Lexical Inferencing in ESL: A Study of Selected Intermediate Level Students of Odisha

A Thesis Submitted to the University of Hyderabad in Partial Fulfillment of the Requirements for the Award of the Degree of Doctor of Philosophy in Applied Linguistics

by

SASMITA KANUNGO

(Reg. No. 12HAPH03)

Supervisor

PROF. PANCHANAN MOHANTY

Centre for Applied Linguistics and Translation Studies

School of Humanities

University of Hyderabad

Hyderabad – 500046, India

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Centre for Applied Linguistics and Translation Studies
School of Humanities, University of Hyderabad
Hyderabad – 500046, India

DECLARATION

I, Ms. Sasmita Kanungo, hereby declare that I have carried out the research embodied in the present thesis entitled **"Lexical Inferencing in ESL: A Study of Selected Intermediate Level Students of Odisha"** for the full period prescribed under Ph.D. ordinances of University of Hyderabad. I also declare to the best of my knowledge that no part of this thesis was earlier submitted for the award of any research degree to any other university or institution.

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(Sasmita Kanungo)
(Reg. No. 12HAPH03)

Centre for Applied Linguistics and Translation Studies
School of Humanities, University of Hyderabad
Hyderabad – 500046, India

CERTIFICATE

This is to certify that the thesis entitled "Lexical Inferencing in ESL: A Study of Selected Intermediate Level Students of Odisha" submitted by Sasmita Kanungo, with Regd. No. 12HAPH03, in partial fulfillment of the requirements for the award of the degree of Doctor of Philosophy in Applied Linguistics, School of Humanities, is a bona fide work carried out by her under my supervision and guidance.

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Yours

Sasmita

List of Content

Chapter I

Introduction

1.0. Introduction

This chapter forms a background of the present thesis. Beginning with an introduction to the term 'lexical inferencing', it looks into the role of lexical inferencing in the L2 reading context. Apart from that, it also sheds light on the issues addressed in the present thesis, objectives of the study, significance, and delimitations of the study at hand, and finally, the organisation.

1.1. Lexical Inferencing: An Introduction

This section deals with lexical inferencing by emphasising its importance in the L2 reading context. Along with that, how the L2 vocabulary knowledge plays an important role in the process of reading comprehension has also been discussed in it.

Reading comprehension enables a reader to read, process and understand a text. Individual expertise and skills of a learner to a significant extent facilitates their process of comprehension. Among these skills, the *ability to make inferences* has a distinct and important role to play. Souvignier & Moklesgerami (2006) defines reading comprehension as the readers' ability to read and remember, reproduce, learn from and find deeper meaning in text for later use (in Chegeni & Tabatabaei 2014: 306). The process of reading demands the comprehension of both the direct intended meaning and the implied meaning of the text. Karbalaei (2010) states that the skill of reading not only helps to recognise words but also helps to derive the sense of the texts (in Chegeni & Tabatabaei 2014: 306). Reading for comprehension demands from the reader group to employ an inductive knowledge to explore the text and create new ideas. As per Gunterman (2003), the more knowledge a person brings to his/her reading the more he/she will understand the text (in Chegeni & Tabatabaei 2014:

306). As reading comprehension is the amalgamation of several skills, it explains the outcomes of taking out the meaning from a written text by using one's intellect. Block & Pressley (2002) declares, reading comprehension as the combination of the ability to decipher the texts, readers' prior knowledge of the text, his/her vocabulary knowledge, and strategies to read and comprehend the text. They also mentioned that comprehension involves more than 30 cognitive and metacognitive processes including clarifying meaning, summarizing, drawing inferences, predicting and so on (in Chegeni & Tabatabaei 2014: 307).

Numerous studies have emphasised how the knowledge of vocabulary determines the successful reading comprehension. Nation (2001) mentioned that a number of studies have shown the existence of a high correlation between the amount of known vocabulary and the reading comprehension. Stahl (2003) states that as per the readability formulae, the difficulty of the text is determined by the difficulty of the words in it. Therefore, the learners' vocabulary knowledge strongly predicts his/her ability in reading comprehension (in Chegeni & Tabatabaei 2014: 307). According to Sidek & Rahim (2015), "the knowledge of word meanings and the ability to access the knowledge efficiently are recognised as essential factors in reading comprehension" (P.51). They also state that when a reader doesn't know many words in a text, such a condition would hinder the effectiveness and efficiency in text processing which leads to difficulties in the comprehension of the text (ibid.). Most of the studies like Read (2000), Nation (2001) and Qian (2002) on vocabulary in both L1 and L2 indicates, the knowledge of vocabulary is one of the best predictors of learners' reading ability and capability to extract new details from the texts (Read 2000; Nation 2001; Qian 2002).

In case of language learning and use, comprehension and vocabulary development are issues of primary importance (Wesche & Paribakht 2010: 3). For L2 readers, reading process is an intimidating challenge. For this reason, Koda (2005) describes them as individuals who

are cognitively sensible and already efficient in their respective first languages learning to read in a second language (in Matsumura 2010: 15). When we talk about language learning or especially second language acquisition, an inevitable component that strikes our mind is Reading. The ability to read in English facilitates helps the L2 learners' academic achievement. The importance of reading an English text is thus, a way above the opportunities to listen and speak the language. Encountering difficult words occasionally while reading a text is natural. Inadequate knowledge of vocabulary becomes one of the primary impediments to their reading comprehension. While confronting difficult words in a text, learners can avail several options like finding the meaning in dictionaries, take help of the internet, ignore the word and continue reading, seeking others' help or inferring the meaning from available sources when they encounter difficult words in a text. As discussed in Kuen (2004), the word *inferencing* is derived from the verb *to infer*, which means to conclude by reasoning from something known or assumed. From this point of view, the term *lexical inferencing* is defined as the informed guess of the meaning of difficult words by using the linguistic as well as extra-linguistic knowledge of the learners. According to Hasstrup (1991) "The process of lexical inferencing involves making informed guesses as to the meaning of a word in the light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of the co-text and her relevant linguistic knowledge." (p.13)

Hasstrup's definition of lexical inferencing simplifies its meaning as *informed guessing*. The word *guessing* may refer to wild guessing, where the learners do not make appropriate use of the relevant information. This situation can arise in two contexts: when the relevant information is not available for the learners or the learners do not know how to trace out and make proper use of the information. Thus, in the context of lexical inferencing it is important for the learners to identify the difference between a *wild guess* and *informed*

guess. Brown & Yule (1983) defines lexical inferencing as a sub-type of the more general inferencing processes that operates at all levels of text comprehension, involving the connections people make when attempting to reach an interpretation of what they read or hear (Cited in Wesche & Paribakht 2010:4).

Gao (2012) explains that in case of language learning, *to infer* means to identify unfamiliar stimuli, corresponding to the acquisition of new morphemes and vocables in 'natural' context. In the process of inferring, attributes and contexts that are familiar are utilized in recognising what is unfamiliar (P.59). Making an inference in case of a language learner is always concerned with the utilisation of different cues. Zhaochun (2011) identifies several studies which demonstrates lexical inferencing is the primary lexical processing strategy L2 learners rely on when encountering unknown words while reading (Fraser 1999; Hasstrup 1991; Paribakht& Wesche 1999; Scarcella & Oxford 1994). For the L2 readers, lexical inferencing ability can be considered as an important tool because they frequently face unfamiliar words while reading an L2 text.

Several aspects of lexical inferencing process in L2 have been focused by different researchers in their works. Bensoussan & Laufer (1984) states that less frequently the readers attempt to guess the meaning of unfamiliar words, especially if the word doesn't seem to have that much importance in the text comprehension. This shows that the readers' or the learners' interest and involvement level in the text act as one of the greatest motivations for them to infer the meaning of the difficult words. On the other hand, researchers like (Hasstrup 1991; Paribakht & Wesche 1999) talked about the variability in case of the learners' ability to generate a successful guess. Also the importance of the use of cues or knowledge sources in the process of lexical inferencing became gradually apparent (Sternberg 1987; Haastrup 1991, Wesche & Paribakht 2010). Lexical inferencing, as a process is the synthesis of several important components mentioned below:

- **Different strategies** employed by the learners to infer the meaning of difficult words in an L2 text: There are studies which in detail discuss the different strategies adopted by the second language learners in their inferencing process (Bensoussan & Laufer 1984; Frantzen 2003; Parell 2004; Nassaji 2003 & 2006; Hu & Nassaji 2014; Wang 2011). Nassaji (2006) states that vocabulary knowledge has a positive correlation with the number of lexical inferencing strategies the learners use. Empirical research has established that learners with advanced verbal fluency are better guessers of meanings of unknown words (Sternberg 1987 as reported in Macaro 2003. Cited in Ong Wee 2014: 46). It has been observed that the highly proficient L2 learners frequently use strategies like verifying, self-inquiry and section repeating than the weaker learners (Ong Wee 2014: 47). Thus, language proficiency is another important aspect related to L2 lexical inferencing process.
- **Use of different knowledge sources** (linguistic and extra-linguistic) by the L2 learners in order to infer the meaning of difficult words: Learners' use of different knowledge sources tells us how adequately they make use of the textual, extra-textual, linguistic and extra-linguistic information available to them in the text in to find out the meaning of the difficult words. There are studies which are primarily focused on the learners' use of knowledge sources in their process of inferencing (Paribakht & Wesche 1999; Wesche & Paribakht 2010; Nassaji 2003).
- The rate of **inferencing success** which specifies how far the learners have achieved success in inferring the meaning of unfamiliar words inside the text. Studies which focused primarily on the inferencing success aspect are (Bensoussan & Laufer 1984; Hasstrup 1991; Bengeleil & Paribakht 2004; Wesche & Paribakht 2010; Hu & Nassaji 2014). Learners' inferencing success is related to several factors: nature of the target words and the texts containing those words, the degrees of textual

information available in the surrounding context, the importance of word comprehension in the text, learners' ability to make use of extra-textual cues, the degree of cognitive and mental effort involved in the tasks etc. These factors are marked by different researchers in their studies at different times (Cited in Nassaji 2006: 388).

- Then **retention of the newly acquired vocabulary knowledge** which indicates how much knowledge the learners have retained after inferring the meaning of difficult words. Wesche & Paribakht (2010) proposed the Vocabulary Knowledge Scale Test (VKS) in order to follow the step-by-step progress of the learners in acquiring and retaining the vocabulary knowledge. Learners' vocabulary retention on the other hand illustrates whether their inferencing process resulted in acquisition of new vocabulary knowledge or not.

Apart from these aspects, studies have also concentrated on the relationship between the learners' language proficiency level and their process of inferencing, the impact of L1 over L2 lexical inferencing and last but not the least the processing-type and adaptability of lexical inferencing. The process of lexical inferencing is briefly introduced here.

1.2. Statement of Problem

Several studies to date have emphasised on the role of vocabulary in reading comprehension especially, in an L2 context. The inevitable role of vocabulary in the process of reading comprehension is understandable now. Keeping that in mind, it can be said that it is quite natural to assume that the L2 learners of English can have a genuine urge to read books and articles in English. But what happens to them when they have inadequate vocabulary knowledge? This laxity turns serious when it hinders their comprehension process and they do not find the perfect person to ask for. In such a situation, the lexical inferencing process

can help them. In this process, the learners try to guess the meaning of the difficult words by applying their sources of knowledge actively and creatively. Correct inferences will enhance the learners' comprehension of the text but at the same time, wrong inferences may lead to misinterpretation of the text. Learners need to get proper guidance on how to infer the meaning of a difficult word efficiently.

In their L1, learners try to get the meaning of difficult words mostly by looking at the context, consciously or unconsciously. But in case of L2 readers who have deficient vocabulary knowledge than L1 readers, are more likely to encounter difficult words in their reading of a text. There are several factors which affect the lexical inferencing process of the L2 learners; starting from their level of vocabulary knowledge to their use of different knowledge sources. It is important and necessary to track the inferencing process of the L2 learners in the light of these factors. In a state like Odisha, where English is academically taught as an L2, students face many difficult words while reading text books of English. In that case, consulting a dictionary or taking note of that word for further assistance or asking a teacher for help is becoming rare. This situation, at the surface level, appears to be simple but innately it hinders the students' comprehension process. If he/she cannot understand a word in a particular sentence then how will he /she proceed further in his/her reading process? In order to overcome this type of situation, students need to infer the meaning of those difficult words by themselves rather than ignoring them. The process of lexical inferencing is gaining a worldwide popularity in the academics (especially in the L2 teaching & learning context). Even in Odisha, the English textbooks of 10^{th} class students now involve lexical inferencing as a vocabulary exercise. But how far it is being practiced by the students is still a question mark.

The present study will look through the process of lexical inferencing by ESL learners in Odisha in the light of above situation. It will throw light on whether they are making an

attempt to infer the meaning of difficult words or not, how are they trying to infer the meaning of those difficult words while reading the text? Apart from that, it will also cast light on their success and failure in inferencing. Lastly, it will also find out how much meanings have they retained after the inferencing process. The study will take into account the intermediate students of Odisha who are learning English as their L2. Intermediate students were decided to be the subjects of the study because the intermediate is considered to be a transition phase from school level to college level. A transition comes in several aspects like: in students' interest and involvement level, mode of teaching in class etc. The present study will try to address the inferencing behaviour of some selected intermediate Odia ESL learners from some selected educational institutions. Thus, the primary aim behind conducting this study is to investigate in detail lexical inferencing behaviour of the ESL learners in Odisha with special reference to the intermediate students.

