional development, and experience. To some researchers like Goe (2007), they explained that teachers who perform effectively are those who:

a) Have high expectations for all students and help students learn, as measured by value added or other test-based growth measures, or by alternative measures,

b) Contribute to positive academic, attitudinal, and social outcomes for students such as regular attendance, on-time promotion to the next grade, on-time graduation, self-efficacy, and cooperative behavior,

c) Use diverse resources to plan and structure on-going learning opportunities, monitor student progress formatively, adapting instruction as needed, and evaluate learning using multiple sources of evidence,

d) Contribute to the development of classrooms and schools that value diversity and civic-mindedness,

e) Collaborate with other teachers, administrators, parents and education professionals to ensure student success, particularly the success of students with special needs and those at high risk for failure.

Yusuf & Adigun (2010) found from a study that school type, sex and location had no significant influence on students' academic performance. Based on the findings, the researchers recommended that educational planners, administrators and evaluators should appreciate the fact that the Parent Teacher Association, Guidance and Counselors, humanitarians, students and society at large have key role to play in improving students' academic performance and implore their supports in this regard.

Adepoju and Oluchukwu (2011) concluded from a study on Students' Academic Performance at the Senior School Certificate Examinations (SSCE) from 2005 to 2007 in Oyo state that, the general picture of the analysis of performance in English and Mathematics in both urban and rural secondary schools shows that there was improved performance in urban secondary schools in both English Language and Mathematics over that of the rural secondary schools. They moreover established that the percentage of failure was very much pronounced in Mathematics in rural secondary schools from 2005 to 2007 while percentage of passes was more pronounced in Mathematics than in the English Language in 2005, 2006 and 2007 respectively. Also that location of school was found to be the most important predictor variable of the academic performance of secondary schools. It was followed by expenditure on education, mass promotion of students from one grade/level to another and free education program and contributions respectively.

Bosede and Emiloju (2013) found from a study that, there is no significant difference between academic performance of students from rural environment and students from urban environment. Their justification for this end result was that, government was then trying to provide the rural schools with needed resources. An additional reasons could according to them be availability of television and films in rural environment, parents and students were exposed to life in the cities through watching of television and films, they now know the value of having good education, unlike before, when they only knew what happened around them in the rural setting and that a lot of the distractions in big cities were not there in rural setting. Moreover, rural students do not suffer disadvantage simply as the result of their residence in rural areas or their attendance at rural schools. A rural deficit model could be replaced by a rural strength model. Such a model is suggested by the fact that rural students do wish to attend higher institutions and make good grades.

According to Bosede and Emiloju (2013), if curriculum comparisons hold up generally, rural high school students have limited access to information educationally. It could be argued that these students (from rural areas) are therefore, in terms of their general advancement, achieving higher, not lower. Students in rural areas should be certain that they can succeed academically in the rural setting as long as they give deserved commitment to their studies. Students and their parents should not think that one must attend metropolitan school for them to succeed.

Opoku-Asare and Siaw (2015) attested to clear differences existing between academic performances of students in the SHSs in general but mainly among students on the visual arts course. It was as well clear that, the BECE scores presented for admission by a range of JHS graduates to the rural and urban schools vary depending on the locations schools. The urban schools obtained the finest BECE candidates which make it easy for

their WASSCE output to be better than those who attended the rural schools with weak BECE scores and might not be given the motivation that the urban schools provide for their fellow students.

Imbalanced stage of resources and background of learning experiences may perhaps add to widen the attainment gap between students in urban and rural settings. Likewise Aremu and Soka (2003) hypothesized that, academic performance of students, particularly at the secondary school level, was not only an indicator of the success or otherwise of schools, but a key determinant of the hope of youths in specific and the nation in general terms. To Amadi and Ani (2017), background of a student serves as a springboard for further education, which in this case obstructs the rural and urban students' access to higher education. Home is seen as the most significant environment that helps in promoting and stimulating in the child's life-worth as well as self confidence that yields better academic performance. Furthermore, not all JHS students in Ghana were opportune to learn any visual arts subjects which may possibly influence their chances to understand adequate of the program to perform better for lack of professional teachers (Evans-Solomon & Opoku-Asare, 2011).

Academic excellence of students is the most important goal for schools to work toward getting good teachers and the necessary resources that can facilitate the realization of academic excellence (Babatunde & Olanrewaju, 2014) for the reason that almost every person concerned with education anticipates his/her kids to do extremely well in school to guarantee continual parental backing and financial commitments. As but those JHS graduates who live in rural areas and have less opportunity for attending schools located in the metropolitans. It was encouraging that the government initiated a system intended to bridge the educational achievement gap between rural and urban schools in the country

Adinyira (2012). However, Evans-Solomon et.als (2011) discovered that in the Central and Ashanti regions, some urban school administrators take advantage of their goodwill to “offload” or compel some candidates into visual arts on the basis of scoring weak BECE grades, which reinforces the perception that visual arts is suitable only for low achievers.

To the variable of poor performance among the secondary school students, added the evident of lack of enrichment materials in the schools. Teachers and language course books must look outside the boundaries of the classroom into the external worlds, directing thought to the use that a person will make with what he/she has learnt in a condition which is not mainly a learning condition. For that reason, language teaching and other subject professionals nowadays have to go for the selection of curriculum contents, materials, approaches of teaching as well as techniques that are in line with the learners’ linguistic, cultural and geographical environment, their desires and interests and the goals of the L2 in order to arouse and support the learners’ linguistic proficiency. One of the problems of the communicative competence in our secondary schools today is the teachers’ inability to improvise the required enrichment resources that can arouse the desired intellectual development and communicative competence in the L2 among other things(Clement, and Nanna, 2014).

Enrichment materials and activities in the case of L2 teaching and learning stand for initiatives either recommended, provided or improvised to smooth and improve the progress of academic activities in trying to accomplish the predetermined educational objectives even outside school. These enrichment materials or activities comprises additional textbooks, instructional materials such as tape-recorder, video tape, camera, pictures, charts, diagrams, discussions, debates, excursions, radio, resource persons,

newspapers, magazines, maps, globes, projectors, films, infographics among others (Ifeoma, 2013).

Adekola, Shoaga and Lawal (2015) established from a study that, English language is a determinant of academic achievement in other subjects in Nigerian schools. Further ahead, Children who were exposed to the language prior to school entrance, which is during infancy, such children get to understand the language better and perform excellently than those who were exposed to it at school. Therefore, parents' socio-economic status also plays an important role in determining the success of individual students in English language.

2.10 Students' Academic Performance Based on Gender Difference

There are propositions that males and females vary in their cognitive abilities in language (Gomez, 2011 Hodgins, 2012). In line with this, Olutola (2017) concluded from a study that, gender has a significant effect on the students' performance in English language. Garba (2015) found from a study that there was no significant difference between the post-test performance of male and female students on graphic aided instruction. Therefore, he concluded that gender difference was not a factor on academic performance in woodwork after using graphic aided instruction. Carol (2006) on the other hand reported a significant difference in the performances of male and female students. The results of the study reveal that the use of single-sex classes significantly improved student achievement in reading/language arts and math with greater advantage for single gender classes for females. Ifeoma, (2013) also found from a study that both male and female students recorded almost the same mean score when they were taught Integrated Science with improvised instructional materials. This showed insignificant difference between the performance of male and female students in the subject.

On the contrary, Bosire, Mondoh and Barmao (2008) reported from a study on the effect of streaming students by gender in Mathematics achievement using 1,489 candidates in four secondary schools in Nakuru District, Kenya, that there was significant difference in the performances of the two female streams. They further indicated that male students in the normal mixed-sex school scored significantly higher than those in single gender schools.

NASSPE (2011) reported the finding of a study by the National Foundation for Educational Research commissioned in England which studied the effect of school size and type (single-sex and coeducational) on academic performance. The Foundation studied 369,341 students from 2,954 public high schools throughout England. The study disclosed that, even after controlling students' academic ability and other background factors, a significant difference was reported in the performance of the two stream types. Finally, male students in single gender school performed significantly better than those in mixed gender schools in all subjects.

2.11 The Place of English Language in Nigerian Secondary Education

Since the realization of independence, in Nigeria, the value and function of English language had not shrunk. Instead, the language has taken an additional position. The language is an essential aspect in the educational system of the country, particularly as it is used as a medium of instruction in schools. It is the language of science and technology and identification for educational progress and high-status of employment. It is the language of commerce, trade, administration, as well as a means of national communication in particular and global in general (Adekola, Shoaga and Lawal, 2015).

The position given to English language in Nigerian education system is clearly stated in the National Language Policy on Education (2013). The policy stated that English

shall be the medium of instruction in the upper primary, secondary and tertiary levels of education. Accordingly, the place of English is enhanced as it is not only considered a course of study in schools, but the language of instruction subsequent to the first three years of primary up to the tertiary level education as well. The policy stipulated the importance of English language as one of the core subjects that will allow students to offer any course in higher institutions. As one of the core subjects, it is obviously anticipated that the level of achievement of the students in English will be discovered on their performance in other courses of study. To achieve the aforementioned, teachers of English language require energetic support of students from other subject areas. English is the language of communication in examinations such as teacher made, and standardized at common entrance, Junior School Leaving Certificate, Senior Secondary School Certificate and Unified Tertiary Matriculation examinations.

English language is the language of education, the only major medium of instruction in Nigerian educational institutions, from the basic to the University level generally. In spite of standing as a subject on its own, it is used to teach other subjects in schools as well. Good command of the language is needed to master other subjects taught such as History, Geography, Economics among other things. However, any unfortunate performance in English language especially at the SSCE level by any candidate, it automatically nullifies all other good grades gained in other subjects no matter how lofty the grades are (Adekola, 2012). This clearly pointed out the prime position occupied by the English language in the country's system of education generally.

2.12 Empirical Review on Infographics

A study by Hope and Chet (2018) examined the effect of infographics in relation to academic achievement, attitude, and class size of undergraduate students in Media System of Curriculum Studies and Educational Technology, University of Port Harcourt, Rivers State, Nigeria. Three objectives, three research questions and three corresponding hypotheses were formulated and guided the study. Students that participated in the study were seventy-nine in number from 300 level of Computer Science Education. The total number of the students (79) formed the sample for the study. The researcher purposively selected this population for the study. A structured questionnaire by the researcher was used as the instrument for data collection. The instrument was a twenty items questionnaire designed to examine attitude of the students in relation to media systems. The data was analysed via Mean and standard deviation for the research questions and t-test for the research hypotheses tested at level of significance 0.05. It was discovered from the study that significant difference existed in the attitude of students on the use of infographics as well as on academic achievement of the students in the course. It was further revealed a significant difference in the class size and students' academic achievement on how infographics was used in the course. There was well a significant difference between academic achievement of male and female students on the use of infographics in studying the course. As such, male students outperformed their counterpart. Male students indicated higher attraction and concentration to the use of infographics in the course. The recommendations made were that: teachers should be energized to apply infographics in teaching-learning process, students should as well be invigorated to cultivate progressive attitude to the use of infographics in different courses of study. Finally, parents should ensure adequate availability of educational chances for their offspring particularly the females.

Another study by Al-Mohammadi (2017) investigated the effect of infographics as a strategy for teaching programming fundamentals on developing analytical thinking skills for students of high school in the city of Makkah, Saudi Arabia. The study utilized a quasi-experimental research design. The population of the study was 64 female students of secondary school one in Makkah. They were separated into both experimental and control groups each made up of 32 participants. The experimental group was taught the programming component using infographics instructional strategy, while the control group was taught same component using the traditional instructional strategy. The lessons on the component were designed by the researcher built on an infographics form. Analytical thinking assessment measuring a number of the analytical thinking skills was designed and used by the researcher. The statistical tools used for data analyses were independent samples t-test and Black's Gain Ratio (BGR) for determining efficacy. The outcomes revealed the efficiency of infographics instructional strategy usage in teaching the programming fundamentals on developing critical thinking skills.

Alrwele (2017), in another study investigated Effects of Infographics on academic achievement and perceptions students of Infographics. The objectives of the research were to examine the differences in the academic achievement of female students using infographics in the university and to find out the impact of their perception of infographics. The research design used was a quasi-experimental. The study was carried out using a population of one hundred and sixty five students. They were split into experimental and control groups of 83 and 82 respectively. Treatment for the study took place within 9 lesson periods each of two hours. The instrument used for data collection were; performance test and questionnaire for students' perception assessment. The finding indicated a significant difference in academic achievement of the experimental group. Virtually 90% of

the students in the experimental group stated that infographics impacted positively on their educational progress.

Sacopla and Yangco (2016) conducted another study titled *Infographics: Effects on Student Coding Skills and Conceptual Understanding in Biology*. This study was conducted to test whether Infographics can improve students' coding skills and conceptual understanding in Biology. Infographics was used in an intact heterogeneous Grade 7 class of 30 students to form experimental group and was compared to the conventional way of teaching the control group (30 students) in a private school in Calamba City. The two groups had the same activities (collaborative work, experiments and modeling) apart from the infographics for the experimental group. The researcher made Conceptual Understanding and Coding Skills Tests (pretests and posttests) subjected to experts' validation in the field (Biology Education and Educational Technology) and were pilot tested in two (2) private schools (Laguna and Parañaque City). The 50-item original test was reduced to 30 after item analysis. Its Cronbach's alpha result 0.878 showed a high reliability coefficient. Independent samples t-test showed significant progress in the posttest of the experimental group as opposed to that of the control group which indicated the positive effect of Infographics on students in Biology.

Rezaei et.al (2015) in a study titled *the Impact of Infographics on Iranian EFL Learners' Grammar Learning* investigated the impact of infographics instructional strategy on Iranian English as Foreign Language students, particularly in grammatical aspect of the language. The objective of the study was to discover empirical evidences on learners of English as a foreign language in Iran. The quasi-experimental pretestposttest research design was used for the study grammar lesson was delivered using two strategies; infographics instructional strategy and traditional strategy for both experimental and control

groups respectively. They involved a group of 20 learners of English as a foreign language with almost same age bracket, sex and ability level in the research. The subjects were assigned into experimental and control groups randomly. Those in the control group were taught using traditional instructional strategy, while those in experimental group using infographics form of instruction. Independent samples t-test was used for data analyses and tested at 0.05 level of significance. The participants from both experimental and control groups were given a post-test. Based on the findings, students from the experimental group (infographic instructional strategy) recorded higher achievement than those in the control group. This indicated that infographics instructional strategy is effective in teaching and learning of grammatical aspects of English as a foreign language.