1.3. Educational Setting in Odisha

Odisha, the state posited in the eastern-coast stands as the ninth largest state in area and eleventh largest in population. In terms of tribal population, it stands as the third most populous state in India. Odia, is the official language of the state and is spoken by more than 84% of the population in the state. It is the official language of the state. Academically English is taught as a second language in the state. Gradually, the use of English has become dominant in most of the formal settings both inside and outside the educational sphere and it enjoys a high status. Therefore, people of Odisha are motivated to learn the language and parents are keen that their children get proper instructions in English.

The informants participated in this study are the intermediate Odia ESL learners from three different colleges of Odisha. Therefore, a short description of the higher secondary education system in Odisha is given here. In Odisha, like everywhere else in India, children

are enrolled in schools at the age of five. During their schooling period, students are exposed to several core subjects which also involve three languages; Odia, English, and Hindi (Sanskrit is also included but in few schools). After ten years of schooling, children at the end of class 10th appear one of the three examinations conducted by three different boards of examination: The All India Secondary School Examination (AISSE) conducted by the Central Board of Secondary Education (CBSE), Odisha High School Certificate Examination (HSCE) conducted by the Board of Secondary Education, Odisha (BSE) and Indian Certificate of Secondary Education (ICSE) conducted by the Council for the Indian School Certificate Examinations (CISCE). (Taken from https://en.wikipedia.org/wiki).

This is followed by two years of higher secondary education which includes eleventh and twelfth comprising students in between sixteen to eighteen years age group. Students have to select their preferred stream and subjects at this level. They can either pursue Arts, Commerce, or Science. At this stage, the CBSE conducts the Senior School Certificate Examination; CISCE conducts Indian School Certificate Examination for class XII and the Council of Higher Secondary Education (CHSE), Odisha, conducts the secondary level examination for the Junior colleges or Degree colleges of the state that offer higher secondary education. (Taken from https://en.wikipedia.org/wiki)

1.4 . Objectives of the Study

The primary objectives of the present study are:

- To observe in detail the lexical inferencing behaviour of the selected intermediate Odia ESL learners through their process of uninterrupted reading.
- To check whether or not the learners are attempting to find out the meaning of difficult words while reading a text in English.

- To ascertain the different types of strategies the learners apply to handle the difficulty when they encounter unknown words in a text.
- To observe and analyse the type of sources the learners are using while trying to find out the meaning of difficult words. Also, to calculate how frequently they use these knowledge sources.
- To observe the success and failure achieved by the learners while trying to infer the meaning of difficult L2 words in a text.
- To trace how much of the newly acquired vocabulary knowledge do they retain after their inferencing process.
- To ascertain whether or not the learners' inferencing has a relation with their subsequent vocabulary retention.
- Lastly, to find out whether or not significant differences exist between the inferencing behaviour of the English medium learners and the state-board medium learners (Odia medium).

1.5. Significance of the Study

In response to the calls for further explorations in lexical inferencing, the major target of this study is to address the intermediate Odia ESL learners' lexical inferencing in a comprehensive way. In particular, a number of aspects of the intermediate Odia ESL learners' inferencing behaviour are examined in this study; the type and amount of different knowledge sources and their usage, relationship between lexical inferencing success and the subsequent vocabulary retention, strategies used by the learners to manage the difficult words in the text. In addition to these well-known aspects of lexical inferencing, the study at hand also takes into consideration a new aspect. It will probe the differences and similarities between the English Medium and State Board Medium L2 learners' lexical inferencing

behaviour in context of their use of knowledge sources, their inferencing success and the subsequent retention of new word meanings.

The outcomes of this study are expected to enhance our understanding of lexical inferencing behaviour of the intermediate Odia ESL learners. As lexical inferencing is correlated with reading comprehension and vocabulary acquisition, a study on Odia ESL learners' inferencing behaviour will cast light on understanding their process of vocabulary acquisition as well as reading comprehension. The idea of finding out the difference between the English and Odia medium learners' inferencing behaviour will clarify more on the effect of the medium of instruction (if there is any) on their lexical inferencing process. Finally, the present study is significant because it is perhaps the first of its kind to examine and discuss the attributes of lexical inferencing with reference to the Odia ESL learners. The study will be an informative guide to the interested learners or researchers in Odisha to build up ideas regarding lexical inferencing. Also, it can motivate other researchers in Odisha to explore more in the same field with some other new dimensions.

1.6. Delimitations of the Thesis

The present study has several limitations that should be considered while interpreting the results, ss focus is on lexical inferencing of the intermediate Odia ESL learners. Apart from that, the participants of this study are selected intermediate students with a certain level of receptive vocabulary knowledge. They have their own academic peculiarities. The present study is still on an exploratory level and therefore subject to further examination with large number of populations. Thus, at this stage, the present study do not indicate towards any type of generalizations. For the above reasons, the results should be applied cautiously to non-Odia learners of English.

1.7. Organisation of the Thesis

There are the following five chapters in the thesis. The chapters are outlined below:

- Chapter 1 introduces lexical inferencing which is the primary focus of the study at hand. It also presents the objectives and significances of the study and discusses the statement of problem. It also talks about the limitations of the present study.
- Chapter 2 presents a brief review of the related literature on lexical inferencing in light of several important aspects which are going to be addressed in the study at hand. The chapter also elucidates the theoretical framework of the present study and specifies certain research gaps in the present area.
- Chapter 3 presents the research questions and the methodology which focuses on the research design, specific methods of data elicitation, data processing, and analysis.
- Chapter 4 presents the analysis and interpretations of data. It involves both the quantitative and qualitative inferences drawn from the analysis of data.
- Chapter 5 discusses the results and the findings and gives a concluding shape to the present thesis by summarising the principal findings, discussing the implications of the study and the potentials for future research.

Chapter II

Review of Literature

2.0. Introduction

This chapter presents the review of previous works done in the area of lexical inferencing. Apart from that, it discusses the theoretical underpinnings of the present study along with the research gaps marked in this area. This chapter is divided into four major parts. First part presents the review of previous studies in the field of lexical inferencing. This part is again divided into several sections in order to exhibit the development of lexical inferencing as a widely researched area in the field of second language vocabulary acquisition. The second part casts light on the theoretical framework of the present study. The third part synthesizes the previously reviewed research findings and will discuss the existing research gaps. The final part briefly discusses the new dimensions of the present study followed by the conclusion.

2.1. Vocabulary and Reading

The symbiotic relationship between vocabulary knowledge and reading ability, or reading as both a cause and consequence of vocabulary acquisition has been well documented (Nagy, Herman & Anderson 1985; Nation & Coady 1988; Stoller & Grabe 1993.Cited in Paribakht & Wesche 1999: 196). It is a well- known fact that a good reader is able to guess the meaning of difficult words in a text but at the same time, the reader must also know most words in the text in order to be able to guess that.

This section will be presented in three parts: The first part will focus on the role of vocabulary in reading comprehension, the second part will analyze the size of vocabulary needed for a successful reading, and the last part will discuss acquiring vocabulary knowledge through reading.

2.1.1. Role of Vocabulary in Reading Comprehension

A good vocabulary system is indeed an asset to a learner as those who know more words are able to process various texts and are competent to engage in active conversation with people from different background and proficiency level (Anderson & Freebody 1981; cited in Sidek & Rahim 2015: 51). Vocabulary knowledge and reading comprehension are closely related to each other. This relationship is not unidirectional. Vocabulary knowledge can help in reading and reading can contribute to vocabulary growth (Chall 1987 cited in Nation 2000: 238). In 1984, Charles Alderson introduced the topic concerning the factors that may influence foreign language reading. He stated that "the problem appears to be both a language problem and a reading problem, but with firmer evidence, it is a language problem for the low level of foreign language competence, than a reading problem" (Cited in Zhaochun 2011: 8). It is a matter of interest that whether there is a language knowledge threshold which marks the boundary between not having enough vocabulary knowledge for successful reading and having enough language knowledge for successful reading. According to the language threshold hypothesis (Alderson 1984; Clarke 1979), L2 learners need to reach a certain level of competence in the L2 for their L1 skills and strategies to be transferred to L2 reading (Cited in Zhaochun 2011: 8). Bernhardt (2005) proposed a three-dimension model that recognizes three constituents in L2 reading: i. L1 literacy explaining 20% of the variance in L2 reading, ii. L2 language knowledge with emphasis on vocabulary knowledge accounting for 30% of the variance in L2 reading and iii. Unexplained variables such as comprehension strategies, engagement, content and domain knowledge, interest, motivation, etc. explaining 50% of the variance in L2 reading (Kaivanpanah & Alavi 2008: 174). Vocabulary knowledge has indeed an obvious and distinct role in L2 reading comprehension. Several past studies on vocabulary in both L1 and L2 have indicated that knowledge of vocabulary is one of the best predictors of the reading ability and capability to obtain new details from texts (Nation 2001;

Qian 2002; Read 2000). Another research by Hu and Nation (2000) and Schimitt (2000) say that the amount of familiar and unfamiliar vocabulary is one of the significant aspects in distinguishing the difficulties of a reading passage. The relationship between vocabulary and reading comprehension is a vigorous one and the knowledge of the vocabulary system of a language has constantly been the 'foremost indicator of a text's difficulty' (Stahl 2003 cited in Sidek & Rahim 2015: 51).

Sidek and Rahim's cross-linguistic study aimed to find out the role of vocabulary knowledge on the reading comprehension performance. Their study was based on 10 participants who were EFL students in a Malaysian public high school. Findings from their study demonstrates that a reader's level of vocabulary knowledge is one of the elements that play an important role in determining, reading comprehension performance in that language. The study by David D. Qian (2002) in the context of Test of English as a Foreign Language (TOEFL, 2000) attempted to validate the roles of vocabulary size and some factors of vocabulary depth measure (synonymy, polysemy, and collocation) in reading comprehension in academic settings. Qian's study was conducted on 74 Chinese and Korean learners of English. The study found that the dimension of vocabulary depth is as important as that of vocabulary size in predicting performance on academic reading. It showed a strong correlation (r =.82) between the 'Vocabulary Levels Test' and the scores of a reading subset of TOEFL. Nation & Coady (1988) emphasize the fact that although vocabulary knowledge is not the only factor contributing to reading comprehension, vocabulary can be an 'accurate predictor' of the difficulty of a certain text. In other words, their article was focused on the effect of vocabulary knowledge on the readability of a text. Nation (2000) discusses the relationship between vocabulary knowledge and reading skills. It starts with the discussion on the vocabulary size needed for successful reading and ends with an emphasis on the readability of a text. So far it offers a very clear picture of the relationship between

vocabulary and reading. According to Laufer (1992, 1996), there is a high correlation between 'vocabulary knowledge' (measured by receptive vocabulary size) and 'reading comprehension' ranging from .50 to .75. The variation of the correlation coefficient might be caused by the differences in research methodology and participants' characteristics in different studies (Cited in Zhaochun 2011: 10).

Finally, the studies on the role of vocabulary knowledge in reading comprehension along with their findings are summarised in the table below:

Table 2.1 Studies on the role of vocabulary in L2 reading with their findings

Year	Author	Findings
1984	Alderson	Inefficient L2 reading ability appears to be both a language problem and a reading problem, but with firmer evidence, it is a language problem, for the low levels of foreign language competence, than a reading problem.
1988	Nation & Coady	Although vocabulary knowledge is not the only factor contributing to reading comprehension, vocabulary can be 'an accurate predictor' of the difficulty of a certain text.
1991	Grabe	Knowledge of vocabulary and syntax are crucially important in reading comprehension.
1992, 1996	Laufer	There is a high correlation between vocabulary knowledge and reading comprehension, ranging from (.50) to (.75)
2002	Qian	The high correlation between the scores of 'Vocabulary Levels Test' and scores of the reading subset of TOEFL was found while investigating the impact of breadth + depth of vocabulary knowledge on ESL reading.

2005	Bernhardt	Three constituents in L2 reading: 1. L1 literacy, 2. L2 language knowledge with emphasis on vocabulary knowledge and 3. Other variables such as strategies, engagement, content and domain knowledge and motivation etc.

2.1.2. Vocabulary Size and Successful Reading

In the above section, the role of vocabulary knowledge in reading comprehension with reference to several past studies was discussed. Now after realising the importance of vocabulary in reading comprehension, the question arises how much vocabulary a learner needs for successful reading? To put it in other words, what should be the size of a learners' vocabulary for successful reading? In this prospect, a number of studies have presented their views.

According to Laufer (1989) and Liu & Nation (1985), 95% or more of the running words in a text has to be known to the readers; otherwise, the probability of successful guessing of unknown words will be severely reduced and the comprehension will be suffered in reading. But recent researches suggest that 95% coverage is not enough. According to Hu & Nation (2000), the rate of known words should be 98% so that most subjects can gain adequate comprehension. Their study revealed that at 80% of coverage rate no subjects were reported with adequate comprehension; in between 90% - 95% of coverage rate, a few did and at 98% of coverage rate most subjects gained adequate comprehension.