Sudakov, Bellsky, Usenyuk, and Polyakova (2014) carried out a study aimed at designing educational infographics intended to add Mathematics to modern climate science. This form of incorporation motivates students to use theories of Mathematics in understanding climate processes. A descriptive method of research was used for the study. Participants were presented with a sequence of automated infographics placards that elucidated aspects of Mathematics accompanied by oceans and climates. Research assistants were assigned to offer students convincing instances on how to incorporate mathematics to climate science. A questionnaire for a sample of students in Mathematics and natural sciences was designed by the researchers to determine the opinion of participants on the use of infographics for teaching and learning in their departments. The researcher pointed out that most of the difficulties experienced in teaching and learning using traditional way is related with transforming visual stuffs and that they can be resolved by the use of infographics. Results of the survey specified evidently the significance of infographics in teaching-learning process. It is according to the researchers essentially

imperative in natural sciences courses like physics, chemistry, and mathematics among others. The findings further emphasised the advantages and reputation of infographics particularly in relation to mathematics and climate sciences.

Fowler (2015) as well engaged students in creation of infographic materials for lessons in sciences and proven that infographics portrayed and adjusted scientific misconceptions; established high-order thinking skills including analysis, synthesis, and critical thinking; and expedited the growth of artistic exhibitions. Meacham (2015) also carried out a study in which she applied infographics in her science class. It was established at the end that study, the participants in the study were able to explain complex procedures and ideas. Also that infographics were found worthy to be applied virtually everywhere in course of instructional delivery in order to emphasize particular areas.

2.13 Empirical Review on Instructional Video

Gambari, Shittu, Daramola and Jimoh (2016) examined effects of video-typed instructional packages on performance of Senior Secondary School students in Mathematics in Minna, Nigeria. Quasi-experimental research design was adopted for the study. The five research questions and five conforming research hypotheses were outlined by the researchers as to guide the study. The hypotheses were tested at level of significance of 0.05. A total number of one hundred and twenty (120) students formed the population for the study. Out of this number, sixty students were male and sixty females selected randomly from four secondary schools. These schools were sampled purposively taking into consideration five measures. The schools were allotted to treatment group 1 which is termed as Text+Animation (TA), treatment group 2 Text+Narration (TA), treatment group 3 Text+Animation+Narration (TAN) as well as control group Text Only (TO). The

instruments for the treatment were video type instructional packages developed by the researchers purposely on concept of trigonometry in Mathematics and were used for the study. A validated Trigonometry Achievement Test (TRAT) was used for data collection. It was pilot tested after which a reliability coefficient of 0.87 using KR-20 (Kuder Richardson) was recorded. Pretest and posttest steps administration of instrument was used. The statistical tools used for analyses of the data obtained were Analysis of Covariance (ANCOVA) and Sidak Post-hoc Test. The outcome showed substantial variance in the mean score of students taught trigonometry using TO, TA, TN and TAN Video Type Instructional packages. It was established from the result that gender has insignificant effect on the mean score of students taught trigonometry using TO, TA, and TN. Conversely, a significant difference exists between the mean score of male and female students taught Trigonometry using Text+Animation+Narration (TAN) form of video instructional package.

Osokoya (2007) investigated the Effect of Video-taped Instructional strategy on performance of Secondary School Students in History. Quasi-experimental research design was adopted for the study by the use of video-taped instructional strategy for the treatment group and traditional strategy for the control group. A multi-stage sampling technique was adopted for the selection of ninety two (92) students of history where forty (40) of them were male and fifty two (52) were female. The data collection instrument titled History Achievement Test (HAT) was used. It was pilot tested and 0.75 reliability coefficient value was recorded. T-test and Analysis of Covariance (ANCOVA) statistical tools were used for data analyses. The results revealed that students taught History using video-taped instructional packages recorded higher mean score than those taught using traditional strategy. The result obtained from the Analysis of covariance indicated that gender was

an insignificant factor on performance of students in History where video-taped instructional strategy is applied.

Yamauchi (2008) studied the effect of multimedia instructional material on performance of students and their perceptions of the instructional strategy. Quasi experimental research design was used for the study by the researcher. One hundred and eleven (111) students registered for Quantity Food Production Laboratory course in two distinct semesters were assigned to both treatment and control groups. They were taught using traditional instructor-led orientation periods on table service and beverage preparation processes. Nevertheless, the treatment group was permitted to only access innovative instructional resources offered on DVD. Pretest and posttest were used for data collection. Performance scores of students were subjected to data analyses for comparison between the both groups using independent samples T-test. Perceptions of the instructional strategies by the students were measured with their views of teaching, their self-reported levels of comprehension of the contents as well as their satisfaction level. It was found out from the results that students from the treatment group recorded a significantly higher gain score than those from the control group. There is no significant difference in performance of students' grades between both groups. It was pointed out that, two among seven questions about opinion of students on the instructional strategy indicated higher positive perception responses for those that viewed the DVD than those from the control group. There was no significant difference in self-reported level of comprehension by the students the content taught between the both treatment and control groups. Finally, students from the treatment group recorded a higher level of total gratification by the instructional strategy than those from the control group.

Gakuru (2013) investigated the effect of video as additional resource for teaching and learning of physics as an approach of achieving better academic performance for students. Quasi-experimental design was adopted for the study and was conducted in two schools Githunguri district, Kiambu county. A sample size used was made up of fifty two (52) students which formed the control group and sixty one (61) students formed the treatment group. An observation schedule Instruments and achievement test served as data collection tools used. The data obtained were analyzed using descriptive and inferential statistics at 0.05 level of significance. The results revealed a higher achievement for the treatment group specifically in process skills and concept development. It was discovered that the participants from treatment group demonstrated more repeated motivational attitude than the control group in terms of motivational orientation. The outcomes demonstrated that the use of video in teaching-learning process brought about an improvement in the performance of students of physics at post primary level of education. It was recommended based on the results that teachers of physics should employ video in the course of their instructional delivery for better performance of students. It was further recommended as an essential instructional resource for serving teachers as educational institutions should utilize in documenting knowledge on physics rather than largely being dependent on written texts.

Magno, Gustilo, Lapinid and Barrot (2015) examined the effect of knowledge channel videos on the students' academic achievement in several learning situations. A quasi-experimental research design of pretest posttest was used in the study to examine the difference in the score achievement of students taught under three different learning situations: active, passive, and lecture. Participants from active learning setting viewed knowledge channel video, while the instructor facilitated the presentation of the contents of

the videotapes. Participants in the passive learning setting were just enabled to view the knowledge channel film. Students in the lecture learning situation were taught by the lecture type of instructional delivery alone. Five subject areas formed parts of the study for each of the schools under the study, thus: Mathematics, English language, Science, Social Studies and Filipino formed contents of the research. The population for the study was nine hundred and twenty six (926) students. They were assigned to each of the three groups randomly. For each subject area, an objective test of 15-items was designed to which the students responded. The statistical tools used for data analyses were independent samples t-test and factorial ANOVA for comparison of the mean scores of students through the three instructional groups. The results indicated that the mean scores of students for each of the groups recorded significant improvement with posttest scores being greater than the pretest scores. Students from active group recorded the highest mean score. Post-hoc analysis of pair wise comparisons indicated significant difference between the mean scores of the students in the active group and the mean scores of the students in each of the passive and the lecture groups.

2.14 Summary

The chapter reviewed the theoretical framework for the study where Paivio's dual coding theory which proposes the idea that the basic units of the memory are referred to as 'logogens' in the verbal system and 'imagens' in the visual system for information processing. The chapter also discussed Walberg's theory of academic achievement which posits that psychological characteristics of individual students and their immediate psychological environments influence their educational outcomes. Finally, on theoretical review, Bem's Gender Schema Theory Which states that gender identity is attached to the

sex typing that an individual undergoes which is heavily influenced by child rearing, media, school, and other forms of cultural transmission was also discussed.

The chapter also reviewed concept of infographics, concept of academic performance, principles and elements of infographics design, infographics in education, flexibility of infographics in classroom, conditions for proper integration of infographics in classroom, overview on instructional video, factors that influence students' academic performance, students' academic performance based on gender difference and the place of English language in Nigerian secondary education. It went ahead to review some empirical studies that are pertinent to the study. Studies reviewed that focused on infographics instructional strategy for instance; Hope and Chet (2018), Al-Mohammadi (2018), Sacopa and Yangco (2016), Rezaei et.al (2015), Sudakova, Bellsky, Usenyuk and Polyakova (2014), Fowler (2015) as well as Meacham (2015). With regards to instructional videos, Gambari, Shittu, Daramola and Jimoh (2016), Osokoya (2007), Yamauchi (2008), Gakuru (2013) and Magno, Gustilo, Lapinid and Barrot (2015) were reviewed as empirical basis for this study.

It was noted from the review that only one of these studies examined the effect of infographics on students' performance in English language. Even that study was conducted in Iran, not in Nigeria and it focused on English grammar. None of them bothered to examine the effect of infographics instructional strategy (IIS) concurrently with video instructional as a strategy (VIS) for teaching in relation to any subject area let alone the phonology of English language which this study is interested in. They mostly compared infographics instructional strategy (IIS) with traditional instruction or video instructional strategy (VIS) with traditional instruction strategy except Gambari, Shittu, Daramola and Jimoh (2016) who used multiple typed video instructional strategy (experimental group I

Text + Animation, TA), Experimental group II (Text + Narration, TA), Experimental Group III (Text + Animation + Narration, TAN) and control group (Text Only, TO). Most of the studies reviewed on infographics were more concerned with students from higher institutions. While this study has in mind Senior Secondary School level as its focus of attention.

Additionally, more concise areas of differences between this study and those studies reviewed include: geographical scope of study, population, sample size, subject area/content, treatment strategies, research design, as well as instrument for data collection. Most of the studies reviewed were carried out in other countries especially those on infographics. Those carried out in Nigeria were in different settings with different subject areas and contents. The review revealed that conventional methods of teaching various subjects has not produced the desired result, hence the need for innovation, result oriented teaching strategies such as infographics and or video instructional strategies (IIS/VIS) which were found to be result oriented and student centered pedagogical approaches in which students are actively involved. In all, infographics instructional strategy as well as instructional video strategy were found to be effective and produced higher test scores among students. The present study considers the effect of infographics instructional strategy in comparison with video instructional strategy on students' academic performance with gender in English language phonology/oral English in Katsina state, Nigeria.

The literature revealed that the use of technology which includes instructional video is an important instructional trend because technology maintains students' attention, increases their motivation, facilitates presentation of figures and graphs, and provides more active teaching environments. Students' exposure to technological gadgets such as instructional videos influences students' attention span in the sense that they captivate and

retain their attention for a longer period of time than other materials. Teacher may produce instructional video package, play it on a video player connected to a television monitor which is put on, for the students to watch. At break, the teacher may wish to suspend playing the video and explain certain points or process. He/she may wish to wait till the end of the lesson so that he/she plays the video for the students to emphasize some points. Infographics also involve the use of pictorial in combination with related textual description of process or event that facilitate better grasp of its contents. This also aids students' comprehension of information and enhances better performance in different areas of knowledge as they appear to capture and hold viewers' attention if properly structured and displayed.

It was also noted from the literature that the use of these activating strategies have produced significant gains in learning potentials by recognized prior knowledge as the basis for familiarity. Instructional videos could either be developed by teacher source for readily available ones by educational stakeholders or download relevant ones as they are available on YouTube, Google videos and other educational websites. Likewise infographics could enable learners to have a clear picture of what they have learnt which brings about better performance in the material learnt. The review of related studies revealed that the conventional teaching method is ineffective. Hence, the need to try out other more innovative oriented strategies that encourage students to have a better understanding such as infographics instructional strategy and instructional video strategy which were found to have enhanced students' achievement in different subjects, English language inclusive.

The contributions of Hope and Chet (2018), Al-Mohammadi (2018), Sacopa and Yangco (2016), Rezaei et.al (2015), Sudakova, Bellsky, Usenyuk and Polyakova (2014), Fowler (2015) as well as Meacham (2015) showed that the infographics instructional

strategy (IIS) is reliable and efficient in teaching almost all subjects. Likewise the contributions of Gambari, Shittu, Daramola and Jimoh (2016), Osokoya (2007), Yamauchi (2008), Gakuru (2013) and Magno, Gustilo, Lapinid and Barrot (2015) indicated that video instructional strategy (VIS) is reliable and efficient in the teaching a number of topics in different subject areas. The present study investigates the effect of the Infographics Instructional Strategy (IIS) in comparison with Video instructional Strategy (VIS) on students' academic performance in English language. These reviewed studies serve as guide for this study.

Therefore, it was discovered from these literatures that infographics instructional strategy in comparison with instructional video strategy with respect to phonology/test of oral of the English language in senior secondary schools was not conducted in Funtua Educational Zone, Katsina State, Nigeria. As far as the researcher is concerned, from the literature available, this study might be number one in the entire Educational Zones of Katsina State. Therefore, this study is intended to fill the gap that no single study of its kind was conducted in Funtua Educational Zone of Katsina State.

In view of the above, the review of literatures indicated that if IIS and VIS are properly applied, would improve the performance of students in English language in general and phonology/test of oral of the English language in particular. The researcher, therefore, made an effort to employ and compare infographics instructional strategy (IIS) and video instructional Strategy (VIS) to teach SSS II students in Funtua Educational Zone, the phonology/test of oral of the English language to see which of the two could record better academic performance.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology and steps employed in conducting this research. These include: research design, population for the study, sample and sampling technique, research instrument, pilot testing, validity of research instrument, reliability of research instrument, procedure for data collection and procedure for data analysis.

3.2 Research Design

The research design employed for this study is factorial design. This research design allows for the manipulation of two or more independent variables in order to assess the effect of their interaction on the dependent variable in question. It seeks to look at the simultaneous effects of more than one independent variable. It uses two or more independent variables in combination (Aoraki, 2014). Thus, 2×2 , the design represents two levels of treatment (Infographics and Video Instructional Strategies) as well as male and female gender levels. Illustration for this design is shown in table 3.1.

Table 3.1: Research Design Outline

Groups	Treatment	Test
Experimental Group 1	TWI (X ₁)	O ₁
Experimental Group 2	TWIV (X ₂)	O ₂

Key:

O₁: Test observations on English Language Achievement Test for Experimental group 1.