Laufer (1992) suggested that a vocabulary of 3000- word families of general English is enough for a good understanding of a general English text, e.g., novels. Later on, other researchers like Hazenberg & Hulstijin (1996) claimed that the minimum vocabulary size for the university studies should be 10,000-word families. Based on BNC data and 98% coverage

rate, Nation (2006) claimed that learners should know 8000-9000-word families for reading authentic English texts.

2.1.3. Acquisition of Vocabulary through Reading

Krashen (1989) focuses on the fact that vocabulary and spelling are acquired through reading. In this article, he has reviewed some studies on vocabulary and spelling in order to prove that the above fact adds some additional evidence for his Input Hypothesis which says, we acquire language by understanding messages, more precisely comprehensible input is the essential environmental ingredients. He argues that "competence in spelling and vocabulary is most efficiently attained by comprehensible input in the form of reading (p: 440)". He also claimed that "free reading inspired more word study" than other approaches and the free readers do at least as well, and often better than students in the regular program on vocabulary tests, suggesting that free reading is at least as effective as traditional instruction" (p: 448).

The first research focusing on incidental second language vocabulary acquisition in reading was carried out by Saragi, Nation, and Meister (1978) in which they asked adult native speakers of English to read ***A Clockwork Orange*** a novel containing 241 slang words of Russian origin called 'Nadsat' words. Then a surprise multiple choice test covering 90 Nadsat words was conducted few days after they finished the book. Results showed that there was a significant amount of Nadsat word learning. The lowest score on the multiple-choice test was about 50% correct and the average score was about 76% correct (Cited in Pitts, White & Krashen, 1989: 273). One problematic aspect of this study was: subjects were the native English speakers; the novel was in English. Only the target words were Nadsats. So, it is doubtful to take it as a perfect example of L2 incidental vocabulary acquisition.

In a replicated study by Pitts, White and Krashen in 1989, they tried to confirm that L2 acquirers could acquire vocabulary incidentally from reading. Subjects were students of

English as a second language. They were asked to read first two chapters of *A Clockwork Orange,* a selection containing approximately 6700 words including 123 Nadsat words. The result showed that a significant number of students have acquired the vocabulary and 6.4% of the 30 tested items were acquired. The *Clockwork Orange* study was later replicated by Horst, Cobb, and Meara (1998) with university students in Oman and again led to vocabulary acquisition. Interestingly, in the follow-up studies, students read the entire text and found a higher acquisition rate than previous studies with shorter tasks (Zhaochun 2011: 12). Though the above studies were focused on the acquisition of vocabulary knowledge through reading; still they lacked an in-depth analysis of vocabulary gaining.

In the same year, Parreren in one of her paper discussed three experimental studies focused on the psychological processes involved in vocabulary learning through reading (Cited in Nation & Carter 1989: 78). Amongst the three experiments discussed in this paper, Experiment 1 is of particular interest in this context. It aimed at looking into the nature of the psychological processes involved in vocabulary learning through reading. Subjects were Dutch-speaking adults who were capable of introspecting. The texts included in the study were of different types, different levels and different languages (English, French, German & Italian). Results showed that the newly acquired meanings were connected with the recollections of the situations in which it had occurred in the text.

Huckin & Coady (1999) made a review of the researches done in incidental vocabulary acquisition in a second language. In their paper, they addressed the then issues related to the incidental acquisition of vocabulary. Those issues were: actual mechanism of incidental acquisition, the type, and size of vocabulary needed for accurate guessing, the degree of exposure to a word needed for successful acquisition, the influence of different kinds of reading texts, etc. Being driven by the idea of incidental vocabulary learning through reading in ESL context, Day, Omura & Hiramatsu in 1991 conducted a study in

order to investigate whether the same thing happens in an EFL context or not. Subjects for this study were 191 Japanese high school students and 397 university students. They were given a short story to read silently in which the target words were repeated frequently in various contexts. Participants were given 30 minutes of time or less than that. Later on, based on a multiple-choice vocabulary test, the result showed that the treatment group who read the story showed a significant development in vocabulary knowledge than the controlled group who did not read the story. Although this study offered empirical evidence in support of vocabulary acquisition through reading it did not clarify much about the details regarding acquired vocabulary knowledge and the retention of that knowledge.

In order to overcome the measurement issues related to incidental vocabulary acquisition through extensive reading in the previous studies, Horst (2005) came with a pilot study. Participants of the study were 21 adult immigrant ESL learners at a community centre in Montreal. The L1 background of the participants included Arabic, Chinese, Farsi, Korean, Polish, Spanish and Russian. Their proficiency level was from elementary to high intermediate. The results showed that participants gained new knowledge of more than half of the unfamiliar words that occurred in the extensive reading materials they chose. The average gain was about 16.88%.

In reaction to the studies already done in the field of L2 learners' vocabulary acquisition through reading, Pigada and Schmitt in (2006) claimed that all most all the previous studies focused only on the semantic aspect of the word knowledge acquired through extensive reading. They even said that these studies do not indicate the partial learning of the words such as the phonological, orthographic and grammatical aspect of the word knowledge. Through their study, they tried to show the enhancement of lexical knowledge through an extensive reading program. Their study included 133 target words and their aim was to find out whether one month of extensive reading can result in the enhanced

knowledge of these target words in respect of spelling, meaning and grammatical information. They employed one on one interview for the study. The result showed positive indication in the sense that knowledge of 65% of target words was enhanced in some way. Spelling was strongly enhanced than meaning and grammatical information. Apart from that the study also revealed that vocabulary acquisition varies according to how frequently words are encountered in the text. There is no doubt that this study explored a new way of dealing with learning vocabulary knowledge through extensive reading.

Paribakht and Wesche (1993) report on an experiment comparing the effects of 1. reading plus vocabulary exercises and 2. repeated opportunities to meet the same vocabulary while reading on vocabulary learning. The learning was not incidental in a sense that the learners were aware that they are going to be tested on comprehension and vocabulary knowledge after each activity. Both approaches resulted in vocabulary learning but the reading plus group learned more vocabulary than the reading only group.

2.2. Lexical Inferencing and Reading Comprehension

Learning a language and using that language is primarily dependent on comprehension of language and development of vocabulary. If we will talk about first language development, children get ample number of exposures to learn new word forms along with their meanings; like through their frequent communication with others. The most common few thousand words are acquired easily by them. After a certain period when they learn the literacy skills, reading provides them scope to develop their vocabulary. When it comes to the context of the L2, and more specifically, the adult learners of L2, “written texts are often a major source of exposure to new words, particularly in a foreign L2 (Cited in Huckin & Coady 1999: 184). When we read a text, it is natural to come across some difficult words or unfamiliar words. At that point of time readers often try to infer the meaning from the context. That process was

gradually termed as ‘lexical inferencing’. The term ‘lexical inferencing’ came into focus in L2 literature with Hasstrup (1991).

When comprehension becomes the prime focus of the readers, “attention to a particular word form and an effort to determine its intended meaning in the given context may also lead to retention of new lexical knowledge by initiating or pushing forward the lengthy, incremental process of learning that word. It is for this reason that lexical inferencing is seen as operating at the core of the relationship between reading comprehension and vocabulary development” (Wesche & Paribakht 2010: 4). It is not at all an easy task to infer the appropriate meaning of a word from the context. The process itself includes several things like looking for cues from the word itself, cues from the surrounding context of the word as well as the reader’s previous knowledge etc. A successful and accurate inference increases the accuracy of text comprehension. On the other hand, an unsuccessful inference enhances miscomprehension. Readers use different strategies like repeating, verifying, and monitoring (Nassaji 2003) while trying to infer the meaning of difficult words in a text. Readers who verify the contextual accuracy of their guesses, often passing through several cycles of trying and rejecting possible meanings, are more likely to arrive at appropriate meanings (Haynes 1993 cited in Wesche & Paribakht 2010: 5).

Lexical inferencing is an important mechanism particularly for L2 readers who frequently encounter unknown words in their reading process. This ability to make successful inferencing will help to enhance their reading fluency in an effective way.

2.3. Lexical Inferencing: Different Aspects

This section will offer a detailed picture of what lexical inferencing actually means and what are the other important aspects related to it. In other words, it will focus on the several aspects of lexical inferencing process; factors influencing lexical inferencing, on the

knowledge sources or clues and strategies that learners use when they try to infer the meaning and also it will discuss the role of inferencing success and the subsequent retention of new vocabulary knowledge.

2.3.1. Importance of Lexical Inferencing

In the previous section, the importance of vocabulary knowledge in the context of L2 reading comprehension was discussed. Thus, it is now clear that reading is considered to be one of the best methods for acquiring new vocabularies. In the context of L2, vocabulary development through reading seems to be complex. While reading a text or passage in L2, readers come across difficult words which restrain their understanding of the text. In relation to the above problem, the present section will particularly focus on the process through which L2 learners try to learn new vocabulary knowledge. For ESL learners, unknown words in a text create obstacles to their comprehension (Nation 1990, 1993, 2001). When encountering an unfamiliar word, learners can resort to different resources to deal with the problem, such as using dictionaries, seeking help from a teacher or peer, or attempt to determine the meaning of the word by guessing its meaning from the context (Harley & Hart 2000. Cited in Bogaards & Laufer, 2004: Chapter 8). Amongst all the ways of dealing with unknown words, lexical inferencing is seen as a popular and useful approach to text processing in L2 reading (Bensoussan & Laufer 1984, Carton 1971, Hasstrup 1991, Qian 1998 & 1999). Many researchers assume that an important process in acquiring new vocabulary is the inference learners make for the difficult words they encounter in a text.

Lexical inferencing has gradually been developed into a widely researched area. An ample number of works have already been carried out in this area. Carton (1971) says ‘inferencing’ involving the use of attributes and contexts that are familiar… in recognizing what is not familiar, is a process that plays an important role in the ‘acquisition of new

morphemes and vocables in "natural" context'. His study was focused on the types of cues to word meanings available to language learners in L2 texts and the different kinds of information these could provide to aid in learners' acquisition of new linguistic knowledge (Carton 1971: 45 & 56. Cited in Wesche & Paribakht 2010: 6). Albrechtsen, Hasstrup & Henriksen (2008) points out lexical inferencing study focuses on different ways through which informants try to guess the meaning of unfamiliar words placed in a comprehensible context. Its primary aim is to offer a detailed analysis of an informant's first encounter with a new word (p 67). Details about this study are discussed later in this chapter. Bialystok (1983) devised several experiments in order to get sure that whether by providing supplementary information such as a glossary of difficult words in the text and procedural instruction such as mini-lesson on inferencing, L2 readers' inferencing could be improved (Cited in Wesche & Paribakht 2010: 7).

2.3.2. Factors influencing L2 Lexical Inferencing and its Outcomes

Lexical inferencing as a process does not stand in isolation. It is an amalgamation of different factors. These factors influence the process of lexical inferencing and its outcomes to a significant extent. Some of them are discussed below followed by the review of already conducted researches on them.

2.3.2.1. Second Language Proficiency

A good number of studies have focused on the role of language proficiency (here particularly L2 proficiency) in effective lexical inferencing (e.g. Bensoussan & Laufer 1984; Haastrup 1991; Bengeleil & Paribakht 2004; Tavakoli & Hayati 2011; Sara, Paviz & Keivan 2013). Bensoussan & Laufer (1984) concentrated on a comparison between the more proficient learners and the less proficient learners. They tried to find out that who among the two groups of learners make effective use of contextual clues. Along with this their study also focused on

other aspects like to what extent does the context help the learners to guess the meaning? "Encountering some unknown words might not impede the overall understanding of the text, but if too many words, or the most essential ones, are unknown then comprehension will suffer" (p: 17). Their study involved 60 first-year students from different departments (with non-English majors) who were doing a course in English as a foreign language. All of them were given 70 words to translate from English to their mother tongue. Then a post-test was conducted after a week later which involved a text of 574 words containing the 70 words. Their aim was to find out whether the translation the participants did earlier has an effect on their guessing of meaning. Along with that, they wanted to see whether the better students guess well than the weaker students. The proficiency level of the students was determined through their performance in the experiment they conducted and the students' grade in their EFL university course at the end of the first semester. Thus, based on their proficiency level all the 60 participants were categorized into 3 groups: Top Twenty, Middle Twenty, and Bottom Twenty. Finally, the results showed that the weak students knew fewer words than the good students. Apart from that the result also revealed that the good students were able to translate the words correctly and the numbers of blank spaces left for the words were greater for the weak students in comparison to the good students.

Bengeleil & Paribakht (2004) conducted a study in order to examine the effect of reading proficiency on EFL learners' lexical inferencing. The study involved some important aspects; the knowledge sources and contextual cues learners used in the process of inferencing, the level of inferencing success they achieved and retention of the inferred meaning of the target words. They chose 20 Arabic speaking male and female medical students between the age group of 22-25 in Libya. Later on, 20 participants were selected on the basis of a reading comprehension test for the study. These twenty participants belonged to two distinct level of proficiency: intermediate and advanced. An authentic expository text

about the environmental refugees was selected and the text has undergone a field test after which 26 target words were selected. Two weeks before the introspective session, participants had undergone a pre-Vocabulary Knowledge Scale test to determine the participants' depth of knowledge about the target words. One week before the introspective section they were being familiarized with the think-aloud procedures. Finally, in the introspective session, participants were asked to read the text with those 26 target words underlined within and guess the meaning of those words. Participants were asked to verbalize their thinking at the same time.