O₂: Test observations on English Language Achievement Test for Experimental group 2.

X₁: Treatment for Experimental group 1 (through infographics).

X2: Treatment for Experimental group 2 (through instructional video).

TWI: Teaching with infographics.

TWIV: Teaching with instructional video.

For this study, the independent variables are the treatments that involve the application of infographics and video instructional packages, whereas the dependent variable is students' academic performance in English Language with gender as moderating variable.

3.3 Population for the Study

The population targeted by this study is the total number of 8,652 Senior Secondary School Students (SS II) from the 22 public Senior Secondary Schools across Funtua Educational zone, Katsina State for the 2019/2020 academic session (6,896 male and 1,756 female students).

Table 3.2: Population of Students Based on Gender

Male	6,896
Female	1,756
Total	8,652

3.4 Sample and Sampling Technique

In the sample selection for this study, an intact class sampling technique was used to determine the sample size for the study. All the students in the class of the sampled schools were involved in the teaching and testing activities. The sampled schools used for the study were tagged schools A and B for identification purpose. This technique is considered to avoid selection bias because intact classes in their natural settings were used without any further selection process. Details of the sampled schools and students distribution is presented in table 3.3 below:

Table 3.3: Sampled Schools and Students' Distribution

Number of SS II Students of English Language			
School	Male	Female	Total
A	44 58	102	
B	74	66 140	
Total	118	124242	

Determined by classes sampled

Table 3.3 shows that there are two sampled schools for the study. Both of them are coeducational and were tagged schools 'A' and 'B'. The sampled classes in both schools have a total number of two hundred and forty two (242) students. Out of the sample, one hundred and eighteen(118) were male students, while one hundred and twenty four(124) students were female.

3.5 Instrumentation

The research instrument is titled English Language Achievement Test (ELAT). It was adapted by the researcher from past question papers of the two Nigeria's Senior Secondary School Examination bodies: West African Examination Council and National Examination Council (WAEC & NECO). The English Language Achievement Test is based on the SSII curriculum on oral English/ Phonology. Adapting questions from these examination bodies is based on their status of being considered as standardized examination bodies in the country. The instrument consists of 30 multiple choice questions with options lettered A-D to which the students responded. The questions were based on the chosen topics treated in the study.

Infographic materials and instructional videos based on the topics chosen were sourced and used for the study. The infographic materials used were devised through

computer generated means from internet and printed as cardboard paper sizes. They were used for treatment group one based on the topics treated during this study. The instructional videos used were devised from the YouTube based on the topics treated. They were covered within a period of five (5) weeks, including administration of the instrument for data collection which was within the fifth week.

3.5.1 Validation of Research Instrument

The adapted instrument for data collection, the treatment instruments including the research objectives, hypothesis and questions were submitted to two Instructional Technology experts who are senior lecturers in the Department of Educational Foundations and Curriculum, Ahmadu Bello University Zaria, one of them is the supervisor of this work, an expert of English Language from the Department of Educational Foundations, Federal University Dutsinma, and two teachers of English Language from Senior Secondary Schools. These personalities determined in relation to the instruments: appropriateness, clarity, simplicity, suitability and extent of coverage of contents meant for them. Necessary corrections, observations, suggestions and recommendations made were taken into consideration.

3.5.2 Pilot Testing

The instrument for the study, English Language Achievement Test (ELAT) was pilot tested on 30 SSII students from Government College (Day Wing) Senior Secondary School Funtua which is not part of the sampled schools, but they share similar characteristics with the sampled. Students that took part in the pilot study were selected through simple random sampling procedure by the researcher assisted by the subject teacher in the affected school.

3.5.3 Reliability of Research Instrument

To determine the reliability of the instrument, the researcher used test-retest method. The scores of the test-retest were subjected to Pearson Product Moment statistical analysis to determine the reliability coefficient of the instrument. Result of the data analysis gave coefficient value of 0.76. This high coefficient value indicated that the instrument is reliable to be used for the study.

3.6 Procedure for Data Collection

Data collection process for this study started with collection of letter of introduction letter from the office of the Head of the Department, Educational Foundations and Curriculum, Ahmadu Bello University Zaria to be submitted to the Katsina State Ministry of Education as well as the schools affected by the study to secure permission, to have access to relevant data and facilities for the study in the affected schools. Having been permitted, the researcher was then introduced to the teachers of English Language and the students of the affected schools.

Within the first week, students were oriented on how and what they will be expected to do in the course of the treatments. The treatment started in the second week with organs of speech, week two description of consonant sounds based on place of articulation (bilabial and labiodentals), week three (dental and alveolar), week four (Alveolar and Palatal) and week five (velar and glottal). Lesson plans were prepared for each lesson and are available on appendix j.

Students of the sampled classes were taught these topics using the two different technologies of lesson presentations. Students of experimental group one were taught using infographics, while those of experimental group two using instructional videos. Both groups were tested after the treatments. The treatments as well as administration of the test

instrument were carried out by the researcher. The treatments were conducted using the schools' timetables and normal lesson periods. Immediately after the treatments, test was administered to measure performance of the sampled subjects. The scripts were collected, marked and recorded. The results were subjected to data analyses to determine the effect of one instructional strategy over the other.

Table 3.4: Treatment plan

Weeks	Group A (infographics)	Group B (video)
1, day 1-2	Organs of speech	Organs of speech
2, day 1-2	Description of consonants sounds based on places of articulation (bilabial and labiodental sounds)	Description of consonants sounds based on places of articulation (bilabial and labiodental sounds)
3, day 1-2	Dental and Alveolar sounds	Dental and Alveolar sounds
4, day 1-2	Plato-alveolar and Palatal sounds	Plato-alveolar and Palatal sounds
5, day 1-2	Velar and Glottal sounds	Velar and Glottal sounds
6, day 1	Post-test	Post-test

3.7 Procedure for Data Analysis

The data obtained from the post-test of the instrument (ELAT) administered on both experimental groups one and two was developed into raw scores and subjected to Statistical Package for Social Science (SPSS) version 23. Mean and standard deviation were used to answer the research questions; whereas the null hypotheses were tested using t-test. These statistical analyses were ascertained at 0.05 level of significance.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analyses of the data collected from the administration of the test using English Language Achievement Test (ELAT). Descriptive statistics using mean and standard deviation were used to answer the three research questions raised, while the hypotheses were tested using t-test for two independent samples at 0.05 level of significance.

4.2 Analyses of Research Questions

The study was guided by search for answers to three research questions raised in chapter one of this work. These research questions were answered as follows:

Research Question 1

What is the difference between the mean score of students taught English using infographics and those taught using instructional videos?

In answering research question one, mean scores of students in both experimental groups (infographics instructional strategy and instructional video strategy) were analyzed using mean and standard deviation as shown in table 4.1.

Table 4.1: Mean and standard deviation of students' scores taught English using infographics and videos instructional strategies

Groups	N	Mean	SD	Mean dif.
Infographics	102	34.00	12.453	-1.7
Videos	140	35.74	12.244	

Table 4.1 shows the mean and standard deviation of the test scores of all the students in both experimental groups. From the result, it could be deduced that the mean

score and standard deviation of the test for the infographics instructional strategy group (IIS) were 34.00 and 12.453. Also the mean score and standard deviation of the test for video instructional strategy (VIS) students were 35.74 and 12.244. The mean difference of students' performance in English language between the infographics and instructional video strategies was **-1.7**. This implies that the mean performance of students taught English language using infographics instructional strategy is the same or equal to the performance of students taught English language using video instructional strategy. Therefore, the two instructional strategies are equally effective in teaching English language.

Research Question 2

What is the difference between the mean score of male and female students taught English using infographics instructional strategy?

In answering research question two, mean scores of male and female students in experimental group 1 (IIS) were analysed using mean and standard deviation as shown in table 4.2.

Table 4.2: Test scores of male and female students taught English using infographics instructional strategy

Groups	N	Mean	SD	Mean dif.
Male	44	39.86	11.218	10.31
Female	58	29.55	11.541	

Table 4.2 shows the mean and standard deviation of the test scores of male and female students in experimental group 1 (IIS). From the result, it could be deduced that the mean score and standard deviation of the test for male students were 39.86 and 11.218. Similarly, the mean score and standard deviation of the test for female students in the same experimental group were 29.55 and 11.541. The mean difference of students'

performance between male and female taught English language using infographics instructional strategy was 10.31. Therefore, male students (39.86) had a higher mean score than the female students (29.55).

Research Question 3

What is the difference between the mean score of male and female students taught English using instructional video?

In answering research question three, mean and standard deviation of male and female students in experimental group 2 (Video Instructional Strategy) were analysed using mean and standard deviation as shown in table 4.3.

Table 4.3: Test scores of male and female students taught English using instructional Video strategy

Groups	N	Mean	SD	Mean dif.
Male	74	44.89	6.737	19.41
Female	66	25.48	8.215	

Table 4.3 shows the mean and standard deviation of the test scores of male and female students in experimental group 2 (VIS). From the result, it could be deduced that the mean score and standard deviation of the test for male students were 44.89 and 6.737. Similarly, the mean score and standard deviation of the test for the female students in the same experimental group were 25.48 and 8.215. The mean difference of students' performance between male and female taught English language using video instructional strategy was 19.41. Therefore, male students (44.89) had a higher mean score than the female students (25.48).

4.3 Null Hypotheses Testing

Hypothesis One

HO: There is no significant difference in the mean scores of students taught English using infographics and those taught using instructional video.

Table 4.4: Two-tailed t-test result of difference in English mean score between studentstaught using infographics (IIS) and instructional videos(VIS).

Groups	N	Mean	SD	t - value	df	p-value
Infographics	102	34.0	12.453	-1.086	240	0.279
Videos	140	35.7	12.244			
Total	142					

Table 4.4 shows the two-tailed t-test result of experimental groups (IIS) and (VIS). As illustrated in the table, the mean score of students taught English using infographics (mean = 34.0, SD =12.453) and those taught using instructional videos (mean = 35.7, SD = 12.244) was found to be statistically insignificant, because there was almost the same mean score of the students in English between the two groups. The mean difference in the students' performance in English language between the infographics and videos instructional strategies was -1.7. The t-value = -1.086, p-value = 0.279 which is greater than 0.05;the null hypothesis which stated that there is no significant difference in the mean scores of students taught English using infographics and those taught using instructional videos is retained.This implies that there was no significant difference in the mean scores of students taught English using infographics and those taught using videos instructional strategies.

Hypothesis Two

HO₂: There is no significant difference in the mean scores of male and female students taught English using infographics.

Table 4.5: Two-tailed t-test result of difference in English mean score between male and female students taught using infographics instructional strategy

Groups	N	Mean	SD	t - value	df	p-value
Male	44	39.9	11.218	4.523	100	0.000
Female	58	29.6	11.541			
Total	102					

Table 4.5 shows the two-tailed t-test result of male and female students taught English language using infographics instructional strategy. As illustrated in the table, the mean score for male students taught using infographics instructional strategy (IIS) (mean = 39.9, SD = 11.218) and that of female students taught using the same instructional strategy (mean = 29.6, SD = 11.541). The test was found to be statistically significant, because the mean performance of male student taught using infographic instructional strategy was higher than the mean performance of female students in the same group. The mean difference in the students' performance between male and female students in English language in this group is 10.3. The t-value = 4.523 and p-value = 0.000 which is less than 0.05; the null hypothesis which stated that there is no significant difference in the mean scores of male and female students taught English using infographics was rejected. This implies that there was a significant difference in the mean scores of male and female students taught English using infographics instructional strategy in favour of male students.

Hypothesis Three

HO3: There is no significant difference in the mean scores of male and female students taught English using instructional video.

Table 4.6: Two-tailed t-test result of difference in English mean score between male and female students taught using video instructional strategy

Groups	N	Mean	SD	t - value	df	p –value
Male	74	44.89	6.737	15.346	138	0.000
Female	66	25.48	8.215			
Total	140					

Table 4.6 shows the two-tailed t-test result of male and female students taught English language using video instructional strategy (VIS). As illustrated in the table, the mean score for male students taught using video instructional strategy (mean = 44.89, SD = 6.737) and that of female students taught using the same instructional strategy (mean = 25.48, SD = 8.215). The test was found to be statistically significant, because the mean performance of male student taught using video instructional strategy was higher than the mean performance of female students in the same group. The mean difference in the students' performance between male and female students in English language in this group is 19.41. The t-value = 15.346 and p-value = 0.000 which is less than 0.05; the null hypothesis which stated that there is no significant difference in the mean scores of male and female students taught English using instructional video was rejected. This implies that; there was a significant difference in the mean scores of male and female students taught English using video instructional strategy in favour of male students.

4.4 Summary of Findings

1. There was difference in the performance of students taught English using infographics instructional strategy and those taught using video instructional strategy with mean difference -1.7. However, the difference was in favour of Video instructional strategy, but it was not statistically significant with t-value = -1.086 and p-value = 0.279 which is greater than 0.05.
2. There was difference in the performance of male and female students taught English using infographics instructional strategy with mean difference 10.31 in favour of male students. Therefore, the difference was statistically significant with t-value = 4.523 and p-value = 0.000 which is less than 0.05.
3. There was difference in the performance of male and female students taught English using video instructional strategy in favour of male students with mean difference 19.41. Therefore, the difference was statistically significant with t-value = 15.346 and p-value = 0.000 which is less than 0.05.

4.5 Discussion of Findings

The findings of this study were discussed through effect of the treatments and the effect of gender on performance of students in English language. Thus;

The findings of this study revealed that the use of infographics instructional strategy had no significant effect on performance of students compared to the use of video instructional strategy in English language. This finding disagrees with that of Hope and Chet (2018) who found out that there was significant difference in students' academic performance in media system using of infographics. The findings also contradict the results of Al-Mohammadi (2017) who investigated the effectiveness of using infographics as an approach to teaching the programming fundamentals of developing analytical skills and found out that the approach was significantly effective on students' performance.

Furthermore, the findings of this study is as well not in consonance with that of Alrwale (2017) who examined the effects of infographics on students achievement and perception of infographics and discovered a significant achievement on the performance of the experimental group students than the control group. In the same vein, the result contradict that of Sacopla and Yangco (2016) who investigated the effects of infographics on students' coding skills and conceptual understanding in Biology and recorded significant improvement in the posttest of the experimental group as compared to the control group. In a nutshell, the results contradict those of Razari and Sayadian (2015) in English Grammar, Sdakov, Bellsky, Usenyuk and polyakova (2014) in Mathematics and Fowler (2015) in Science lessons all related to infographics.