Finally, the recordings of these sessions were transcribed and analyzed. The result showed that irrespective of their reading proficiency level, both the groups used the same kind of knowledge sources and contextual cues in their inferencing. Both groups have used the local cues as well as the global cues. In case of the lower proficiency participants, use of multiple knowledge sources and the amount of variation in combining the knowledge sources were seen more often than the higher proficient participants. Results also indicated that both the groups shared a similar pattern of relative frequency of use of knowledge sources. So far the relationship between the learners' reading proficiency and their level of inferencing success is concerned; it was found that more proficient learners achieved a greater level of success in their inferencing than the less proficient learners. The intermediate group was more reliable to the discourse level sources

Bengeleil & Paribakht (2004)'s findings were in disagreement with some earlier findings made by Haastrup (1991) by saying that there is no significant difference between the higher level and lower-level learners in the use of knowledge sources. Haastrup (1991) says, for effective lexical learning a proficiency threshold has been determined. Based on the participants' proficiency levels (below, above or across the threshold) results of several studies leads to various distinctions. Thus, it is necessary to test diversified learners with a

much higher proficiency level in order to conclude about the relationship between L2 proficiency and lexical inferencing.

Another study by Tavakoli & Hayati (2011) was intended to find out how the students' level of L2 proficiency affects their use of knowledge sources in inferencing procedure. This was not the sole aim of the study; there were others but here we will only discuss on this particular aspect. Participants of the study were 40 Iranian EFL learners studying English at the private language institute. Further, they were divided into two groups: lower intermediate level and higher intermediate level based on their scores in FCE test. They were given four short stories, each in one session. Participants had to read the short story then underline the unknown words. They had to guess the meaning of those unknown words and specify the knowledge source they used to guess the meaning. The result of the study showed that students of the high intermediate level were more successful in guessing the meaning of the unknown words than the students of the lower intermediate level. One of the findings of this study was in contrast with that of Bengeleil & Paribakht (2004). The present study says that the students of high intermediate level used 'discourse knowledge' category the most and tried to find the meaning from the idea of the whole passage. But the case is exactly opposite in case of the latter study. According to this study low intermediate level students used 'sentence-level grammatical knowledge' mostly in their inferencing.

The role of language proficiency level has more or less a positive relation with L2 lexical inferencing. Apart from the studies discussed above, there are several other studies (Chern, 1993; Morrison, 1996; Fraser, 1999) which also focus on this aspect. All these studies vary with their respective results because some of the results show that the proficiency level and inferencing success go hand in hand while others showed that level of proficiency has nothing to do with learners' choice of knowledge sources in inferencing. At

the end, besides all these variations, proficiency level has definitely a role to play in case of L2 lexical inferencing.

2.3.2.2. L2 Vocabulary Knowledge

In one of the earlier sections of this chapter, the role of L2 vocabulary knowledge in the context of L2 reading comprehension has already been discussed. Also, the importance of lexical inferencing in reading comprehension has been discussed. When both (vocabulary knowledge and lexical inferencing) have their own important role to play in reading comprehension, the assumption is that they both must have some connection between them. L2 vocabulary knowledge certainly has some effective influence over L2 learners' lexical inferencing process. According to the findings of some previous studies, while reading a text, the amount of success in inferring the meaning of difficult words mostly depends on the learner's ability to understand the surrounding words in the text. Already in the previous section, we have discussed what should be the percentage of known words in a text. Just to remind that recent studies have found that the percentage of known vocabulary should be 98% (Hazenberg & Hulstijn 1996; Hu & Nation 2000).

There are two measures of vocabulary knowledge. Measures which estimate the size of learners' vocabulary is known as the breadth of vocabulary. Studies like (Laufer 1997; Paribakht 2005; Albrechsten et al. 2008) have declared that this breadth of vocabulary knowledge shows relatively high correlation with the learners' success in inferring meanings of difficult words (Wesche & Paribakht 2010: 12). Later on, the recent researches in L2 vocabulary acquisition emphasized on the various aspects other than the breadth of knowledge, like individual's ability to understand and use a word. Specific elements which are emphasised by recent researchers are: development from partial to precise knowledge of the referential meaning of words (Haastrup & Henriksen 1998; Henriksen 1999),

development from receptive to productive usability (Henriksen 1999; Paribakht & Wesche 1993) and the development of a more complex network-based organisation of the lexicon, which is termed as 'depth of vocabulary knowledge' by Henriksen (1999). (Wesche & Paribakht 2010: 13).

There are some recent studies which also emphasized the effect of vocabulary knowledge in L2 lexical inferencing process. A study by Prior & et al. in (2014) focuses on the predictive role of L2 vocabulary knowledge and L2 word reading skills in explaining individual differences in the L2 lexical inferencing. For the study, they chose 53 Israeli high school students (emigrated from the former Soviet Union). Participants' L1 was Russian and L2 was Hebrew. All the participants took part in several tests like the cognitive ability test, a test of their L1 and L2 vocabulary knowledge through the Hebrew and Russian version of Peabody Picture Vocabulary Test (PPVT). Both the versions were administered on different days. Their word reading ability in Hebrew was also tested. The last test was reading comprehension test in Hebrew. So far, the correlation between vocabulary knowledge and lexical inferencing is concerned; the result of the study was in congruence with the previous studies (Haynes & Baker, 1993; Nassaji, 2004; Pulido, 2003). According to the results, there were three complementary ways to understand the predictive role of vocabulary knowledge in explaining variability in lexical inferencing:

- There may be a threshold for vocabulary in a given text which the learners should achieve in order to be successful in their inferencing of meaning of unknown words.
- The participants in the study were involved in an academic setting in Hebrew for 3 yrs. Thus, at the time of testing, their vocabulary knowledge reflected their success in lexical inferencing.

- Participants were moderately proficient in Hebrew. People with more extensive vocabulary knowledge might have gained an improved understanding of the structure of the language which would have facilitated their inferencing process.

Nassaji (2004) tries to identify the relationship between the ESL learners' depth of vocabulary knowledge, their use of inferencing strategies and inferencing success. This paper offers a detail discussion on the breadth and depth of vocabulary knowledge. Participants in this study were 21 adult intermediate ESL learners hailed from different language backgrounds (Chinese, Spanish, Persian, Portuguese, and Arabic). All the participants took part in the Vocabulary Knowledge Scale (VKS) test for assessing the depth of their vocabulary knowledge. Later on, in order to find out their inferencing strategies, they participated in an inferencing test. Analysis and interpretation of their think-aloud protocol revealed that there was a significant link between learners' depth of vocabulary knowledge and the type and degree of inferencing strategy use. Results also showed that learners who had strong depth of vocabulary knowledge used certain types of inferencing strategies more frequently and effectively than those who had the weak depth of vocabulary knowledge. The result of this study was in congruence with other early studies like de Bot et. al (1997).

Albrechsten and *et al.* (2008) worked on a cross-sectional study in Denmark involving learners from comprehensive schools, sixth-form colleges, and university level students. Their aim was to find out the role of a well-structured lexicon as an important declarative knowledge base for advanced processing and adaptability in relation to learners' lexical inferencing process and their inferencing success (p: 167). The result of the study indicated that moderate to the very strong relationship was found between lexical knowledge and measures for L2 lexical inferencing in the entire informant's group. The results of this study in a positive node confirmed the findings of the earlier studies which said that L2 lexical

knowledge is definitely a strong predictor of lexical inferencing success. The result of this study in a way supported Nassaji (2004) which discusses the relationship between the learners' depth of vocabulary knowledge and lexical inferencing.

2.3.2.3. Textual Features

The author of a written text is not accountable for the insufficient availability of textual support for every reader in order to guess the meaning of an unknown word. He is definitely not aware of how much extra-textual and thematic knowledge each reader possesses. Textual features involve several factors related to the characteristics of the text in which the target words occur and from which the learners have to infer the meaning of the difficult words. One among the textual features is designing the context of unknown/difficult words. Various studies have revealed that vague and inappropriate context both in L1and L2 does not lead to correct inferencing of the difficult target words. According to Deighton (1959), "while context always determines the meaning of a word, it does not necessarily reveal the meaning" (Cited in Frantzen, 2003: 168).

The level of text difficulty has another important role to play. In this aspect Frantzen (2003) says, "if the overall language used in a text is too difficult for the learners in question, the context cues that may be present in the text are essentially not available to them" (P: 169). The same point has been asserted by Young (1999) who states that L2 readers face problems in processing authentic input because it may be lexically and syntactically complex, culturally unfamiliar and cognitively demanding (Cited in Kaivanpanah & Alavi, 2008: 177). The textual features also involve the word characteristics. In this connection Mondria & Wit-De Boer (1991) defines word factors indicates features such as the parts of speech, the degrees of concreteness or abstractness, the transparency of word structure, the likelihood of interference, the degree of correspondence between the referential meaning of the foreign

word and the word in the Learners' L1, resemblance between word-form and word-meaning (Cited in Kaivanpanah & Alavi, 2008: 178). Another work by Dubin & Olshtain (1993) (Cited in Kuen, 2004: 14) suggested five basic elements of textual support necessary for L1 readers to guess unfamiliar vocabulary meanings successfully. They are presented below in a hierarchy which moves from the most global type of processing to the most local:

- Extra-textual knowledge: the reader's general knowledge extending beyond the text.
- Thematic knowledge: the reader's overall grasp of the content of a particular text.
- Semantic I: information extending over larger discourse units in the text beyond the paragraph level.
- Semantic II: information available locally at the sentence or paragraph level.
- Syntactic: relationship within the immediate sentence or paragraph.

Thus, the textual support which has a relation to word-guessability can range from high to low. Textual support undoubtedly influences the lexical inferencing outcomes. Bensoussan & Laufer (1984) says that, without the contextual cues, inferencing may lead to wrong guess. According to them, "lexical guessing is a very difficult task because of the complexity of the text or because of the limitations of the reader, or both. Some words do not have clues in the text in which they appear; when there are clues for such words foreign language learners will not necessarily look for them; and when readers do look for these clues very often, they cannot locate or understand them (p: 27)."

2.3.2.4. Lexical Inferencing Success

Whether the process of lexical inferencing will result in reaching the appropriate meaning or not, is another influential aspect. In other words, success in lexical inferencing has its' own

role to play in the process. This section will focus on the inferencing success and its impact on the process of inferencing. In general, success in L2 inferencing is not easy to achieve. It depends on multiple factors: adequate contextual cues, word guessability, textual difficulty etc. Apart from these factors, success in lexical inferencing heavily relies on the learners' prior knowledge as well as their ability to make effective use of extra-textual cues (de Bot et al., 1997; Haastrup, 1991. Cited in Nassaji, 2003: 648). There are a number of studies which put emphasis on the success of lexical inferencing in various ways (Bensoussan & Laufer, 1984; Carnine, Kameenui & Coyle, 1984; Hu & Nassaji, 2014; Anvari & Farvardin, 2016).

Carnine, Kameenui & Coyle (1984) focuses on students' ability to make use of contextual information in order to reach the meaning of the unfamiliar words. They conducted two studies at a time. One among them aimed to find out whether the participants perform better in *words in isolation* test or in *words in context* test. Participants were 114 middle-class Caucasian elementary students (27 fourth grade students, 41 fifth grade students and 46 sixth grade students). All of them were administered a two-part multiple-choice vocabulary test inside their classroom. Scores of *words in isolation* test were meant to show the level of word knowledge and the scores of *words with context* test were supposed to reveal the contribution of contextual information. Results revealed that scores of *words in context* were significantly higher than scores of *words in isolation* test. Apart from that the result also showed that "deriving word meanings from context appears to be simpler when the contextual information is closer to the unfamiliar word (p: 201)"

So far, the lexical inferencing success is concerned; Hu & Nassaji (2014) is one of the remarkable studies. It is focused over how students infer word meanings from context and most importantly how can we distinguish between successful and unsuccessful inferencers. The primary aim of the study was to explore the L2 learners' inferential strategies and their relationship with their success. Participants of the study were 11 Chinese ESL economics and

business majors at a Canadian university. All the participants had undergone a 3000-word Vocabulary Levels Test (Nation, 2001) before conducting the main study in order to ensure their level of difficulty while reading a text in English. A text of approximately 484 words was selected for the main study 10 target words were presented in the text with bold font. Participants had to read the text and find out the meanings of those target words. Through the think-aloud process, data was collected. Analysis and interpretation of the recordings revealed the different types of strategies used by the participants, which were further categorized according to their nature: form-focused, meaning-focused, evaluating and monitoring. After investigating the strategies used by the learners, the data analysis was pointed towards calculating a number of correct inferences by each participant. There were three degrees of accuracy considered for the study:

1. Correct Inferences: ones with both semantic and syntactic accuracy.
2. Partially Correct Inferences: ones with either syntactic or semantic accuracy.
3. Unsuccessful Inferences: which are neither syntactically nor semantically correct.