The application of two distinct and powerful instructional strategies by the researcher concurrently and by the researcher himself in the course of the treatments for both treatment groups may be responsible for no significant difference among the two groups. The way in which the researcher ensured adequate coverage of contents of the instruments for both groups which helped the students comprehend the phonemes easily with no much difference, even though treatment group one were taught using infographics and treatment group two using videos. In fact, the result shows that both infographics and video instructional strategies are almost equally effective in improving performance of students in English language.

Itis revealed from the result of the study that both infographics and video instructional strategies have significant effect on gender of students. This finding is in consonance with that of Hope and Chet (2018) who found out that there was significant different in the academic performance of students in History using video-taped instruction. Also in agreement with the finding of Olutola (2017) who recorded gender to have a

significant effect on students' performance in English language as well as Gambari, Shittu, Daramola and Jimoh (2016) who found gender to have significant effect on students' performance when taught Trigonometry using Text + animation + Narration (TAN) form of video instructional strategy.

On the contrary, the finding of this study disagrees with that of Osokoya (2017) who found gender to have no significant effect on students' achievement in History when taught using taped-video type of instruction. It is further in disagreement with that of Gambari, Shittu, Daramola and Jimoh (2016) who reported gender from a study that gender was not found to have no significant effect on the achievement of students when taught Trigonometry using Text Only (TO) and Text + Narration (TN) forms of video instructional strategies. These differences may be owing to the fact that male students differ from female students in terms of the role expected of them by the society as in the role they play in daily tasks. This is supported by the assertion of Jackson (2012), that as soon as a child is born a female, people start limiting her possibilities, regardless of what she displays unlike her male counterpart who the society has much expectations from than the female. Furthermore, Jack (2010) added that the important factors that develop gender differences are parents who do not want to spend much on female education compared with that of the male child because of their (parents) social or cultural beliefs.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions drawn from the findings and recommendations based on the findings of the study.

5.2 Summary

Language serves a key role for better human coexistence through which people share their views and express their feelings. English language serves as the language of instructions in Nigerian educational institutions as well as national official language. It is due to the position occupied by the language that at least a credit pass in English at senior secondary school examination serves as one of the basic requirements for admission in the country's higher institutions. This explains the reason why some researchers have in recent times devoted their efforts on exploring teaching strategies that can facilitate teaching and learning of the language in order to increase chances for secondary school students in gaining the required credit for admission into higher institutions. Based on that, this study sought to explore the effect of infographics instructional strategy compared to instructional video strategy on students' academic performance in English language.

The study further examined the effect of gender on students' performance in the phonology of the English language when taught using both IIS and IVS. For a better sense of direction, the study was based on three research questions and three corresponding research hypotheses. They were formulated and tested at 0.05 level of significance.

Literatures related to the study were reviewed through theoretical framework, conceptual framework, concept of infographics, concept of academic performance, principles and elements of infographics design, infographics in education, flexibility of infographics in classroom, conditions for proper integration of infographics in classroom, an overview on instructional videos, factors that influence students' academic performance, students' academic performance based on gender difference, empirical

studies. It was noted from the review among other things that most of the works on infographics were not carried out on English language especially the phonological aspects. They were mostly carried out in other countries. Those on instructional video were in different fields other than English language which is the focus of the present study.

Factorial research design was used for this study. Two hundred and forty students from two Senior Secondary Schools formed the sample for the study. The students in their intact classes were randomly assigned to both experimental groups one and two. Both groups were taught the phonology of the English language by the researcher, group one using infographics and group two using instructional videos. They were post-tested after the treatments.

Data collection instrument used is titled English Language Achievement Test (ELAT). It was adapted from past question papers from the West African Examinations Council (WAEC) and the National Examinations Council (NECO). It is a 30 items objective question and was validated by instructional Technology experts, English education specialist, and teachers of English language. It was pilot tested and the data collected were analysed to determine the reliability of the instrument. The data obtained from the test retest were analysed through Pearson Product Moment Correlation (PPMC) and 0.76 coefficient value was recorded. Final data analyses generated from the post-test were analysed through mean, standard deviation and t-test.

5.3 Conclusion

Based on the outcome of this study, the researcher was able to conclude that both infographics and video instructional strategies are almost equally effective in enhancing

academic performance of students; male students performed higher than female students when taught using both instructional strategies. With this improvement in performance of students in English language, provision of adequate and functional Information and Communications Technology gadgets to secondary schools such as projectors, video players, loudspeakers, stable power supply as well as training of teachers in terms of utilisation of these instructional strategies would greatly enhance academic performance of students in English language in Katsina state, Nigeria.

5.4 Recommendations

Based on the results of this study, the following recommendations were made:

1. Teachers of English language should employ and use infographics instructional strategy in teaching to enhance the performance of students in the subject.
2. Teachers of English should give more attention to female students when using both infographics and video instructional strategies in teaching, because male students were found to have recorded better performance than female students in the subject.
3. Regardless of gender of students, video instructional strategy should be used in teaching English language at senior secondary school level in order to enhance students' academic performance.

5.5 Limitations of the Study

The generalizations drawn from this study are subject to the following limitations:

1. The use of SSII students only and phonological aspects of the English language only may affect the generalizability of the findings.
2. Considering the limited number of schools the study covered, the study could not be generalized, because it was limited to Funtua educational zone of Katsina state and two secondary schools only.

5.6 Contribution to Knowledge

This research work titled “effect of infographics on academic performance of senior secondary school students in English language in Katsina state, Nigeria” contributed to the body of knowledge by adding more to the existing literature related to both infographics and video as instructional strategies in the field of instructional technology. This is due to the fact that not many studies were carried out on both infographics and video as instructional strategies. It has been discovered from the literatures available that, no study examined both infographics and video instructional strategies simultaneously on performance of students in relation to any subject area. This study therefore intended to fill a gap. Although infographics and video instructional strategies have been examined to be effective in teaching and learning, surprisingly, there is little empirical evidence available supporting that. Therefore, this study contributed to the body of knowledge in these directions:

1. It employed a different research design which is a factorial.
2. Unique sample size was used (242 male and female students from two SSS).
3. Different subject area and content where the phonology/test of oral of English language was used.
4. Double instructional strategies because infographics and video in comparison where used on Senior Secondary School Students’ Academic performance.

5. Location, Funtua Educational zone in Katsina state, Nigeria to support the existing body of knowledge.

5.7 Suggestions for Further Studies

The findings of this study have generated some areas for further researches. Against this background, further researches could be carried out to:

1. Examine the effect of IIS on students' academic performance in other subjects apart from English language.
2. Investigate the effect of IVS on students' academic performance in other subjects different from English language.
3. Examine the effect of IIS on students' academic performance in other aspects of the English language apart from phonology.
4. Investigate the effect of IVS on students' academic performance in other aspects of the English language different from phonological aspects.

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APPENDIX A
ENGLISH LANGUAGE ACHIEVEMENT TEST (ELAT)
FOR SSII STUDENTS
SECTION A

School: _____

Gender: Male () Female ()

INSTRUCTIONS: Use the options lettered **A – D** and answer all the following questions.

Time allowed: 45 minutes

SECTION B

Choose from the options lettered **A-D**, the one that contains the sound segment represented by the given phonetic symbol

1. /θ/ A. fight B. that C. them D. thirsty
2. /ð/ A. path B. thing C. than D. dart
3. /f/ A. pyramid B. phone C. debt D. ship
4. /dʒ/ A. batch B. danger C. doze D. seizure
5. /v/ A. revise B. leather C. born D. boat
6. /tʃ/ A. gear B. cheer C. share D. just
7. /g/ A. biology B. foreign C. good D. sign
8. /ʃ/ A. marshal B. chronic C. church D. starch
9. /s/ A. measure B. position C. sleep D. ease
10. /d/ A. handsome B. sandwich C. handkerchief D. adjective
11. /t/ A. castle B. listen C. bustle D. walked
12. /p/ A. cool B. court C. pull D. caught
13. /j/ A. judge B. young C. jump D. tongue
14. /b/ A. habit B. thumb C. plumber D. lamb
15. /k/ A. cereal B. knife C. knit D. quickly

SECTION C

Chose from the options lettered **A-D**, the one that has the same consonant sound as the one represented by the underlined letter(s)

16. joint A. get B. gear C. wrong D. germ
17. chair A. chemistry B. chameleon C. cereal D. future
18. teach A. private B. both C. through D. listen
19. favour A. level B. metaphor C. obvious D. give
20. racial A. club B. shut C. vice D. beach
21. warm A. one B. whole C. new D. write

22. pilot A. coup B. psalm C. corps D. corpse
23. refine A. phantom B. pipe C. review D. plan
24. peace A. his B. keys C. resume D. suit
25. chorus A. cat B.

Question	Answer
-----------------	---------------

 chain C. ship D. chap
26. date A. lodge B. spade C. that D. think
27. ground A. beer B. bore C. bury D. sure
28. higher A. heir B. honest C. hot D. hour
29. themselves A. debt B. rather C. thank D. tame
30. wimp A. chew B. nephew C. new D. once

APPENDIX B

MARKING SCHEME FOR ENGLISH LANGUAGE ACHIVEMENT TEST

	No.	
	1.	D
	2.	C
	3.	B
EXAM	4. TEST	B RETEST
NO.	5. SCORE	A SCORE
	6.	B
	7.	C
	8.	A
	9.	C
	10.	D
	11.	D
	12.	C
	13.	B
	14.	A
	15.	D
	16.	D
	17.	D
	18.	A
	19.	B
	20.	B
	21.	A
	22.	D
	23.	A
	24.	D
	25.	A
	26.	B
	27.	C
	28.	C
	29.	B
	30.	D

Note: Each question attracts 2 marks (Total: 2 x 30 = 60).

APPENDIX C

TEST-RETEST RESULT OF THE INSTRUMENT FOR DATA COLLECTION

001	14	10
002.	12	09
003.	12	13
004.	23	21
005.	14	07
006.	17	09
007.	16	19
008.	23	23
009	13	13
010.	12	11
011.	09	09
012.	10	09
013.	14	13
014.	08	09
015.	09	13
016.	07	07
017.	12	13
018.	11	10
019.	11	13
020.	21	20
021.	16	11
022.	15	14
023.	11	12
024.	07	09
025.	16	14
026.	15	13
027.	15	10
028.	12	13
029.	13	10
030.	12	09

APPENDIX D

**PEARSON PRODUCT MOMENT CORRELATION (PPMC) RESULT FOR
ENGLISH LANGUAGE ACHIEVEMENT TEST (ELAT)**

Descriptive Statistics

	Mean	Std. Deviation	N
First score	13.33	4.046	30
Second score	12.20	3.986	30

Correlations

		First score	Second score
First score	Pearson Correlation	1	.761**
	Sig. (2-tailed)		.000
	N	30	30
Second score	Pearson Correlation	.761**	1
	Sig. (2-tailed)	.000	
	N	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

SPSS OUT-PUT FOR DATA ANALYSES

Infographics

Group Statistics

	Gender of the students	N	Mean	Std. Deviation	Std. Error Mean
students taught using	Male students	44	39.86	11.218	1.691
infographics	Female students	58	29.55	11.541	1.515

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
students taught using infographics	Equal variances assumed	.039	.844	4.523	100	.000	10.312	2.280	5.789	14.835
	Equal variances not assumed			4.541	94.040	.000	10.312	2.271	5.803	14.821

Video

Group Statistics

	Gender of the students	N	Mean	Std. Deviation	Std. Error Mean
students taught using video	Male students	74	44.89	6.737	.783
	Female students	66	25.48	8.215	1.011

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Differen ce	Std. Error Differenc e	95% Confidence Interval of the Difference	
									Lower	Upper
students	Equal variances assumed	2.286	.133	15.346	138	.000	19.407	1.265	16.906	21.908
taught using video	Equal variances not assumed			15.174	125.9 99	.000	19.407	1.279	16.876	21.938

Infographics and video

Group Statistics

		teaching methods	N	Mean	Std. Deviation	Std. Error Mean
Instructional teaching strategies	Infographics		102	34.00	12.453	1.233
	Video		140	35.74	12.244	1.035

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2- tailed)	Mean Differen ce	Std. Error Differen ce	95% Confidence Interval of the Difference	
									Lower	Upper
students taught using video	Equal variances assumed	.120	.729	-1.086	240		-1.743	1.605	-4.905	1.420
	Equal variances not assumed			-1.083	215.6 42		-1.743	1.610	-4.916	1.430

APPENDIX F

POPULATION AND SCHOOLS DISTRIBUTION

SN	Schools	No of Male Students	No of Female Students	Total
1.	GC (P) FUNTUA	500	-	500
2.	GC (DW) SNR FUNTUA	680	-	680
3.	GDSSS FUNTUA	328	235	563
4.	GGSSS FUNTUA	1183	-	1183
5.	GDSSS (M) FUNTUA	766	355	1121
6.	GDSSS DUKKE	206	50	256
7.	GDSSS TUDUN IYA	120	93	213
8.	GDSSS MASKA	102	22	124
9.	GDSSS GOYA	83	22	104
10.	GDSSS KURAMI	303	204	507
11.	GDSSS TANDAMA	135	50	185
12.	GDSSS DANJA	469	50	519
13.	GDSSS KOKAMI	156	31	187
14.	GDSSS DABAI	157	75	232
15.	GDSSS KAHUTU	59	21	80
16.	GDSSS GUGA	100	40	140
17.	GDSSS KAKUMI	183	37	220
18.	GDSSS BAKORI	430	269	699
19.	GGASSS KABOMO	-	400	400
20.	GDSSS JARGABA	51	22	73
21.	GDSSS TSIGA	267	74	341
22.	GDSSS BARDE	220	105	325
<hr/>				
Total male: 6,896 Total female: 1,756 Grand total: 8,652				
<hr/>				

Source: Funtua Zonal Education Quality Assurance (2019)

APPENDIX G

**PERCENTAGE PASS OF STUDENT'S PERFORMANCE IN ENGLISH
LANGUAGE FOR WAEC IN NIGERIA FOR FIVE YEARS**

Years	Percentage
2015	38.68%
2016	52.9%
2017	59.22%
2018	49.98%
2019	64.18%

Source: WAEC Report (2019).