Based on these degrees, learners were classified into different groups; learners who correctly or partially correctly inferred at least 50% of the target words were considered successful inferencers. The results revealed that among the 11 participants, 6 were proved successful inferencers and 5 were unsuccessful. Later on, the results also showed that it is the quality of the strategy use which distinguishes between successful and unsuccessful inferencers. This is a quantitatively detailed study about the learners' use of strategies and their level of success in the inferencing process. This study was first of its kind to focus on the inferencers along with inferences.

With the similar aim and focus to that of Hu & Nassaji (2014), Anvari & Farvardin in 2016 conducted another study on 15 intermediate EFL students in an English language

institute in Izeh, Khuzestan, Iran. The analysis of the data followed the similar process used in Hu & Nassaji (2014). And the result of the study was in congruence with that of Hu & Nassaji (2014).

One section of Wesche & Paribakht (2010) also deals with L1 and L2 learners inferencing success. Their study was a cross-linguistic study. Participants were three groups of post-secondary students from English, Persian and French L1 background. Primary data sources for determining the inferencing success of the participants were the think-aloud protocols from individual research sessions. All the participants took part in an inferencing task where they had to infer the meaning of unfamiliar words (In case of L1, pseudo-target words, and L2 English words) embedded in reading texts. In order to quantify the inferencing success of participants in both L1 and L2, a scoring system was introduced as mentioned below:

- A semantically and syntactically appropriate response (Full Success = 2 points).
- An approximate meaning or a semantically accurate but syntactically inappropriate response (Partial Success= 1 point).
- An incorrect meaning or respondent gives up (Failure= 0 point) (Wesche & Paribakht, 2010: 117).

Results of the study revealed that in case of L1, in all three language groups participants' inferencing success rate was high. They were successful in inferring the appropriate meanings for the pseudo-target words. The percentage of inferencing success was: 89.3% for English L1 words, 79% for Persian L1 words and 62.8% for French L1 words. But in case of L2 inferencing success, both Persian and French groups were less successful. Persian participants achieved full success in only 11% of cases and French participants in 31.1%. Wesche & Paribakht's study offers a comparison between the L1 and L2 inferencing success rates of the participants. It can be considered as a comprehensive

study of several aspects related to lexical inferencing including the role of inferencing success.

Nassaji (2003, 2006) also focuses on inferencing success by relating it to learners' use of strategies and knowledge sources and their vocabulary knowledge (depth + breadth) respectively. The 2003 study offers a thorough understanding of the different strategies and knowledge sources employed by the learners to reach an appropriate meaning. Apart from that this study also reveals how the use of knowledge sources and strategies is related to the learners' inferencing success. Participants were 21 adult ESL learners in a Canadian setting. The major source of data was the introspective and retrospective think-aloud protocols. For him the classification of inferencing success was almost similar to that of Wesche & Paribakht (2010):

- Successful Inferencing: responses those were semantically, syntactically and contextually appropriate.
- Partially Successful Inferencing: responses which are semantically appropriate but syntactically deviant or vice-versa.
- Unsuccessful Inferencing: when the responses do not meet any of the above conditions.

Analysis of the data revealed that the degree of successful inferencing for each of the individual words was quite low (9.5% to 38.1%). The result of the study also pointed out that the success in the inferencing process highly depends on the density of the unknown words in the text. So far, the relationship between knowledge sources and inferencing success is concerned; results showed that the knowledge sources with highest mean of success were associated with more successful inferences than the other knowledge sources. Another study conducted in 2006 also revealed that the learners' depth of vocabulary knowledge has made a

significant contribution to their inferencing success. Both the studies are detailed in nature and the explanations provided by the author through an appropriate quantification are truly noteworthy.

Haastrup (2008) explains that inferencing success is a conveniently short term which in reality covers levels of lexical inferencing success. It basically refers to the quality of the informants' proposals for word meaning (Albrechsten et.al. 2008). She says that the measure of inferencing success depends on informants' problem-solving efforts. Her study involved Grade 7, Grade 10 and Grade 13 students in Denmark and aimed to find out whether there is the difference between the inferencing success rates of the participants of these three groups. Thirty test words were involved in the task. The study focused on two parallel tasks; one designed in Danish and the other was in English. These two tasks consisted of five short factual texts dealing with different topics. All the participants went through a pre-test, an inferencing task and a retrospective task. The study discussed the inferencing success of the students in detail along with other observable aspects. In order to judge how successful, the students are in their inferencing of the meaning of the test words, four levels were decided with their respective scores:

1. Accurate guess (3 points)
2. Approximate guess (2 points)
3. Wrong, but logical guess in context (1 point)
4. Wrong and 'wild' guess (0 points)

The result of the study revealed that with a rising educational level, the inferencing success result was increasingly better. It showed that Grade 10 students are better than Grade 7 and Grade 13 students were better than Grade 7 and 10. In all the three group participants achieved significantly higher inferencing success rate in their L1 than in their L2. Her study

not only discusses the inferencing success of the learners but also casts light on other important aspects related to lexical inferencing. The study also offers a comparison between L1 and L2 inferencing success. It is proved to be a handy study for the new researchers in this area.

Similarly, there are several other studies conducted by many eminent scholars which along with other aspects also focus on the inferencing success of the L2 learners. Morrisson (1996) conducted a study which centered on French as second language learners' lexical inferencing. Participants were 20 female students of L2 French in a Canadian university. Participants were further divided into two groups (high and low proficiency) based on their placement scores as well as their teachers' assessments. Their task was to guess the meaning of 12 words presented in an authentic text. Think aloud protocol was the main source of data along with subsequent interviews of the participants. The final results indicated that the inferencing success rate of high proficiency group was 74% and of the low proficiency group was 34%. (Cited in Zhaochun, 2011:46).

2.3.2.5. Subsequent Vocabulary Retention

Undoubtedly, the importance of inferencing success is unavoidable but what is next? After achieving success in inferring the meaning of difficult words in a text, what happens next? Do the learners remember these word meanings or they forget? To cast light on this aspect is the primary concern of vocabulary retention studies. Cognitive psychologists appear to agree that processing new lexical information more elaborately will lead to a better retention than if it had been processed less elaborately (Hulstijn & Laufer, 2001). There are different views on the retention of new word meanings by different scholars. According to Hulstijn (1992), words whose meanings were correctly inferred during a reading task were remembered better than words explained by a synonym. Scholars have even viewed that words that were looked

up in a dictionary during a reading task were remembered better than the words that were not looked up (Cho & Krashen, 1994; Knight, 1994; Luppesku & Day, 1993 in Hulstijn & Laufer 2001: 542). Studies like Paribakht & Wesche (1999) and Paribakht (2005) found that readers' retention of word meaning was followed by several encounters with the given words in a text and their inferencing attempts. In other words, lexical inferencing can be considered as the chief instrument which takes readers' exposure to beyond comprehension, i.e. towards the retention of new word meanings.

Hulstijn & Laufer (2001) tried to find out whether or not the retention of vocabulary acquired incidentally is dependent on the amount of task-induced involvement? Their study involved two paralleled experiments in two countries. Tasks for this study were designed with different involvement loads and their effect on incidental vocabulary learning was compared. Participants of the study were six intact groups of advanced university EFL learners in the Netherlands (97) and Israel (128). All the students from both the countries were competent in performing the experimental tasks. Ten low-frequency words were selected for investigation. Three tasks: i. Reading comprehension with marginal glosses, ii. Reading comprehension plus "fill in" and iii. Writing a composition and incorporating the target words were selected. The same tests were administered again to the same participants after one week in the Netherlands and after two weeks in Israel. Results of 87 and 99 students who were present at both the immediate and delayed post-tests in the Dutch-English and Hebrew-English experiments revealed that the retention score in the writing groups was higher than the reading plus fill-in group which in turn was higher than the reading group. Their analysis also showed that the Hebrew-English experiment fully supported the hypothesis that the retention rate is higher for the words those are processed with higher involvement load than the words processed with lower involvement load. On the other hand, the Dutch-English experiment partially supported the involvement hypothesis. One notable

aspect of this study is that it has taken into account both the immediate and delayed retention tests which lack in many other studies as they are concerned with either one of them. Apart from that in their study Hulstijn & Laufer also emphasized that frequent reactivation of the new word meanings is necessary for their long-lasting trace in learners' memory.

Another work by Pulido (2007) examines how the process of lexical inferencing and subsequent vocabulary retention is being affected by topic familiarity and passage sight vocabulary. Participants of the study were 35 adult learners of Spanish as L2. All participants were native speakers of English. The texts selected for the study were two narrative passages: one depicting a more familiar scenario and the other a less familiar scenario. 16 lexical items representing the concepts frequently associated with the scenarios were selected. Further, these 16 lexical items were replaced with nonsense words. Topic familiarity was tested by a 10-item Likert-scale questionnaire and the passage sight vocabulary were tested through an open-ended translation (L2-L1) of the words that participants have reported as familiar. In order to test the retention, two measures were used and both contained 16 target words plus 6 additional nonsense distracters. Results of the study revealed that there was a significant effect of topic familiarity on lexical retention.

Min (2008) tried to find out the impact of reading combined with vocabulary focused activities on secondary school EFL learners' vocabulary acquisition and long-term retention in an instructional context. There were 50 male Chinese speakers of English as a foreign language at a senior high school in Taiwan. Vocabulary knowledge scale test (VKS) was the main instrument for this study. Min used Wesche & Paribakht's (1997) model of the VKS test but with slight modification. A pre-test, post-test, and a delayed test were conducted. The post-test scores were considered as scores for vocabulary acquisition and the scores of the delayed test (after 3 months) were considered as retention score. Results of this study indicated that not only the reading plus vocabulary group but also the narrow reading group

made significant vocabulary gains on the post-tests after being engaged in reading supplementary materials. Both the groups also retained significantly more lexical knowledge about the target words 3 months after the instructional treatment. The statistical analysis of the data endorsed these findings.

In their cross-linguistic study of lexical inferencing in both L1 and L2, Wesche & Paribakht (2010) among other important aspects related to lexical inferencing also focused on retention of new L2 word knowledge. Prior to the retention study, they reached conclusion for their inferencing test saying that participants in all the three language groups (Persian, French & English) achieved inferencing success significantly in their L1 but in case of L2 lexical inferencing, the French and Persian participants' inferencing success level was not significant. After observing the inferencing success rate of the L2 participants, they tried to look for the immediate retention of the newly acquired English word meanings through Vocabulary Knowledge Scale (VKS) test. A pre VKS test was conducted prior to the main inferencing task in order to know the participants' familiarity with the target words. Similarly, a post VKS test was administered after the inferencing task in order to know how much knowledge they have retained after inferencing. Finally, the VKS test scores revealed that both the Persian and French groups showed, however, small but significant immediate gains of the vocabulary knowledge. The mean scores of Persian participants in their pre and post VKS test are 1.59 and 2.09 respectively. In case of French participants, the mean scores for pre and post VKS test were 1.41 and 2.22 respectively. Later on, the results also reflected that the L2 inferencing success had a strong correlation with the retention of new word knowledge. In case of Persian speakers, 82% of cases where the speakers had achieved inferencing success, they were able to recall those word meanings in post VKS test (63% full success and 19% partial success). Also, they were able to use some of those words in a sentence. Similar was the case with French participants too. Their study was undoubtedly

very detailed in nature but one thing which lacked was that there was no proof for long-term retention of new word knowledge. Otherwise, the study offered a precise discussion on vocabulary retention in L2 lexical inferencing.

As pointed out by Hulstijn (2001) frequent reactivation of the newly acquired vocabulary knowledge is necessary for long-term retention, such reactivations can only be possible through the frequent use of words through the frequent use of language in different contexts. Also, Wesche & Paribakht's statement is worth to remember, "Although immediate retention appears to be a necessary condition for vocabulary learning from inferencing, justifying its value as a research measure, it is not a sufficient basis on which to claim that learning has taken place (Wesche & Paribakht, 2010: 18)". It's true that several studies have already talked about the retention of newly acquired vocabulary knowledge through their studies but there is still a need to explore more. The basis of that exploration can be the time frame of retention (how long the learners retain the new vocabulary knowledge), quality of retention (how well do the learners have retained the newly acquired word knowledge) etc.

2.3.3. Use of Cues or Knowledge Sources in Lexical Inferencing

In the context of lexical inferencing, cue refers to the information available in the written context or the readers' previous knowledge or by any other means in order to find out the meaning of the difficult words while reading the text. There exist some terminological differences because different researchers have used different terms as per their convenience. It may be the *cues* as mentioned by Sternberg (1987) and Haastrup (1991, 2008) or may be the *knowledge sources* as referred by Wesche & Paribakht (2010), they play a significant role in the process of lexical inferencing. In that case how students make use of these knowledge sources is another important point to focus on. The present section will discuss some

important studies focusing on the type and use of cues/knowledge sources in L2 lexical inferencing.

According to Sternberg (1987) (Cited in Zhaochun, 2011: 32), most vocabularies are learned from context. The explanatory framework proposed by Sternberg and Powell (1983) consisted of three important ingredients: the process of knowledge acquisition, contextual cues, and moderating variables. According to their theory, three processes are involved in learning new words:

- Selective Encoding (separating relevant from irrelevant information),
- Selective Combination (combining relevant cues into a workable definition) and
- Selective Comparison (new information about a word is related to old information already stored in memory).