APPENDIX H



DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM
Faculty of Education
AHMADU BELLO UNIVERSITY, ZARIA

*(Co-Chairman): Professor Ibrahim Garba, B.Sc (Hons) Geology, M.Sc (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FRARIS
Head of Department: Dr. Mustafic Harbau, GRD (TC), M.Ed. U.K (Ed), M.Ed Admin and Planning (BUK), Ph.D Admin and Planning (ABU)*

Our Ref: DEFC/3.25

Date: _____

THE CO-ORDINATOR,
ZONAL EDUCATION QUALITY ASSURANCE,
FUNTUA ZONE,
KATSINA STATE.

Dear Sir,

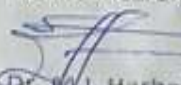
LETTER OF INTRODUCTION

The bearer, TIBAIL SULLAMAN, with Registration Number P15KATFC 8093 is a student in this department. He /She is carrying out research, being part of requirement for graduation, in MASTERS OF EDUCATION (INSTRUCTIONAL TECH.). He/She needs certain information in your organization. Kindly, allow him/her have access to information in your organization. The information obtained will be used for research purpose only. The topic of his/her research is

EFFECT OF INFOGRAPHICS ON PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ENGLISH LANGUAGE IN KATSINA STATE

Thanks in anticipation of your kind response.

Yours sincerely,


Dr. M.I. Harbau
Head of Department
Head of Department
Dept. of Educational Foundations,
Curriculum
A. B. U. Zaria

9/0
For your information and
compliance pls
22/9/19



DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM
Faculty of Education
AHMADU BELLO UNIVERSITY, ZARIA

Head of Department: Professor Ibrahim Garba, B.Sc (Hons) Geology, M.Sc (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., F.N.A.M.S.
Head of Department: Dr. Musa Idris Harbau, GRADUATE, NCE, B.A (Ed), M.Ed Admin and Planning (BUK), PhD Admin and Planning (ABU)

Our Ref: DEFC/5.25

Date: _____

THE PRINCIPAL,
GOVERNMENT DAY SENIOR SECONDARY
SCHOOL MAKERA FUNWA,
KATSINA STATE

Dear Sir,

LETTER OF INTRODUCTION

The bearer, JIBRIL SULAIMAN, with Registration Number P15EDFC8093, is a student in this department. He/She is carrying out research, being part of requirement for graduation, in MASTERS OF EDUCATION (INSTRUCTIONAL TECH.). He/She needs certain information in your organization. Kindly, allow him/her have access to information in your organization. The information obtained will be used for research purpose only. The topic of his/her research is

EFFECT OF INFOGRAPHICS ON PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ENGLISH LANGUAGE IN KATSINA STATE

Thanks in anticipation of your kind response.

PRC ASS PTA
pls kindly signed the bearer on his research project
pls 23/9/15.

Yours sincerely,

Dr. M.I. Harbau
Head of Department
Dept. of Educational Foundations & Curriculum
A. B. U. Zaria



DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM
Faculty of Education
AHMADU BELLO UNIVERSITY, ZARIA

Specialization: Professor Ibrahim Garba, B.Sc (Hons) Geology, M.Sc (General Education) ABU, Ph.D Geology (London), D.I.C. (UK) / Head of Department: Dr. Musa Idris Harbau, GRD (C), NCL, B.A. (Ed), M.Ed Admin and Planning (BUK), Ph.D Admin and Planning (ABU)

Our Ref: DEFC/S:25

Date: _____

THE PRINCIPAL,
GOVERNMENT ^{DAY} SENIOR SECONDARY
SCHOOL FUNUA,
KATSINA STATE

Dear Sir,

LETTER OF INTRODUCTION

The bearer, IIBRIL SULAIMAN, with Registration Number PISEDFC 8073 is a student in this department. He /She is carrying out research, being part of requirement for graduation, in MASTERS OF EDUCATION (INSTRUCTIONAL TECH). He/She needs certain information in your organization. Kindly, allow him/her have access to information in your organization. The information obtained will be used for research purpose only. The topic of his/her research is

EFFECT OF INFOGRAPHICS ON PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ENGLISH LANGUAGE IN KATSINA STATE

Thanks in anticipation of your kind response

AC CISO (M) PTA

pls kindly assist the bearer on his research projects
pls 23/5/15

Yours sincerely,

[Signature]
Dr. M. I. Harbau
Head of Department
Head of Department of Educational Foundations and Curriculum
A. B. U. Zaria

APPENDIX I



Female students for experimental group 2 during lesson presentation using instructional video.



Male students for experimental group 2 during lesson presentation using instructional video.



Male students for experimental group 1 during lesson presentation using instructional infographics.



Female students for experimental group 1 during lesson presentation using instructional infographics.

APPENDIX J
LESSON PLAN ON ORGANS OF SPEECH
FOR TREATMENT GROUP ONE

WEEK 1, LESSON 1

CLASS: Senior Secondary School (SS2)

TOPIC: Organs of Speech

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, students should be able to:

1. Define organs of speech
2. Name seven organs of speech
3. Say how long usually the Pharynx in men and women is?

INSTRUCTIONAL MATERIALS: An infographics portraying organs of speech for treatment group one.

INTRODUCTION: The lesson will be introduced by asking students questions such as:

1. Can you blow out a candle? From where does the air come when blowing out a candle?
2. What parts of our body do we use for speaking?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher defines organs of speech as those parts of the body that we use in the articulation of sounds. They are the parts of our body responsible for making meaningful speech sounds. These different parts used for producing sounds are called articulators. The teacher explains (in order to learn how the sounds of speech are produced, it is necessary to become familiar with the different parts of the vocal tract).

STEP 2: The teacher will write on the chalkboard the seven basic human organs of speech, thus: the Pharynx, the velum, the hard palate, the alveolar ridge, the tongue, the teeth and the lips.

STEP 3: **The pharynx.**

The teacher explains that: The **pharynx** is a like a tube which begins just above the larynx. It is about 7 cm long in women and about 8 cm in men, and at its top end is divided into two, one part being the back of the mouth and the other being the beginning of the way through the nasal cavity. If you look in your mirror with your mouth open, you can see the back of the pharynx.

STEP 4: The velum or soft palate:

Teacher explains that velum or soft palate is the passage that allows air to pass through the nose and through the mouth. Yours is probably in that position now, but often in speech it is raised so that air cannot escape through the nose. The other important thing about the velum is that it is one of the articulators that can be touched by the tongue. When we make the sounds [k] and [g], the tongue is in contact with the lower side of the velum, and we call these velar consonants.

STEP 4: Infographics depicting human organs of speech will be displayed making reference to the pharynx and velum/soft palate.

STUDENTS' ACTIVITIES/EVALUATION:

Questions will be entertained from students and some students will be asked like:

1. What are organs of speech?
2. Mention seven basic human organs of speech
3. How long is usually the Pharynx in men and in women?

CONCLUSION: The teacher rounds up the lesson by summarizing what constitute organs of speech and recounts them as: The Pharynx, the velum, the hard palate, the alveolar ridge, the tongue, the teeth and the lips. When we make the sounds [k] and [g], the tongue is in contact with the lower side of the velum, and we call them velar consonants and explain briefly.

ASSIGNMENT: Describe the hard palate and the alveolar ridge as organs of speech.

LESSON PLAN ON ORGANS OF SPEECH FOR TREATMENT GROUP ONE

WEEK 1, LESSON 2

CLASS: Senior Secondary School (SS2)

TOPIC: Organs of Speech (continued)

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the alveolar ridge, the tongue, the teeth and the lips.

INSTRUCTIONAL MATERIALS: An infographics portraying organs speech for treatment group one.

INTRODUCTION: The lesson will be introduced by asking the students questions based on the last lesson. Thus:

1. What are organs of speech?
2. Mention seven basic human organs of speech discussed in the last lesson
3. How long is usually the Pharynx in men and in women?

PRESENTATION: The lesson will be presented through the following steps:

STEP 1: The teacher writes on the chalkboard: the hard palate, alveolar ridge, the tongue, the teeth and the lips.

STEP 2: The teacher describes the **hard palate** as that part of the mouth often called the "roof of the mouth". One can feel its smooth curved surface with his/her tongue. The teacher will explain.

STEP 3: The teacher also describes the **alveolar ridge** as a surface between the top front teeth and the hard palate. One can feel its shape with his/her tongue. You can only see it if you have a mirror small enough to go inside your mouth (such as that used by dentists). Sounds made with the tongue touching here (such as |t| and |d|) are called alveolar.

STEP 4: The teacher describes the **tongue** as a very important articulator and it can be moved into many different places and different shapes in the mouth. It is divided into different parts, though there are no clear dividing lines within the tongue. Thus: tip, blade, front and back.

STEP 5: The teacher explains the **teeth** (upper and lower) as only at the front of the mouth, immediately behind the lips. The tongue is in contact with the upper side teeth for some speech sounds. Sounds made with the tongue touching the front teeth are called dental e.g.: [f] and [v].

STEP 6: The teacher explains the **lips** as very important organs in speech. They can be pressed together when we produce the sounds [p] and [b], brought into contact with the teeth as in [f] and [v], or rounded to produce the lip-shape for vowels like [u:]. Sounds in which the lips are in contact with each other are called bilabials, while those with lip-to-teeth contact are called labiodentals.

STUDENTS' ACTIVITIES/EVALUATION: Questions will be entertained from the students and some students will be asked:

1. How does the alveolar ridge look like?
2. What can you say about the tongue?
3. Describe the teeth and the lips.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson such as:

- i. The hard palate as that part of the mouth often called the "roof of the mouth"
- ii. The alveolar ridge as a surface between the top front teeth and the hard palate. You can feel its shape with your tongue.
- iii. Teeth (upper and lower) as only at the front of the mouth, immediately behind the lips.
- iv. The lips as very important speech organs which can be pressed together when one produces the sounds [p] and [b], is brought into contact with the teeth as in [f] and [v], etc.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 2, LESSON 1

CLASS: Senior Secondary School (SS2)

TOPIC: Description of Consonants (base on place of articulation: i.e bilabials)

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, students should be able to:

1. Define consonant sound.
2. List the places of articulation of English consonants (Bilabial, labio-dental, dental, alveolar, post-alveolar, palatal, velar and glottis).
3. Describe the bilabials and their place of articulation.
4. Identify the bilabials in words.

INSTRUCTIONAL MATERIALS: An infographics portraying the organs speech and their positions for the articulation of the bilabial sounds for treatment group one.

INTRODUCTION: The teacher introduces the lesson asking the students questions based on the last lesson. Thus:

1. What are organs of speech?
2. Name seven basic organs of speech

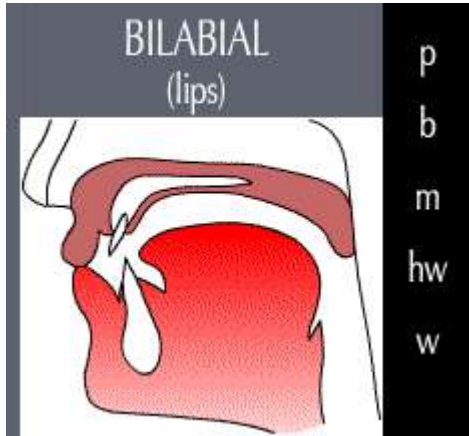
PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher defines consonant sounds as sounds that involve making the vocal tract narrower at some location than it usually is. This narrowing is called **constriction**. The consonant you are pronouncing depends on where in the vocal tract the constriction is and how narrow it is. The teacher then explain (it depends on a few other things, such as whether the vocal folds are vibrating and whether air is flowing through the nose or the mouth).

STEP 2: The teacher describes **place of articulation** as the dimension that specifies **where** (an area) in the vocal tract the constriction is when producing a particular consonant sound. The place of articulation (POA) of a consonant specifies where in the vocal tract the narrowing occurs, from front to back.

STEP 3: The teacher lists the places of articulation of the English consonants as: Bilabial, labiodental, dental, alveolar, post-alveolar, palatal, velar and glottal.

STEP 4: The teacher explains to the students that in the bilabial consonants, the **lower and upper lips** approach or touch each other. English |p|, |b|, |m| and |w| are the bilabials, making reference to the infographics below:



STEP 5: The teacher explain to the students that; while the bilabial |p| is voiceless/unvoiced, the bilabial |b| is voiced and are spelt with letters ‘p’ and ‘b’ respectively. This means that there is vibration in the production of |b|, while there is no vibration of the vocal tracts in the production of |p| sound. The teacher will further present examples of words in which the bilabials appear and explain. Thus:

p	b
peer	beer
pill	bill
pit	bit
pet	bet
pack	back
pair	bare
pore	bore
pond	bond
pay	bay
pale	bail

STEP 6: The students will be made to realize that /p/ /b/ and /w/ are silent in some words such as: /b/ eg: plumber /plʌmə/, bombb, climb, debt, doubt etc.

/p/ eg: corps /kɔ:/, coupp, cupboard, psychology, psychiatrist, pneumonia etc.

/w/ eg: answer, whole, wrist, wrinkle, wrap etc.

STUDENTS' ACTIVITIES/EVALUATION: Questions will be entertained from

Students and some students will be asked:

1. What is a consonant sound?
2. What are the places of articulation of English consonants? Mention them.
3. What are the bilabial consonant sounds?

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson such as:

- i. Consonant sounds are sounds that involve making the vocal tract narrower at some location/point than it usually is.
- ii. Place of articulation (POA) of a consonant specifies where in the vocal tract the narrowing occurs, from front to back.
- iii. Places of articulation of the English consonants are: bilabial, labiodental, dental, alveolar, post-alveolar, retroflex, palatal, velar and glottal.
- iv. The bilabial is |p| unvoiced/ voiceless but |b| is voiced and some examples already given in step 5 above.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 2, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the labiodentals)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the labiodentals.
2. List the labiodentals.
3. Identify the labiodentals in words.