They further claimed that these three processes of word learning don't occur randomly. Rather they were based on the available contextual cues. These cues are classified as:

1. Temporal cues (Duration or frequency of X)
2. Spatial cues (Possible locations where X may be found)
3. Value cues (The worth or desirability of X)
4. Stative descriptive cues (Properties of X such as colour, size, shape, odour, feel etc.)
5. Functional descriptive cues (Possible purposes or uses of X or actions or functions X can do)
6. Casual/enablement cues (Possible causes of X or enabling conditions of X)
7. Class membership cues (Classes to which X belongs)
8. Equivalence cues (Cues regarding the meaning of X or contrasts, such as antonym to the meaning of X)

Sternberg and Powell's framework offered a comprehensive view of vocabulary acquisition from context. Sternberg later, in his article states that though contextual cues are the most efficient ways of acquiring new words, it is not the only type of cue. There are many other efficient ways of learning. Undoubtedly his classification of the contextual cues is of immense help for the reader to find out the useful information.

A taxonomy of knowledge sources used by the second language learners was put forward by Haastrup (1991, 2004). Figure 2.1 below offers a clear view of the taxonomy followed by further elaborations.

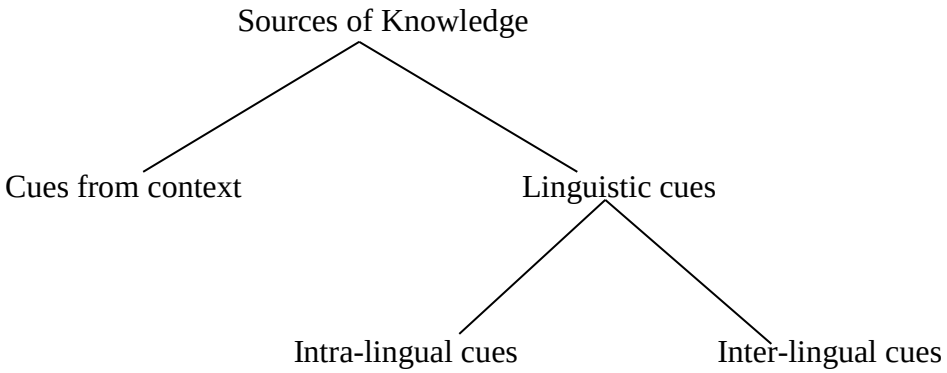


Figure: 2.1. Hasstrup's Taxonomy of Knowledge sources.

Cues from context refer to the background of the target words or the participants' knowledge of the world. The contextual cues are further divided into narrow context and broad context. Similarly, learners' knowledge of the world includes everything; their factual knowledge, attitudes, beliefs, prejudices, personal experiences, and common sense.

Linguistic cues are further subdivided into intra-lingual and inter-lingual cues. Cues taken from the language of the test are called as intra-lingual cues. These are typically words, word stems and affixes. Cues taken from the use of other languages are called as Inter-lingual cues. As Haastrup (1991, 2004) establishes a hierarchy of cue levels on the basis of the procedural aspect of lexical inferencing. The hierarchy puts the contextual cues at the top

level and the orthographical and phonological cues at the bottom level. Thus, the hierarchy looks like the following:

TOP level	Context (the text and the knowledge of the world) Semantics (meaning considerations) Lexis (word form) Morphology
BOTTOM level	Orthography/ Phonology

Text Box: 2.1. Hierarchy of cue levels proposed by Haastrup (2004)

A detailed analysis of the procedural aspect of lexical inferencing was given in her study in the Danish context. For any emerging researchers in this area, her study will be a guideline to find out and classify the knowledge sources used by the learners in their lexical inferencing.

Wesche & Paribakht (2010) says that by analysing the diverse types of knowledge sources used by the readers in lexical inferencing discloses different kinds of textual information and knowledge that draw upon when trying to comprehend unfamiliar words (P:76). They claim that the categories of knowledge sources indicate the types of knowledge the learners possess about the target words. On the other hand, the actual cues/ knowledge sources they use in their inferencing show how the linguistic knowledge and the world knowledge have a role to play in the inferencing process. Based on three hierarchical categories: word, sentence and discourse, a taxonomy of knowledge sources was proposed by Wesche & Paribakht. It also depends on whether the cues are found in the target word itself or within the same sentence or beyond the sentence boundaries. Another category in their taxonomy is the non-linguistic world knowledge. The following figure 2.2 presents the taxonomy of knowledge sources proposed by Wesche & Paribakht (2010).

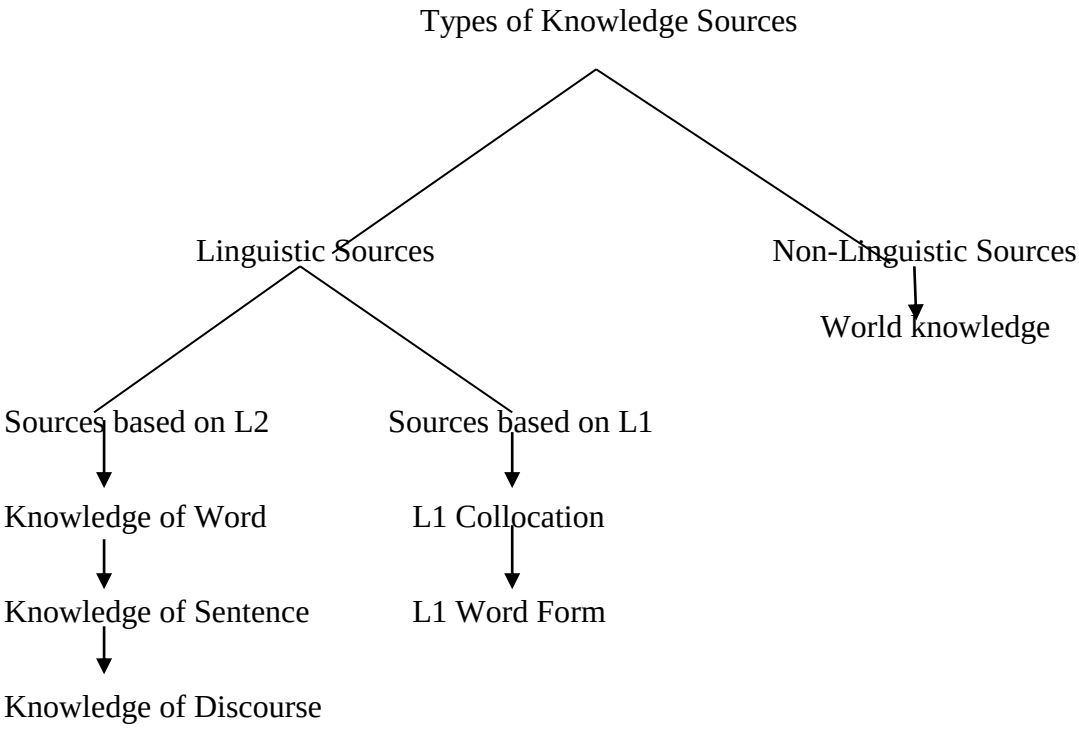


Figure 2.2. Taxonomy of L1 & L2 based knowledge sources by Wesche & Paribakht (2010).

The image 2.2 above shows the classification of knowledge sources very clearly. The image above shows the main categories involved in L2 and L1 based knowledge sources. Each of the categories has its own subcategories too. Those are presented below:

- **Word Knowledge**

  Word Association: association of the target word with another familiar word or a network of words.

  Word Collocation: knowledge of words that frequently occur with the target word.

  Word Morphology: morphological analysis of the target words based on the knowledge of inflections, stems, and affixes.

  Word Form: knowledge of the formal (orthographic/phonetic) similarity between the target word, or a part of it, and another word and mistaking the target word for another word resembling it.

- **Sentence Knowledge**

  Sentence Meaning: the meaning of part or the entire sentence containing the target word.

  Sentence Grammar: knowledge of the syntactic properties of the target word, its speech part and word order constraints.

  Punctuation: knowledge of the rules of punctuation and their significance.

- **Discourse Knowledge**

  Discourse Meaning: the perceived general meaning of the text and sentences surrounding the target word.

  Formal Schemata: knowledge of the macro-structure of the text, text types and discourse patterns and organizations.

  Text style and register: knowledge of stylistic and register variation in word choice.

  (In Wesche & Paribakht 2010: 77)

The detailed categorization of the knowledge sources proposed by them has been widely used by many researchers including Nassaji (2003).

Deighton (Cited in Zhaochun, 2011: 30) identified a number of clues provided by the context of the target word in order to guess the meaning of the difficult words. These clues include:

- Definition: a complete definition of the word, term or phrase; usually the unknown word is followed by a form of the word "be".
- Examples: usually includes signal words that indicate an example is about to follow, for instance, *such, such as, like, especially, for example, other, the way, in the way that etc.*

- Modifiers: phrases, clauses or words often coming after a linking verb, for instance, *the Women's Movement, which seeks equality with men, is…;*
- Restatement: the writer's conscious restatement when recognizing that more needs to be said, which usually includes a signal word, for instance, *in other words, i.e., that is to say, __ (dashes), () (parenthesis), bold-face type, italics, the word or plus a synonym (e.g. things or concepts), appositives;*
- Inference: requires the readers to distinguish sentences that develop a thought and sentences that rephrase a thought. Inferences are not explicit and not directly teachable;
- Inferences with established connections, for instance, the parallel sentence structure, repetition of keywords such as, *yet, hence, thus, therefore, thereupon*…

For the identification of the clues in a written text, the above list will be helpful. So far the categorization of the clues is concerned; the list provided by Deighton is not enough.

2.3.5. Lexical Inferencing Strategies

So far, the importance of knowledge sources in the lexical inferencing process has been discussed. Another factor which has the same amount of role to play in L2 learners' inferencing process is the application of different strategies by the learners during their process of lexical inferencing. While talking about inferencing behaviour of the L2 learners, emphasis on the knowledge sources is not enough. Strategies employed by the learners in order to reach the appropriate meaning of the target words also have a role to play. Evidence from studies on L2 reading comprehension indicates that encountering many unknown words in a text may negatively influence the reading comprehension of L2 readers (Bernhardt, 1991; Bernhardt & Kamil, 1995; Carrell, 1988; Clarke, 1980. Cited in Nassaji, 2003: 646). The frequent encounter of L2 readers with the difficult or unknown words in a text partly

presupposes that the L2 readers read the texts word by word. A considerable amount of time has spent in the previous studies in exploring and theorizing what strategies the successful language learners apply in the process of inferring meanings of difficult words. Rubin (1975) one among the frontline studies on language learning strategies suggested that good language learners are able to deal with complex learning tasks by using effective learning strategies (Cited in Hu & Nassaji, 2014: 28). An ample number of works have been carried out focusing on the inferencing strategies of the L2 learners and their effect on the inferencing process (Nassaji, 2003; 2006; Parel, 2004; Wang, 2011; Hu & Nassaji, 2014).

According to Nassaji (2003) explains strategies as the conscious and meta-cognitive activities that the learners use to gain control over or understand the problem without any explicit appeal to any knowledge source as assistance (p: 647). It is a detailed study on the use of the L2 learners' inferencing strategies and knowledge sources and their relationship with the learners' inferencing success. While previous studies conducted on learners' strategies were descriptive in nature, Nassaji's study was focused on to what extent these strategies helped them in deriving the meaning from context. His study was based on 21 intermediate ESL learners' attempt to infer new word meanings from context. All the participants belonged to five different language backgrounds: Arabic, Chinese, Persian, Portuguese and Spanish. Data was based on the introspective and retrospective think-aloud protocols of the participants. The outcome of the study identified total six types of inferential strategies used by the participants:

1. Repeating: repeating any portion of the text including the word, the phrase or the sentence in which the word has occurred.
2. Verifying: examining the appropriateness of the inferred meaning by checking it against the wider context.

3. Self-inquiry: asking oneself questions about the text, words or the meaning already inferred.
4. Analyzing: attempting to figure out the meaning of the word by analyzing it into various parts or components.
5. Monitoring: showing a conscious awareness of the problem or the ease or the difficulty of the task.
6. Analogy: attempting to figure out the meaning of the word based on its sound or form similarity with other words.

Among these strategies, *repeating* was used more frequently accounting for about 63.7% of the strategies used. *Analogy* became the less frequently used one with 8.5%. Strategies like *verifying* was of 7.9%, *monitoring* of 7.2% and *analysing* of 5.5%. So far, the connection with participants' inferencing success is concerned, strategies like verifying (1.51), self-inquiry (1.15) and section repeating (1.05) were associated with higher means of success than others. The analogy was associated with the lowest mean of success (.40). Results also revealed that out of a total number of strategies used (n = 471), about half (231) were associated with unsuccessful inferencing. Undoubtedly, Nassaji (2003) had revealed a broad classification of the inferencing strategies along with their sub-categories. This classification was further being used by an ample number of studies carried out in the same area.

Nassaji (2006) was concerned with the relationship between the depth of vocabulary knowledge and the type of strategies used by the learners. The methodology for this study was similar to that of Nassaji (2003). The result of the study revealed that learners who were more proficient in terms of depth of vocabulary knowledge made frequent and effective use of strategies like verifying, self-inquiry and section repeating. Learners having the lower depth

of vocabulary knowledge used strategies like analysis, word repeating and word form analogy. Both the studies by Nassaji were exploratory in nature.

302 low language proficiency ESL students from a variety of L1 backgrounds and socio-economic circumstances in a large city of Canada were involved in the study by Parel (2004). They were selected randomly from low second language proficiency and at least average first language reading proficiency. His study was based on the hypothesis that the ability to use the word- appropriate lexical inferencing strategies to determine the meaning of unknown words in text can compensate for L2 readers' low levels of vocabulary to some extent. As per the initial results of the reading and listening comprehension sub-tests, participants were divided into four reading proficiency level groups: Elementary, low intermediate, high intermediate and advanced. Further, the results showed that for all the reading proficiency level groups the correlation for reading comprehension and vocabulary knowledge was not significant. So far, the investigation into the lexical inferencing strategies was concerned; the study only focused on the low second language proficiency ESL learners. On the basis of the final outcome of the study, a classification of the inferencing strategies and the types of errors associated with these strategies was proposed:

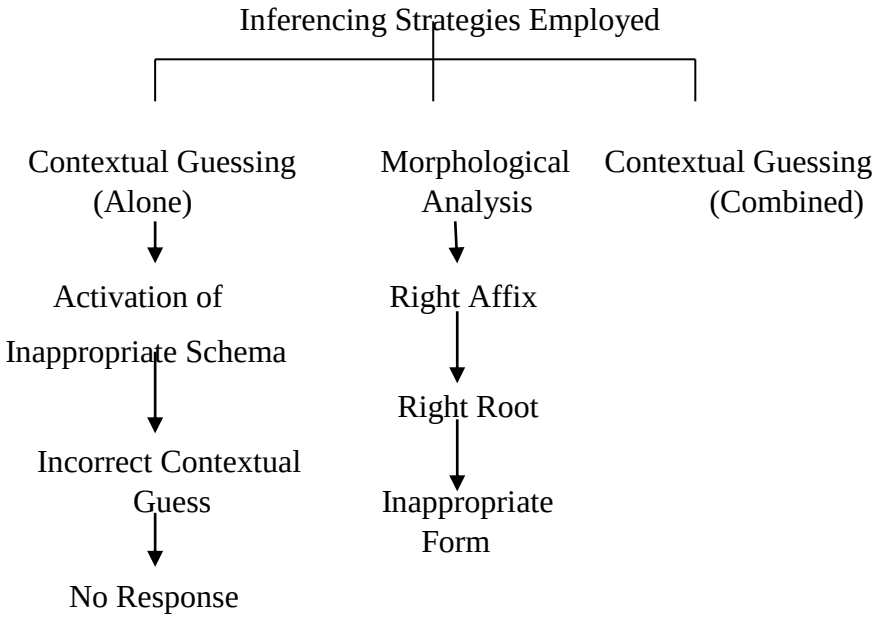


Figure 2.3. Parel's classification of inferencing strategies and type of errors related to them.

The result revealed that participants who belonged to the low proficiency level were able to find out the meaning of more unknown words in context than those who belonged to high proficiency level. The study by Parel in 2004 is perhaps one of its kinds which focused on the redeeming nature of the lexical inferencing strategies. Undoubtedly, it is an interesting work on inferencing strategies of the L2 learners, different from the earlier as well as the later works carried on in the same aspect.

Another work by Wang (2011) focused on lexical inferencing strategies of ESL and EFL learners. This study involved 34 graduate students (17 Filipino graduate students and 17 Chinese graduate students). The primary aim of this study was to find out the lexical inferencing strategies used by the participants of both the groups along with identifying the difference (if any) between these groups regarding the usage of these strategies. A 240-word text adapted from Roskam (2005) was used for this study (p: 304). Twelve words were underlined for the inferencing test purpose. Analysis of data revealed the different strategies used by the participants in order to infer the meaning of unknown words:

- Guess using local (sentence level) context.
- Guess using association or collocation knowledge (i.e. a clue word).
- Guess using syntactic knowledge.
- Guess using visual form (similarity or morphological understanding).
- Guess using extra-textual (thematic/ world) knowledge.
- Guess using discourse context, i.e. outside the sentence in which the word occurred (using forward or backward context).
- Other strategies or skills used to deal with the unknown words in the article (such as consulting a dictionary). (Taken from Wang, 2004: 305).

Analysis of the data also revealed that the usage of lexical inferencing strategies to deal with unknown words was more in case of Chinese graduate students than the Filipino Graduate students. Strategies like: guessing the meaning by using association or collocation knowledge, using the local (sentence level) context, using extra-textual and syntactic knowledge were used by both the Chinese and Filipino group. In fact, notable differences were traced between the two groups in terms of the usage of these strategies. Certain strategies like forward and backward strategies, association or collocation strategies were more used by Chinese graduates. On the other hand, strategies like guessing by using discourse context, local context, and visual forms were more used by the Filipino graduates. Though this study is entitled to reveal the lexical inferencing strategies, it actually talks about the use of knowledge sources in getting the meaning of difficult words. One major point behind mentioning this study here is to spread the awareness regarding the difference between the lexical inferencing strategies and the knowledge sources used in the inferencing process.

Hu & Nassaji (2014) very aptly focused on the L2 learners' inferential strategies and their relationship with inferencing success. The study was based on 11 Chinese ESL economics and business students at a Canadian university. The text used for this study was taken from the introductory economics textbook with a word length of 484. Target words were selected on the basis of a pilot study conducted in order to check the familiarity of the students with the words. The primary data elicitation procedure was the think-aloud technique. Participants' think-aloud protocols revealed twelve types of strategies. Further, based on the nature of these strategies they were regrouped into four major categories. The figure below graphically represents the above description:

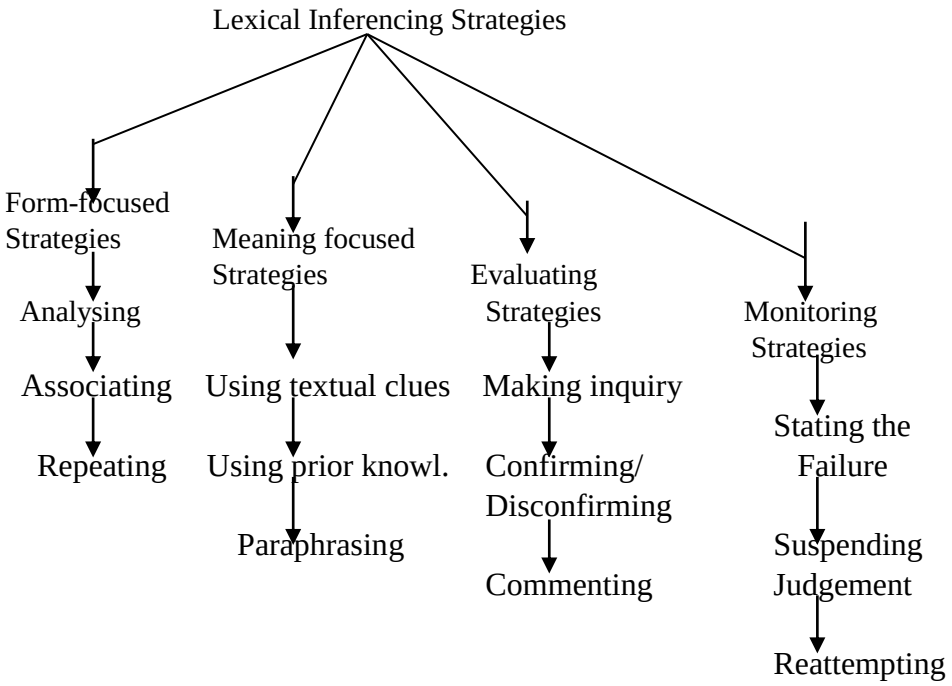


Figure 2.4. Lexical inferencing strategies found in Hu & Nassaji (2014)

The paper gives a detailed description of these strategies along with their respective examples. The analysis also revealed the distinction between the successful and unsuccessful inferencers on the basis of strategic deployment of inferential strategies, appropriate and timely use of textual, background knowledge, depth of analysis and active involvement, application of monitoring and self-awareness strategies and coordinative use of multiple strategies. Finally, the study revealed that the quality of the strategies used by the participants rather than the quantity distinguishes between the successful and unsuccessful inferencers. This study is elaborative, explorative and offers an explanatory detail about the lexical inferencing strategies used by the learners. The findings of this study have a huge similarity to the earlier studies of Nassaji in 2003 and 2006. It also presents a clear idea about different strategies used in the inferencing process of the learners.

2.4. Theoretical Framework of the Present Study

This section sheds light on the theoretical framework of the present study. It will concisely discuss the work on which the present study is based upon. Apart from that, it will also provide the reasons behind choosing this particular work as the base for the present study.

So far, we discussed and reviewed several works and researches carried out in the area of lexical inferencing and various aspects related to it. The previous works and researches carried out in this area have their own idiosyncrasies in terms of the issues addressed, the methodology adopted and the theoretical framework. So far, the theoretical framework is concerned; it primarily depends on the issues addressed in the study. Let's say, studies which are focused on the lexical inferencing strategies used by the learners while encountering difficult words often based on the classification of strategies proposed by Nassaji (2003, 2006). Similarly, studies which discuss the different types knowledge sources used by the learners are often based on the taxonomy of knowledge sources proposed by Sternberg & Powell (1983), Haastrup (1991), and Wesche & Paribakht (2010).

This study on lexical inferencing of intermediate Odia ESL learners is predominantly based on the widely acclaimed models proposed by Wesche & Paribakht (2010). Several of the design features of Wesche & Paribakht's (2010) study are retained for the present research. Wesche & Paribakht's study is a comprehensive work on lexical inferencing. This trilingual study of lexical inferencing in both L1 and L2 covers several aspects in detail like: usage of knowledge sources, different patterns in the usage of knowledge sources by L1 and L2 participants, inferencing success and initial development of word knowledge/ vocabulary retention, relationship between participants' inferencing success and subsequent retention of new word meanings. The study offers a comprehensive review of previous researches in lexical inferencing. Wesche & Paribakht's study is based upon twenty Persian speaking undergraduate university students in Iran, twenty French-speaking post-grade students in Quebec, Canada, and twenty English speaking undergraduate students in Ottawa. The two L2 groups belonged to high-intermediate reading proficiency level. They went through the Nation's (1990) Vocabulary Levels Test in order to measure their receptive English vocabulary knowledge. Fifty target words (25 lexicalised and 25 non-lexicalised) were

selected for the study. For the English speakers, actual 50 words were replaced by 50 pseudowords. Data collection was done in four educational institutions in Canada and Iran over a period of approximately 10 months. Major data elicitation procedure was introspective think aloud sessions followed by individual research session for each participant. Further, the tape recordings were transcribed and verified for accuracy and on the basis of that analysis carried out for each participant and each target word. Some of the major findings of their trilingual study are summarised below:

- The result of the study confirmed the L1 influence in the procedures and related linguistic knowledge of L2 lexical inferencing. Both the Persian and French speakers showed certain patterns in the usage of knowledge sources which characterised their L1 and L2 lexical inferencing.
- So far, the inferencing success is concerned; analysis of data revealed that the Persian speakers were more successful in their L1 inferencing than the French speakers but were less successful in their L2 inferencing. The success scores for lexicalised target words were more than the non-lexicalised target words.
- When it came to the relationship between L2 vocabulary knowledge, lexical inferencing success, and retention of new word meanings, positive correlations were found in case of both the groups. This indicates that learners with higher receptive vocabulary scores had achieved more success in their inferencing process. Later on, both initial vocabulary knowledge and inferencing success were positively correlated with learners' vocabulary retention.

The study has covered a lot of aspects related to lexical inferencing but only those findings are mentioned above which are pertinent to the present thesis.

2.4.1. Adaptation of Wesche & Paribakht's (2010) Model for the Present Thesis

The chief aim of the present thesis is to look into the lexical inferencing process of a group of selected intermediate Odia ESL learners in terms of use of different knowledge sources, their inferencing success, retention of new word meanings and the last relationship between their inferencing success and subsequent vocabulary retention. This section will clarify why Wesche & Paribakht's (2010) models are taken as the base for each of these categories addressed in the present thesis.

- **Use of Knowledge Sources**

Knowledge sources are the "clearly stated words or phrases which help to comprehend unfamiliar words in context because they can activate the corresponding context to clarify the contextual meanings of the words concerned (Sun & Zhou, 2005 in Na, 2009, cited in Ibrahim, 2015: 41)". They are important because they provide us insight into the learners' use of different knowledge to infer the meaning of unknown words.

Wesche & Paribakht (2010) look into the usage of knowledge sources by the L1 and L2 learners in their inferencing tasks. Their study offers a comprehensive taxonomy of knowledge sources used by the participants. Apart from that in their study, they have also discussed various patterns in the usage of knowledge sources by L1 and L2 participants. The taxonomy of knowledge source proposed by Wesche & Paribakht (2010) has already been presented and discussed in the previous section **2.3.3** (Use of Cues and Knowledge sources in Lexical Inferencing) of this chapter. This taxonomy involves all the linguistic as well as non-linguistic knowledge sources used by the participants. One of the primary reasons behind choosing this taxonomy as the base for investigating the knowledge sources used by the intermediate Odia ESL learners is that it is one of the extensive and inclusive classifications of knowledge sources presented so far. Not only that, the classification is also followed by the respective definitions for each category. For a debut researcher in this area, this taxonomy

will help him/her to categorise the identified knowledge sources efficiently. One added point of this taxonomy is the involvement of L1 as well as L2 based knowledge sources.