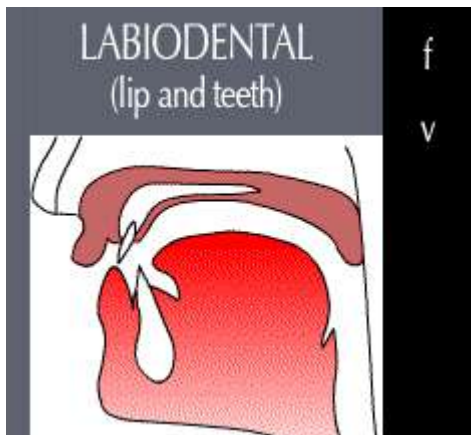
INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the labio-dental sounds for treatment group one.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

1. What is a consonant sound?
2. Mention the places of articulation of English consonants.
3. What are the bilabial consonant sounds?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher describes the labiodentals as those consonant sounds that in their production, the **lower lip** approaches or touches the **upper teeth**. The teacher will present them. Thus: [f] and [v]. The teacher will also present an infographics for the labiodentals below and explain:



STEP 2: Students will be asked to say whether there is voiced sound among the labiodentals and which? The teacher explains.

STEP 3: The teacher explains that |v| sound is spelt with letter ‘v’, but |f| is spelt with letter ‘f’ and is also represented by letters ‘ph’ and ‘gh’ as in: phone, physics, pharmacy, and paragraph, and tough, roughage, enough, rough respectively. Students will be asked to repeat each of these words after the teacher.

STEP 3: The teacher presents examples of words in which the sounds appear in minimal pairs and instruct the students to repeat after him such as:

f v	
feel	veal
ferry	very
fan	van
fast	vast
few	view
fine	vine
focal	vocal

STEP 4: The teacher explains to that these consonant sounds (|f| and |v|) are also called fricatives, fricatives because they involve air flowing through a constriction in the oral cavity and produce buzzing/hissing sound. The teacher explains.

STUDENTS’ ACCTIVITIES/EVALUATION:

Questions will be entertained from the students and some students will be asked to:

1. Describe the labiodentals discussed during this lesson.
2. List the labiodentals treated during presentation of the lesson.
3. Mention more words in which the labiodentals appear.
4. Say the other name for the two labiodentals discussed (fricatives).

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson as:

- i. Labiodentals are sounds that involve making the **lower lip** approach or touch the **upper teeth** in their production (|f| and |v|).
- ii. While |f| is unvoiced, |v| is voiced and they are also called fricative sounds.
- iii. |f| is spelt with letter ‘f’. It is also represented by letters ‘ph’ and ‘gh’ as in: phone, physics, paragraph, tough, enough etc.

ASSIGNMENT: List five more words for each of |f| and |v| consonant sounds different from those listed during this lesson.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 3, LESSON 1

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the dentals)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the dental sounds of the English language.
2. List the dental sounds of the English language.
3. Identify words in which the dental sounds appear.

INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the dental sounds for treatment group one.

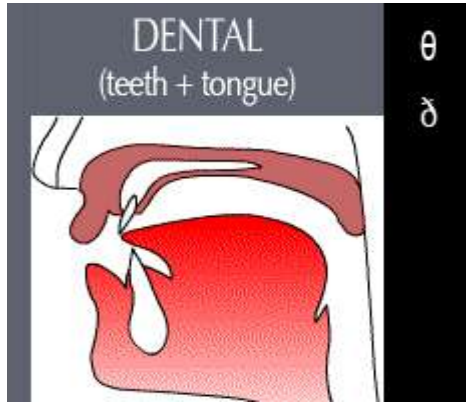
INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

1. What are the labiodentals consonant sounds?
2. Apart from letter 'f', what other letters represent |f| sound?
3. What is the other name for the labiodentals |f| and |v|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher describes the dental sounds as consonant in the production of which the tip or blade of the tongue approaches or touches the upper teeth. English dentals |θ| and |ð| are also called fricatives.

STEP 2: The teacher explains the production process of the sounds as: The blade of the tongue touches the bottom of the upper teeth, with the tongue tip protruding/sticking out between the teeth, still leaving enough space for airstream to escape. These sounds are also called **inter-dentals**. The teacher will present an infographics that shows the description of how the sounds are produced and explain as:



STEP 3: The teacher explains that both sounds are spelt with letters ‘th’. But, one should closely study the words in which the sounds appear. Teacher then present words that contain these sounds as:

θ ð	
thank θæŋk	than ðæn
thin θin	this ðis
thought θo:t	though ðou
thumb θəm	thus ðəs
north no:θ	northern 'no:ðərn
south sauθ	southern 'səðərn
nothing 'nəθɪŋ	other 'əðər
anything 'eniθɪŋ	another ə'nəðər

STEP 4: The teacher presents the sounds in phrases for more clarification. Students repeat after the teacher Thus: |θ| – |ð|: both mothers; three brothers; thank your father; north of this city; throw out this junk; |ð| – |θ|: this thing; that theory; this path; other authors; gather strength; neither health nor wealth.

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students and some students will be asked to:

1. Describe the dental consonants.
2. List the dental consonant sounds.
3. Mention some words in which the dental sounds appear.
4. Identify the other name for the two dental sounds.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- i. Dentals are sounds in which the tip or blade of the tongue approaches or touches the upper teeth (tip of the tongue + upper teeth).
- ii. Both sounds are spelt with 'th'. While |θ| is unvoiced, |ð| is voiced and they are also called fricatives or interdental.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 3, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the Alveolar)
PERIOD: 1 period of 40minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe alveolar the sounds of the English language.
2. List the alveolar sounds of the English language.
3. Identify words in which the alveolar sounds appear.

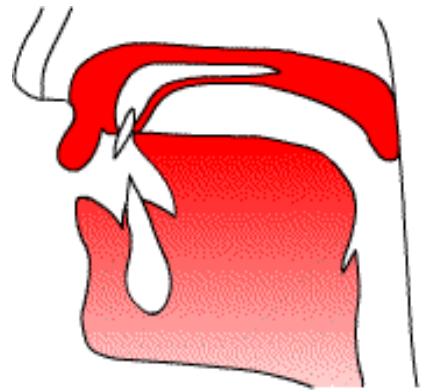
INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the alveolar sounds for treatment group one.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

1. What are the dental consonant sounds?
2. What letters represent $|\theta|$ and $|\delta|$ sounds?
3. What are the other names for the dentals $|\theta|$ and $|\delta|$ (inter-dentals/fricatives)?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that in alveolar consonants, the tip of the tongue approaches or touches the alveolar ridge, the ridge immediately behind the upper teeth. The teacher will at this point demonstrate for the students to repeat after him. Infographic material that shows this description will be presented and explained at this point.



STEP 3: The teacher explains that:

- ✓ The English stops |t|, |d|, and |n| are formed by completely blocking the airflow at this place of articulation (the alveolar) and that they are usually spelt with letters ‘t’, ‘d’ and ‘n’ respectively. The /n/ is also known as nasal because the sound passes through the nose.
- ✓ The fricatives |s| and |z| are also at this place of articulation and are spelt with letters ‘s’ or ‘c’ e.g. sing, son, voice, vice etc and ‘z’ or ‘s’ added at the end of words that end with a voiced consonant sound respectively. E.g.: boys |bɔɪz|, girls |gɜːlz|, words |wɜːdz| etc
- ✓ As the lateral approximant |l| and |r| spelt with letter ‘l’ and ‘r’. But are silent in some words such as: could, walk, chalk, talk, should, calm, and perlform, inlform, explort, doctlor, cartlon, care, neletc respectively.

STEP 4: The teacher presents the sounds in words such as:

t	d	n	s	z	l	r
team	deem	seen	seal	zeal	lead	right
tip	dip	kin	sink	zinc	leap	from
tan	Dan	pan	essay	easy	lane	grow
ten	den	Ben	listen	busy	royal	road
ton	done	clan	dress	design	letter	draw

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students and some students will be asked to:

1. How do we make the alveolar the sounds of the English language?
2. How many are they?
3. List the alveolar sounds of the English language.
4. Mention two words in which the alveolar sounds appear.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- i. Alveolar are sounds in which the tip of the tongue approaches or touches the alveolar ridge, the ridge immediately behind the upper teeth.
- ii. Some of them are stops, some fricatives and others lateral/approximants.
- iii. Some are silent in some words in which they appear as discussed above.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 4, LESSON 1

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the Plato-alveolar)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the Plato-alveolar sounds of the English language.
2. List the Plato-alveolar sounds of the English language.
3. Identify how each of the plato-alveolar sounds is spelt.

INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the palato-alveolar sounds for treatment group one.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

1. What are the alveolar consonant sounds?
2. What are the other names for the alveolar: |t|, |d|, and |n|, |s| and |z|, and |l|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that in the palato-alveolar, the constriction is made immediately behind the alveolar ridge. The constriction can be made with either the tip or the blade of the tongue. The teacher will as well present an Infographic material that shows the description made for the sounds as:



STEP 2: The teacher presents the alveolar sounds as:

- ✓ |ʃ|, and |ʒ| palato-alveolar (also called **fricatives**)

- ✓ |tʃ| and |dʒ|plato-alveolar (also called the **affricates**)

STEP 3: The teacher asks the students to identify the voiced and unvoiced among these sounds. The teacher explains that:

While |ʃ| and |tʃ| are voiceless, |ʒ| and |dʒ| |r| are voiced. The teacher will explain at this point for better clarification of the process and lead the students in practice taking into consideration the voiced and voiceless nature of the two groups.

STEP 4: The teacher explains that, these sounds are spelt differently and asks the students in pronouncing them. For instance:

- ✓ |ʃ|:ssio, cial, ual, cie, tio, su, sh, ssure, etc as in: mission, special, sensual, ancient, condition, sugar, share, pressure, respectively
- ✓ |ʒ|:sio, sure, suaetc as in: vision |'viʒn|, measure |'meʒə|, visual |'viʒuəl| respectively etc
- ✓ |tʃ|:ch, tch, tureetc as in: chest |tʃest|, chair |tʃea| Match |'mætʃ|, ditch |diʃ|, picture |'pɪktʃə| etc
- ✓ |dʒ|: j, g, dgeetc as in: June |dʒu:n|, just |dʒʌst|, gentle |dʒentl|, engine |endʒɪn|, Madge |mædʒ|,knowledge |nɒlɪdʒ|

STUDENTS' ACCTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

1. How do we make the post-alveolar the sounds?
2. How many are they?
3. List the spelling of post-alveolar sounds: |ʃ|, |ʒ|, |tʃ| and |dʒ|.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- i. Post-alveolar are sounds in which the constriction is made immediately behind the alveolar ridge.
- ii. |ʃ| and |ʒ| also called **fricatives** in addition to post-alveolar, |tʃ| and |dʒ| also called the **affricates**.
- iii. These sounds are spelt differently e.g.:|ʃ|:ssio, cial, ual, cieetc, |ʒ|:sio, sure, suaetc|tʃ|:ch, tch, tureetc and |dʒ| j, g, dgeetc

ASSIGNMENT: List five more words for each of the post-alveolar consonant sounds different from those listed during this lesson.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 4, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the Palatal |j|)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the palatal sound of the English language (|j|).
2. Identify how the palatal sound is spelt
3. Identify where the palatal sound is silent in some words.

INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the palatal sound for treatment group one.

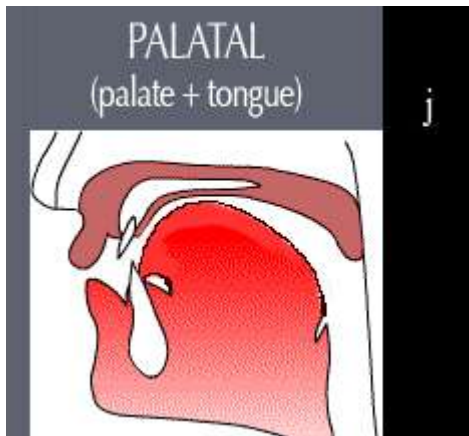
INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

1. What are the post-alveolar consonant sounds?
2. What are the other names for the post-alveolar: |ʃ| and |ʒ|, |tʃ| and |dʒ|?
3. Which of them are voiced and which are voiceless?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, a palatal consonant is a consonant that is pronounced with the body (the middle part) of the tongue against the hard palate (which is the middle part of the roof of the mouth). There is only one palatal consonant in English which is |j|.

STEP 2: The teacher presents an Infographic that shows the description in step 1 above and explain as follows:



STEP 3: The teacher presents the alveolar sound in words as:

- ✓ The teacher as well explains that the sound is usually spelt with letter(s) ‘y’, ‘u’ etc as in: yam [jæm], year [jiə], yacht [jɑt], mutual [mju:ʃuəl], usual [ju:ʒuəl],

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

1. How do we make the palatal sound?
2. What are the spellings for the palatal sound /j/?
3. Does the sound appear to be silent in some words? Give examples.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- ✓ Palatal consonant is made with the body of the tongue against the hard palate (which is the middle part of the roof of the mouth.
- ✓ |j| is only English palatal. It is also voiced.
- ✓ ‘y’, ‘u’ are usually the letters that represent the sound.

**LESSON PLAN ON DESCRIPTION OF CONSONANTS
FOR TREATMENT GROUP ONE**

WEEK 5, LESSON 1

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the velar)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the velar sounds of English language.
2. Identify how the velar sounds are spelt in words.

INSTRUCTIONAL MATERIALS: An infographic portraying the position of the organs of speech for the articulation of the velar sounds for treatment group one.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

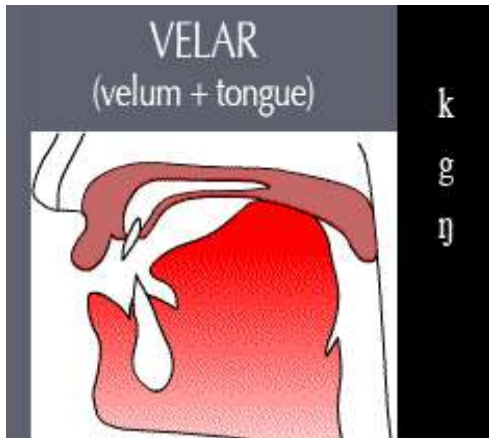
1. What is the palatal consonant sound?
2. How is it spelt?
3. Is it voiced or voiceless?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, in a velar consonant, the body of the tongue touches the soft palate/velum. The teacher also explains this process to the students.

STEP 2: The teacher at this point presents the velar sounds as: |k|, |g|, and |ŋ|. The teacher will also make it clear that |k| |g| are also called ‘stops/ plosives’. They are so called because as soon as they are produced, the airstream cuts/stops instantly. The |ŋ| is also called nasal because the sound comes through the nose not the mouth.

STEP 3: The teacher presents an infographic that shows the description for the velar sound and explain as follows:



STEP 4: The teacher asks the students to say which of these sounds is voiced and voiceless. The teacher explains.

STEP 5: The teacher explains that these sounds are spelt differently. For instance:

- ✓ |k|: ‘k’, ‘ch’, ‘ck’, ‘q’ and ‘c’ as in: skin |skin|, kill |kil|, bank |bæŋk|, archive |ɑ:kaiv|, choir |kwaɪə|, chemistry |kemistri|, architecture |ɑ:kitekʃə|, cock |kok|, cheque |ʃek|, queue |kju:|, queen |kwi:n|, car |kɑ:|, case |keis|, back |bæk|, picture |pɪktʃə| etc.
- ✓ |g|: ‘g’ as in: game, gate, bag, dog, bag, girl, give, go etc
- ✓ |ŋ|: ‘ng’, ‘en’ ‘n’ king |kiŋ|, sing |siŋ|, thing |θiŋ|, lungs |lʌŋz|, tungue |tʌŋ|, England |iŋglənd|, English |iŋgliʃ|, language |læŋɡwidʒ| etc.

STUDENTS’ ACTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked as:

1. How do we make the velar the sounds?
2. How many are they?
3. List the spelling of velar sounds: |k|, |g|, and |ŋ|?

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- i. Velar are sounds in which the body of the tongue touches the soft palate/velum.
- ii. The velar consonants of the English are |k|(voiceless), |g|(voiced), and |ŋ|(voiceless).
- iii. These sounds are spelt differently e.g.:|k|: ‘k’, ‘ch’, ‘ck’, ‘q’ and ‘c’, |g|: ‘g’ and |ŋ|: ‘ng’, ‘en’ ‘n’ as seen in the examples above.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP ONE

WEEK 5, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the glottal /h/)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

1. Describe the glottal sound of English language.
2. Identify how the glottal sound is spelt in words.
3. Identify words in which the sound is silent.

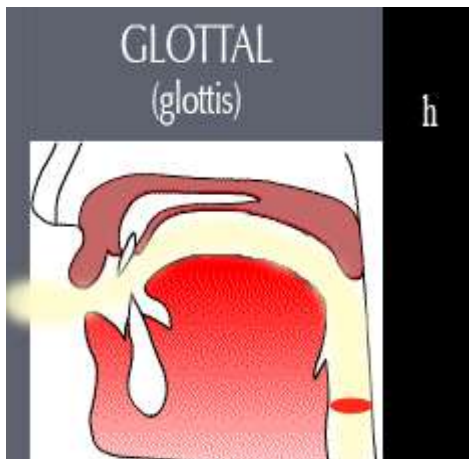
INSTRUCTIONAL MATERIALS: An infographics portraying the position of the organs of speech for the articulation of the glottal sound for treatment group one.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

1. What are the velar consonants discussed during last lesson?
2. What is the other name for |k| and |g|?
3. What is the other name for |ŋ|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, the glottis is the opening between the vocal folds. The sound produced at that point is called glottal. The teacher will also present an infographic that shows the position of the glottis in the human organs of speech. Thus:



STEP 2: The teacher explains that, [h] is the glottal sound. The opening of the glottis for [h] is narrow enough to create some turbulence in the airstream flowing past the vocal folds. It is also called fricative.

STEP 3: The teacher presents some words for the sound such as: hand [hænd], have [hæv], house [haus], hanger [hæŋŋə], happy [hæpi], human [hju:mən], hospital [hospitəl], etc.

STEP 4: The teacher explains that, the sound is spelt with letter ‘h’. He will also explain that the sound is silent in some words such as: hour [aʊə], honest [ʌnist], heir [eə], honour [ʌnə], honourable [ʌnərəbl]

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

1. How do we make the glottal sound?
2. How is it spelt?
3. List five words in which the glottal /h/ is silent.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- i. Glottal sound is that sound produced at the opening between the vocal folds.
- ii. The only glottal sound of English is /h/.
- iii. The sound is usually spelt with letter “h”, but is silent in some words as seen step 4 above.

LESSON PLAN ON ORGANS OF SPEECH FOR TREATMENT GROUP TWO

WEEK 1, LESSON 1

CLASS: Senior Secondary School (SS2)

TOPIC: Organs of Speech

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, students should be able to:

1. Define organs of speech
2. Name seven organs of speech
3. Say how long usually the Pharynx in men and women is?

INSTRUCTIONAL MATERIALS: An instructional video on organs speech for treatment group two.

INTRODUCTION: The lesson will be introduced by asking students questions such as:

1. Can you blow out a candle? Where does the air come from when blowing out a candle?
2. What parts of our body do we use for speaking?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher defines organs of speech as those parts of the body that we use in the articulation of sounds. They are the parts of our body responsible for making meaningful speech sounds. These different parts used for producing sounds are called articulators. The teacher explains (in order to learn how the sounds of speech are produced, it is necessary to become familiar with the different parts of the vocal tract).

STEP 2: The teacher will write on the chalkboard the seven basic human organs of speech, thus: the Pharynx, the velum, the hard palate, the alveolar ridge, the tongue, the teeth and the lips.

STEP 3: The pharynx.

The teacher explains that: The **pharynx** is a like a tube which begins just above the larynx. It is about 7 cm long in women and about 8 cm in men, and at its top end is divided into two, one part being the back of the mouth and the other being the beginning of the way through the nasal cavity. If you look in your mirror with your mouth open, you can see the back of the pharynx.

STEP 4: The velum or soft palate:

Teacher explains that velum or soft palate is the passage that allows air to pass through the nose and through the mouth. Yours is probably in that position now, but often in speech it is raised so that air cannot escape through the nose. The other important thing about the velum is that it is one of the articulators that can be touched by the tongue. When we make the sounds |k| and |g|, the tongue is in contact with the lower side of the velum, and we call these velar consonants.

STEP 4: Instructional video depicting these organs of speech will be played for the students to have a clear view of them making reference to the pharynx and velum/soft palate for emphasis.

STUDENTS' ACCTIVITIES/EVALUATION:

Questions will be entertained from students and some students will be asked like:

1. What are organs of speech?
2. Mention seven basic human organs of speech
3. How long is usually the Pharynx in men and in women?

CONCLUSION: The teacher rounds up the lesson by summarizing what constitute organs of speech and recounts them as: The Pharynx, the velum, the hard palate, the alveolar ridge, the tongue, the teeth and the lips. When we make the sounds |k| and |g|, the tongue is in contact with the lower side of the velum, and we call them velar consonants and explain briefly.

ASSIGNMENT: Describe the hard palate and the alveolar ridge as organs of speech.

LESSON PLAN ON ORGANS OF SPEECH FOR TREATMENT GROUP TWO

WEEK 1, LESSON 2

CLASS: Senior Secondary School (SS2)

TOPIC: Organs of Speech (continued)

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

2. Describe the alveolar ridge, the tongue, the teeth and the lips.

INSTRUCTIONAL MATERIALS: Instructional video portraying organs speech for treatment group two.

INTRODUCTION: The lesson will be introduced by asking the students questions based on the last lesson. Thus:

1. What are organs of speech?
2. Mention seven basic human organs of speech discussed in the last lesson
3. How long is usually the Pharynx in men and in women?

PRESENTATION: The lesson will be presented through the following steps:

STEP 1: The teacher writes on the chalkboard: the hard palate, alveolar ridge, the tongue, the teeth and the lips.

STEP 2: The teacher describes the **hard palate** as that part of the mouth often called the "roof of the mouth". One can feel its smooth curved surface with his/her tongue. The teacher will explain.

STEP 3: The teacher also describes the **alveolar ridge** as a surface between the top front teeth and the hard palate. One can feel its shape with his/her tongue. You can only see it if you have a mirror small enough to go inside your mouth (such as that used by dentists). Sounds made with the tongue touching here (such as |t| and |d|) are called alveolar.

STEP 4: The teacher describes the **tongue** as a very important articulator and it can be moved into many different places and different shapes in the mouth. It is divided into different parts, though there are no clear dividing lines within the tongue. Thus: tip, blade, front and back.

STEP 5: The teacher explains the **teeth** (upper and lower) as only at the front of the mouth, immediately behind the lips. The tongue is in contact with the upper side teeth for some speech sounds. Sounds made with the tongue touching the front teeth are called dental e.g.: |f| and |v|.

STEP 6: The teacher explains the **lips** as very important organs of speech. They can be pressed together when we produce the sounds |p| and |b|, brought into contact with the teeth as in |f| and |v|, or rounded to produce the lip-shape for vowels like |u:|. Sounds in which the lips are in contact with each other are called bilabials, while those with lip-to-teeth contact are called labiodentals.

STUDENTS' ACTIVITIES/EVALUATION: Questions will be entertained from the students and some students will be asked:

4. How does the alveolar ridge look like?
5. What can you say about the tongue?
6. Describe the teeth and the lips.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson such as:

- v. The hard palate as that part of the mouth often called the "roof of the mouth"
- vi. The alveolar ridge as a surface between the top front teeth and the hard palate. You can feel its shape with your tongue.
- vii. Teeth (upper and lower) as only at the front of the mouth, immediately behind the lips.
- viii. The lips as very important speech organs which can be pressed together when one produces the sounds |p| and |b|, is brought into contact with the teeth as in |f| and |v|, etc.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP TWO

WEEK 2, LESSON 1

CLASS: Senior Secondary School (SS2)

TOPIC: Description of Consonants (base on place of articulation: i.e bilabials)

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, students should be able to:

5. Define consonant sound.
6. List the places of articulation of English consonants (Bilabial, labio-dental, dental, alveolar, post-alveolar, palatal, velar and glottis).
7. Describe the bilabials and their place of articulation.
8. Identify the bilabials in words.

INSTRUCTIONAL MATERIALS: Instructional video portraying the organs speech and their positions for the articulation of the bilabial sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson asking the students questions based on the last lesson. Thus:

1. What are organs of speech?
2. Name seven basic organs of speech.

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher defines consonant sounds as sounds that involve making the vocal tract narrower at some location than it usually is. This narrowing is called **constriction**. The consonant you are pronouncing depends on where in the vocal tract the constriction is and how narrow it is. The teacher then explain (it depends on a few other things, such as whether the vocal folds are vibrating and whether air is flowing through the nose or the mouth).

STEP 2: The teacher describes **place of articulation** as the dimension that specifies **where** (an area) in the vocal tract the constriction is when producing a particular consonant sound. The place of articulation (POA) of a consonant specifies where in the vocal tract the narrowing occurs, from front to back.

STEP 3: The teacher lists the places of articulation of the English consonants as: Bilabial, labiodental, dental, alveolar, post-alveolar, palatal, velar and glottal.

STEP 4: The teacher explains to the students that in the bilabial consonants, the **lower and upper lips** approach or touch each other. English |p|, |b|, and |m| are bilabial stop.

STEP 5: Instructional video for the articulation of the bilabials will at this juncture played for emphasis.

STEP 6: The teacher explains to the students that; while the bilabial |p| is voiceless/unvoiced, the bilabial |b|, |m| and |w| are voiced and are spelt with letters ‘p’, ‘b’, ‘m’ and ‘w’ respectively. This means that there is vibration in the production of |b|, |m| and |w|, while there is no vibration of the vocal tracts in the production of |p| sound. The teacher will further present examples of words in which the bilabials appear and explain. Thus:

p	b	m	w
	peer	beer	confirm wire
pill	bill	simple	work
pit	bit	exam	once
pet	bet	map	twice
pack	back	man	one

STEP 6: The students will be made to realize that /p/ /b/ and /w/are silent in some words such as: /b/ eg: plumber /plʌmə/ bomb, climb, debt, doubt etc.

/p/ eg: corps /kɔ:/, coup, cupboard, psychology, psychiatrist, pneumonia etc.

/w/ eg: answer, whole, wrist, wrinkle, wrap etc.

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from Students and some students will be asked:

4. What is a consonant sound?
5. What are the places of articulation of English consonants? Mention them.
6. What are the bilabial consonant sounds?

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson such as:

- v. Consonant sounds are sounds that involve making the vocal tract narrower at some location/point than it usually is.
- vi. Place of articulation (POA) of a consonant specifies where in the vocal tract the narrowing occurs, from front to back.
- vii. Places of articulation of the English consonants are: bilabial, labiodental, dental, alveolar, post-alveolar, retroflex, palatal, velar and glottal.
- viii. The bilabial is |p| unvoiced/voiceless but |b|, |m| and |w| are voiced and some examples already given in step 5 above.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP TWO

WEEK 2, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the labiodentals)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe the labiodentals.
5. List the labiodentals.
6. Identify the labiodentals in words.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the labio-dental sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

4. What is a consonant sound?
5. Mention the places of articulation of English consonants.
6. What are the bilabial consonant sounds?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher describes the labiodentals as those consonant sounds that in their production, the **lower lip** approaches or touches the **upper teeth**. The teacher will present them. Thus: |f| and |v|.

STEP 2: The teacher plays instructional video for the labiodentals and explains for emphasis.

STEP 3: Students will be asked to say whether there is voiced sound among the labiodentals and which?

STEP 4: The teacher explains that |v| sound is spelt with letter 'v', but |f| is spelt with letter 'f' and is also represented by letters 'ph' and 'gh' as in: phone, physics, pharmacy, and paragraph, and tough, roughage, enough, rough respectively. Students will be asked to repeat each of these words after the teacher.

STEP 5: The teacher presents examples of words in which the sounds appear in minimal pairs and instruct the students to repeat after him such as:

f v	
feel	veal
ferry	very
fan	van
fast	vast
few	view
fine	vine
focal	vocal

STEP 6: The teacher explains to that these consonant sounds (|f| and |v|) are also called fricatives, fricatives because they involve air flowing through a constriction in the oral cavity and produce buzzing/hissing sound. The teacher explains.

STUDENTS' ACCTIVITIES/EVALUATION:

Questions will be entertained from the students and some students will be asked to:

5. Describe the labiodentals discussed during this lesson.
6. List the labiodentals treated during presentation of the lesson.
7. Mention more words in which the labiodentals appear.
8. Say the other name for the two labiodentals discussed (fricatives).

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented in the lesson as:

- iv. Labiodentals are sounds that involve making the **lower lip** approach or touches the **upper teeth** in their production (|f| and |v|).
- v. While |f| is unvoiced, |v| is voiced and they are also called fricative sounds.
- vi. |f| is spelt with letter 'f', also represented by letters 'ph' and 'gh' as in: phone, physics, paragraph, tough, enough etc.

ASSIGNMENT: List five more words for each of |f| and |v| consonant sounds different from those listed during this lesson.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP TWO

WEEK 3, LESSON 1

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the dentals)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe the dental sounds of the English language.
5. List the dental sounds of the English language.
6. Identify words in which the dental sounds appear.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the dental sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

4. What are the labiodentals consonant sounds?
5. Apart from letter 'f', what other letters represent |f| sound?
6. What is the other name for the labiodentals |f| and |v|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher describes the dental sounds as consonants in the production of which the tip or blade of the tongue approaches or touches the upper teeth. English dentals |θ| and |ð| are also called fricatives.

STEP 2: The teacher explains the production process of the sounds as: The blade of the tongue touches the bottom of the upper teeth, with the tongue tip protruding/sticking out between the teeth, still leaving enough space for airstream to escape. These sounds are also called **inter-dentals**.

STEP 3: The teacher plays instructional video that shows the description of how the sounds are produced and explains for emphasis. Students will as well be instructed to repeat the sounds as they are produced.

STEP 4: The teacher explains that both sounds are spelt with letters ‘th’. But, one should closely study the words in which the sounds appear. Teacher then present words that contain these sounds as:

θ ð	
thank θæk	than ðæn
thin θin	this ðis
thought θo:t	though ðou
thumb θəm	thus ðəs
north no:θ	northern 'no:ðərn
south sauθ	southern 'səðərn
nothing 'nəθɪŋ	other 'əðər
anything 'eniθɪŋ	another ə'nəðər

STEP 5: The teacher presents the sounds in phrases for more clarification. Students repeat after the teacher Thus: |θ| – |ð|: both mothers; three brothers; thank your father; north of this city; throw out this junk; |ð| – |θ|: this thing; that theory; this path; other authors; gather strength; neither health nor wealth.

STUDENTS’ ACTIVITIES/EVALUATION: Questions will be entertained from students and some students will be asked to:

5. Describe the dental consonants.
6. List the dental consonant sounds.
7. Mention some words in which the dental sounds appear.
8. Identify the other name for the two dental sounds.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- iii. Dentals are sounds in which the tip or blade of the tongue approaches or touches the upper teeth (tip of the tongue + upper teeth).
- iv. Both sounds are spelt with ‘th’. While |θ| is unvoiced, |ð|is voiced and they are also called fricatives or interdental.

**LESSON PLAN ON DESCRIPTION OF CONSONANTS
FOR TREATMENT GROUP TWO**

WEEK 3, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the Alveolar)
PERIOD: 1 period of 40minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe alveolar the sounds of the English language.
5. List the alveolar sounds of the English language.
6. Identify words in which the alveolar sounds appear.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the alveolar sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

4. What are the dental consonant sounds?
5. What letters represent |θ| and |ð| sounds?
6. What are the other names for the dentals |θ| and |ð| (inter-dentals/fricatives)?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that in alveolar consonants, the tip of the tongue approaches or touches the alveolar ridge, the ridge immediately behind the upper teeth.

STEP 2: The teacher will at this point demonstrate for the students to repeat after him. Instructional video that shows this description will be played and explained for emphasis as well.

STEP 3: The teacher explains that:

- ✓ The English stops |t|, |d|, and |n| are formed by completely blocking the airflow at this place of articulation (the alveolar ridge) and that they are usually spelt with letters 't', 'd' and 'n' respectively. The /n/ is also known as nasal because the sound passes through the nose.

- ✓ The fricatives |s| and |z| are also at this place of articulation and are spelt with letters ‘s’ or ‘c’ e.g. sing, son, voice, vice etc and ‘z’ or ‘s’ added at the end of words that end with a voiced consonant sound respectively. E.g.: boys |bɔiz|, girls |gɜ:lz|, words |wɜ:dz| etc
- ✓ As the lateral approximant |l| and |r| spelt with letter ‘l’ and ‘r’. But are silent in some words such as: could, walk, chalk, talk, should, calm, and perlform, inlform, exlport, dolctor, calton, calre, nealetc respectively.

STEP 4: The teacher presents the sounds in words such as:

t	d	n	s	z	l	r
team	deem	seen	seal	zeal	lead	right
tip	dip	kin	sink	zinc	leap	from
tan	Dan	pan	essay	easy	lane	grow
ten	den	Ben	listen	busy	royal	road
ton	done	clan	dress	design	letter	draw

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students and some students will be asked to:

5. How do we make the alveolar the sounds of the English language?
6. How many are they?
7. List the alveolar sounds of the English language.
8. Mention two words in which the alveolar sounds appear.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- iv. Alveolar are sounds in which the tip of the tongue approaches or touches the alveolar ridge, the ridge immediately behind the upper teeth.
- v. Some of them are stops, some fricatives and others lateral/approximants.
- vi. Some are silent in some words in which they appear as discussed above.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP TWO

WEEK 4, LESSON 1

CLASS: Senior Secondary School (SS2)

TOPIC: Description of Consonants (the Plato-alveolar)

PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe the Plato-alveolar sounds of the English language.
5. List the Plato-alveolar sounds of the English language.
6. Identify how each of the plato-alveolar sounds is spelt.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the palato-alveolar sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on the last lesson. Thus:

3. What are the alveolar consonant sounds?
4. What are the other names for the alveolar: |t|, |d|, and |n|, |s| and |z|, and |l|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that in the plato-alveolar, the constriction is made immediately behind the alveolar ridge. The constriction can be made with either the tip or the blade of the tongue.

STEP 2: The teacher presents the alveolar sounds and instruct the students to repeat after him as:

- ✓ |ʃ|, and |ʒ| plato-alveolar (also called fricatives)
- ✓ |tʃ| and |dʒ| plato-alveolar (also called the affricates)

STEP 3: The teacher plays instructional video describing the position of the organs of speech for the plato-alveolar sounds for emphasis.

STEP 4: The teacher asks the students to identify the voiced and unvoiced among these sounds. The teacher explains that:

While [ʃ] and [tʃ] are voiceless, [ʒ] and [dʒ] [r] are voiced. The teacher will explain at this point for better clarification of the process and lead the students in practice taking into consideration the voiced and voiceless nature of the two groups.

STEP 5: The teacher explains that, these sounds are spelt differently and asks the students in pronouncing them. For instance:

- ✓ [ʃ]: ssio, cial, ual, cie, tio, su, sh, ssure, etc as in: mission, special, sensual, ancient, condition, sugar, share, pressure, respectively
- ✓ [ʒ]: sio, sure, suaetc as in: vision [ˈviʒn], measure [ˈmeʒə], visual [ˈviʒuəl] respectively etc
- ✓ [tʃ]: ch, tch, tureetc as in: chest [tʃest], chair [tʃea] | Match [ˈmætʃ], ditch [diʃ], picture [ˈpɪktʃə] etc
- ✓ [dʒ]: j, g, dgeetc as in: June [dʒu:n], just [dʒʌst], gentle [dʒentl], engine [endʒin], Madge [mædʒ], knowledge [nɒlɪdʒ].

STUDENTS’ ACCTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

4. How do we make the post-alveolar the sounds?
5. How many are they?
6. List the spelling of post-alveolar sounds: [ʃ], [ʒ], [tʃ] and [dʒ].

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- iv. Post-alveolar are sounds in which the constriction is made immediately behind the alveolar ridge.
- v. [ʃ] and [ʒ] also called fricatives in addition to post-alveolar, [tʃ] and [dʒ] also called the affricates.
- vi. These sounds are spelt differently e.g.: [ʃ]: ssio, cial, ual, cieetc, [ʒ]: sio, sure, suaetc|[tʃ]: ch, tch, tureetc and [dʒ] j, g, dgeetc

ASSIGNMENT: List five more words for each of the post-alveolar consonant sounds different from those listed during this lesson.

LESSON PLAN ON DESCRIPTION OF CONSONANTS FOR TREATMENT GROUP TWO

WEEK 4, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the Palatal |j|)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe the palatal sound of the English language (|j|).
5. Identify how the palatal sound is spelt
6. Identify where the palatal sound is silent in some words.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the palatal sound for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

4. What are the post-alveolar consonant sounds?
5. What are the other names for the post-alveolar: |ʒ| and |ʒ|, |tʃ| and |dʒ|?
6. Which of them are voiced and which are voiceless?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, a palatal consonant is a consonant that is pronounced with the body (the middle part) of the tongue against the hard palate (which is the middle part of the roof of the mouth). There is only one palatal consonant in English which is |j|.

STEP 2: The teacher plays Instructional video that shows the description in step 1 above and explain.

STEP 3: The teacher presents the alveolar sound in words as:

- ✓ The teacher as well explains that the sound is usually spelt with letter(s) 'y', 'u' etc as in: yam |jæm|, year |jiə|, yacht |jɑt|, mutual |mju:ʃuəl|, usual |ju:ʒuəl|,

STUDENTS' ACTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

4. How do we make the palatal sound?
5. What are the spellings for the palatal sound /j/?
6. Does the sound appear to be silent in some words? Give examples.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- ✓ Palatal consonant is made with the body of the tongue against the hard palate (which is the middle part of the roof of the mouth.
- ✓ |j| is only English palatal. It is also voiced.
- ✓ 'y', 'u' are usually the letters that represent the sound.

**LESSON PLAN ON DESCRIPTION OF CONSONANTS
FOR TREATMENT GROUP TWO**

WEEK 5, LESSON 1

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the velar)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

3. Describe the velar sounds of English language.
4. Identify how the velar sounds are spelt in words.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the velar sounds for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

4. What is the palatal consonant sound?
5. How is it spelt?
6. Is it voiced or voiceless?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, in a velar consonant, the body of the tongue touches the soft palate/velum. The teacher also explains this process to the students.

STEP 2: The teacher at this point presents the velar sounds as: |**k**|, |**g**|, and |**ŋ**|. The teacher also makes it clear that |**k**| |**g**| are also called ‘stops/ plosives’. They are so called because as soon as they are produced, the airstream cuts/stops instantly. The |**ŋ**| is also called ‘nasal’ because the sound comes through the nose not the mouth.

STEP 3: The teacher plays instructional video that shows the description for the articulation of the velar sound and explains.

STEP 4: The teacher makes it clear that, while |**g**| and |**ŋ**| are voiced, |**k**| is voiceless/unvoiced. The teacher will explain the voiced and voiceless nature of each.

STEP 5: The teacher asks the students to say which of these sounds is voiced and voiceless. The teacher explains.

STEP 5: The teacher explains that these sounds are spelt differently. For instance:

- ✓ **|k|:** ‘k’, ‘ch’, ‘ck’, ‘q’ and ‘c’ as in: skin |skin|, kill |kil|, bank |bæŋk|, archive |ɑ:kəiv|, choir |kwaɪə|, chemistry |kemɪstri|, architecture |ɑ:kɪtektʃə|, cock |kok|, cheque |ʃek|, queue |kju:|, queen |kwi:n|, car |kɑ:|, case |keɪs|, back |bæk|, picture |pɪktʃə| etc.
- ✓ **|g|:** ‘g’ as in: game, gate, bag, dog, bag, girl, give, go etc
- ✓ **|ŋ|:** ‘ng’, ‘en’ ‘n’ king |kɪŋ|, sing |sɪŋ|, thing |θɪŋ|, lungs |lʌŋz|, tongue |tʌŋ|, England |ɪŋɡlənd|, English |ɪŋɡlɪʃ|, language |læŋɡwɪdʒ| etc.

STUDENTS’ ACTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked as:

4. How do we make the velar the sounds?
5. How many are they?
6. List the spelling of velar sounds: |k|, |g|, and |ŋ|?

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- iv. Velar are sounds in which the body of the tongue touches the soft palate/velum.
- v. The velar consonants of the English are |k| (voiceless), |g| (voiced), and |ŋ| (voiceless).
- vi. These sounds are spelt differently e.g.: |k|: ‘k’, ‘ch’, ‘ck’, ‘q’ and ‘c’, |g|: ‘g’ and |ŋ|: ‘ng’, ‘en’ ‘n’ as seen in the examples above.

**LESSON PLAN ON DESCRIPTION OF CONSONANTS
FOR TREATMENT GROUP TWO**

WEEK 5, LESSON 2

CLASS: Senior Secondary School (SS2)
TOPIC: Description of Consonants (the glottal /h/)
PERIOD: 1 period of 40 minutes

OBJECTIVES: At the end of the lesson, the students should be able to:

4. Describe the glottal sound of English language.
5. Identify how the glottal sound is spelt in words.
6. Identify words in which the sound is silent.

INSTRUCTIONAL MATERIALS: Instructional video portraying the position of the organs of speech for the articulation of the glottal sound for treatment group two.

INTRODUCTION: The teacher introduces the lesson by asking the students questions based on last lesson. Thus:

4. What are the velar consonants discussed during last lesson?
5. What is the other name for |k| and |g|?
6. What is the other name for |ŋ|?

PRESENTATION: Teacher presents the lesson through the following steps:

STEP 1: The teacher explains that, the glottis is the opening between the vocal folds. The sound produced at that point is called glottal. The teacher also leads the students in the production of the sound.

STEP 2: The teacher plays instructional video that shows the position of the glottis in the human organs of speech. The teacher explains.

STEP 3: The teacher presents some words for the sound such as: hand [hænd], have [hæv], house [haus], hanger [hæŋgə], happy [hæpi], human [hju:mən], hospital [hɒspitəl], etc.

STEP 4: The teacher explains that, the sound is spelt with letter 'h'. The teacher also explains that the sound is silent in some words such as: hour [aʊə], honest [ɒnɪst], heir [eə], honour [ɒnə], honourable [ɒnərəbəl]

STUDENTS' ACCTIVITIES/EVALUATION: Questions will be entertained from students. Some students will be asked such as:

4. How do we make the glottal sound?
5. How is it spelt?
6. List five words in which the glottal /h/ is silent.

CONCLUSION: Teacher rounds up the lesson by summarizing the content presented during the lesson as:

- iv. Glottal sound is that sound produced at the opening between the vocal folds.
- v. The only glottal sound of English is /h/.
- vi. The sound is usually spelt with letter “h”, but is silent in some words as seen step 4 above.