The present study is going to address the lexical inferencing process of the intermediate Odia ESL learners, perhaps for the first time. Thus, for research like this which is in a prefatory stage, the taxonomy proposed by Wesche & Paribakht (2010) will provide a base in classifying different sources of knowledge used by the participants. Certain terminological differences will be marked in the categories of knowledge sources used for the present study.

- **Vocabulary Retention**

The present study also seeks to find out how much newly acquired word meanings do the participants retain after completing the inferencing task. In order to test this, the present study has adopted the Vocabulary Knowledge Scale (VKS) test proposed by Wesche and Paribakht (2010). Originally, this test was used in their study in order to measure the Persian and French-speaking participants' relative knowledge of each target word both before and after the L2 inferencing task (Wesche & Paribakht, 2010: 56). The format of the test includes self-report categories for each of the target word. The test box below presents the self-report categories used in the study:

Self-report Categories	
I	I don't remember having seen this word before.
II	I have seen this word before, but I don't know what it means.
III	I have seen this word before, and I think it means _____. (Synonym/translation).
IV	I know this word. It means _____. (Synonym/translation)
V	I can use this word in a sentence: (Write a sentence.)

Text Box 2.2. VKS elicitation scale: Self-report categories (Wesche & Paribakht, 2010)

The results of these self-report categories were scored on a 1-5 scale. This VKS test is of immense help to know the learners' knowledge about the target words from a level of total unfamiliarity to the ability to use the word in a sentence. On the other hand, it also indicates the incremental gains of the learners in the initial stages of the word learning.

The present study adopts this Vocabulary Knowledge Scale test model in order to look into the vocabulary retention aspect of the intermediate Odia ESL learners. This test is designed in a way to look into the step-by-step progress of the learners in terms of acquiring new word meanings. The categories chosen for the self-report about the target words indicates the improvement of the learners. Another important point behind choosing this model for the present research is its focus on the immediate retention test. Whereas most of the previous studies have dealt with a delayed retention test, Wesche & Paribakht (2010) followed an immediate retention test of the participants. The present research also focuses on an immediate retention test of the participants. The VKS test is being used with slight modifications in the study at hand. The details about the test involved in this study are discussed in Chapter 3 (Methodology) of the thesis. The idea of relating participants' inferencing success to their subsequent retention of newly acquired word meanings has also taken from Wesche & Paribakht (2010). Most of the previous studies as we already have discussed have tried to relate the inferencing success with learners' use of strategies, their proficiency levels etc. Relating the inferencing success with retention of vocabulary knowledge was introduced by Wesche & Paribakht in their study. Through this relation, we can attempt to find out the possible reasons behind their inferencing failure too.

2.5. Synthesis of Previous Research Findings

In earlier sections of this chapter, the brief review of previous studies and works relevant to the present thesis were discussed. The review of the previous works was carried out by

keeping those aspects in mind which are going to be addressed in the present research work. This section will present an overview of the findings of the previous studies carried out in those particular aspects which are the key constructs of the present research.

2.5.1. Types of Knowledge Sources

The review of previous studies focusing on the types of knowledge sources used by the learners revealed that terminological differences exist among the researchers (Section 2.3.3). Despite the existing difference, for the study at hand, the term 'knowledge source' (used by Wesche & Paribakht, 2010) was found to be appropriate. The classifications of knowledge sources proposed by Sternberg (1983), Haastrup (1991, 2004) (Cited in Zhaochun, 2011) were undoubtedly broad in nature but at certain points, they lag behind: coverage of sources, respective definitions of the categories and to some extent L1 perspective. On the other hand, the taxonomy of knowledge sources proposed by Wesche & Paribakht (2010) was more extensive and comprehensive one than the earlier. Apart from that the taxonomy involved knowledge sources based on both L1 and L2 by giving it a much wider coverage. One of the add-on points for the taxonomy was the elaborative definitions provided for each category of knowledge sources. The previous researches have clearly distinguished the linguistic and non-linguistic knowledge sources.

Due to its comprehensive coverage and well-defined nature, the taxonomy of knowledge sources provided by Wesche & Paribakht (2010) is being used in the present research in order to help in classifying the sources of knowledge found.

2.5.2. Lexical Inferencing Success

Some famous studies have been reviewed in relation to learners' inferencing success in the previous section of this chapter (Section 2.3.2.4). They have depicted lexical inferencing success from various perspectives: success in lexical inferencing has been discussed in

relation to available contextual information for the target words (Carnine, Kammenui & Coyle, 1984), it has also been studied with relation to the inferential strategies used by the learners to reach at the meaning of unknown words (Hu & Nassaji, 2014; Anvari & Farvardin, 2016), studies like Wesche & Paribakht (2010) focused on the comparative analysis of inferencing success between L1 and L2 learners along with the correlation between inferencing success and subsequent vocabulary retention and sometimes inferencing success has been discussed with relation to language proficiency and the educational level of the learners (Haastrup, 2008).

Researches have focused on the inferencing success aspect of learners, but till now no one has discussed the reason behind learners' inferencing failure. Undoubtedly, success is vital but at the same time observing the failure is also important. If we will not be aware of the points where the students are lagging behind then how it will be possible to improve their inferencing skill. It is praiseworthy that studies have focused on various aspects which contribute to the learners' inferencing success. Till now no explorations have been made on the role of target words' category in the learners' inferencing success.

2.5.3. Vocabulary Retention

Vocabulary retention has already been the focal point for a number of studies. It has also been studied from different perspectives. There are studies which are really elaborative in this aspect (Hulstijn & Laufer, 2001; Pulido, 2007 and Wesche & Paribakht, 2010). Studies like Hulstijn & Laufer (2001) focused on the role of task-induced involvement over retention of new word meanings. It also emphasised on the reactivation process of the newly learned word meanings for long-term retention. In a similar way, Pulido (2007) proves the significant role of topic familiarity in the learners' retention of new word meanings. Wesche & Paribakht (2010) show the learners' progress from complete unfamiliarity with the difficult word to

their knowledge of using that word in a sentence through the retention study. Their Vocabulary Knowledge Scale (VKS) test gained wide popularity among the researchers in this area.

The present research will observe the vocabulary retention of the intermediate Odia ESL learners in relation to their inferencing success. The retention study in the present research will be based on Wesche & Paribakht's (2010) model.

2.6. New Dimensions of the present Research

Till date, lexical inferencing has achieved humongous popularity among the previous as well as current researchers. Lots of work in several parts of the world has already been carried out. Not only that, lexical inferencing has been studied from varied perspectives by different researchers. In this present scenario, the research at hand is an attempt to introduce the study of lexical inferencing process of the intermediate Odia ESL learners for the first time. English has achieved a status more than a second language in Odisha nowadays. Keeping that in mind the present work through its findings will try to motivate the learners to recognise the importance of lexical inferencing. It also aims to motivate other researchers to explore more in this area.

The study at hand will look into the aspects of lexical inferencing which are already known to the readers. At the same time, it will add some new perspectives to the existing field. Till now studies have discussed a comparative analysis of lexical inferencing process between different grade level students, between L1 and L2 learners, and also between the learners with high language proficiency and low language proficiency. The present study will look into the lexical inferencing behaviour of the participants from a comparative point of view between English medium students and the State-Board Odia medium students. The reason behind taking these two groups is the common assumption of the people that English

medium students have a greater hold over the English language than the State-board medium students. The present study will be a genuine attempt to check whether the long-perceived assumption can be turned into reality or not.

2.7. Summary

This chapter has presented a brief research review of the previous works done in the field of lexical inferencing. The research review focused on several aspects of the lexical inferencing process. The primary aim of this research review is to build up readers' attention towards the present study. The research review started with the relationship between vocabulary and reading then it discussed the importance of vocabulary in reading the context. It also threw light on the size of vocabulary needed for a successful reading as proposed by different researchers. Now, it has been accepted by the scholars that 98% of the running words in a text should be known to the readers; we can refer it as a pre-condition for lexical inferencing and comprehension. The above discussions were important because before understanding the concept of lexical inferencing and knowing its importance, it is equally important to be aware of the importance of vocabulary knowledge in the process of reading comprehension.

In the later section, the process of lexical inferencing was introduced and discussed in detail. Various factors affecting the process of lexical inferencing were also discussed with respective researches. First, the students' proficiency in the second language then the knowledge of L2 vocabulary also influences the process of lexical inferencing. Textual features come at third. Quality of a text definitely has a role to play in the inferencing process of the students. Apart from these, how much success the learners achieve in their inferencing is another factor to ponder over. Last but not the least, it is also important to track how much newly acquired word meanings the learners retain after their inferencing task (be it immediate or delayed). One thing to note is that these are not the only ones, there are several other factors but they

may vary on the basis of their role in lexical inferencing process. The present section has offered a review of only those factors which are later on used in the present study for further exploration. For a researcher, it's important to keep in mind all the aspects involved in lexical inferencing because more or less every aspect has a certain role to play at some point in time. In order to gain a broader perspective on L2 lexical inferencing process, one should not avoid the other small factors affecting the process of inferencing. Participants' use of knowledge from different sources has a very strong role to play in their inferencing process. Appropriate use of the knowledge sources may lead them to achieve inferencing success which later on will contribute to subsequent vocabulary retention. On the other hand, for the researchers, a systematic investiation into those sources reveals the participants' depth of involvement with the text, their interest in acquiring a new meaning. These knowledge sources can be both linguistic and extra-linguistic. Context plays an important role as a cue to the inferencers. Apart from that words, sentences, grammatical information, participants' worldly knowledge, even to some extent their L1 also act as the source of knowledge in the inferencing process. Previously, different terms were adopted by different scholars to interpret these sources of knowledge. In the present study, these are being termed as knowledge sources. The present study also tries to find out the different types of knowledge sources used by the participants in their inferencing process. Along with that it also looks into the frequency of usage of these knowledge sources by the participants. The previous studies discussed above have focused on the comparative discussion on the use of knowledge sources between different age group and different grade level students. The study at hand will focus on a comparative perspective of the usage of knowledge sources by English medium and Odia medium participants.

It is important for a researcher to understand the difference between the strategies and knowledge sources used by the learners in their inferencing process. For this, some of the aforementioned studies like Nassaji (2003; 2006) and Hu & Nassaji (2014) offer a clear

picture in terms of the types and nature of inferential strategies of the learners. Apart from that we also get to know about the relationship between the learners' inferencing success and their use of different strategies. How their choice and application of particular strategies at certain point led them to achieve success in inferencing the meaning of unknown words has been discussed. The efficient use of inferential strategies not only leads to inferencing success but also plays a compensatory role for the learners with low reading proficiency.

The chapter also discussed the theoretical framework of the present study in detail. The findings of the previous researches were synthesised in terms of the focal aspects of the present thesis. The primary aim behind choosing Wesche & Paribakht (2010) as the background for the present study is its comprehensive nature and wide coverage of several aspects related to lexical inferencing process. Wesche & Paribakht (2010) talks about several aspects of lexical inferencing which are also been addressed in the present thesis. Whether the findings of the present thesis will support those of Wesche & Paribakht (2010) or they will differ significantly; it will be discussed in the final chapter of the thesis after analysing the data and discussing the results. Apart from that, their models are already being widely used by an ample number of studies done in this area of which some are mentioned in the present chapter of the thesis. Along with that, few research gaps were mentioned. Finally, the new dimension of the present research was presented.

Chapter III

METHODOLOGY

3.0. Introduction

This chapter will discuss the research design and the methodology for the present study. Starting with the research questions, it will look into the framework of the research design. Information regarding everything; participants, tests, target words, data collection procedures, data analysis procedures and the measures taken for safeguarding the reliability and validity of this study are being discussed in the following sections of this chapter.

3.1. Research Questions Addressed in the Thesis

Lexical inferencing in present time has been proved a widely researched area in the context of second language and foreign language learning. The present study is focused on the lexical inferencing conduct of intermediate Odia ESL learners. Thus, keeping the above point in mind, the research questions addressed in the study at hand are:

1. What do the intermediate Odia ESL learners rely on to handle the difficult words while reading an English text?
2. Which knowledge sources help the intermediate Odia ESL learners to get the meaning of difficult words while reading an English text? Do they rely on their L1 as a knowledge source to get the meaning?
3. Is there any relationship between the intermediate Odia ESL learners' inferencing success and their subsequent retention of new word meanings?
4. Are there any significant differences between the English medium and Odia medium participants in terms of their usage of knowledge sources, their rate of inferencing success and their retention of new word meanings?

3.2. Participants of the Study

For the present study, initially 120 intermediate Odia ESL students were taken. Through their performance in Nation's (1990) Vocabulary Levels Test (VLT), 40 intermediate ESL learners were selected for the present study. Participants of the study were the native Odia speakers. All the 40 participants joined the intermediate course in three different institutions after completing their schooling and these were: 1. Ravenshaw University in Cuttack, Odisha, 2. Raghunath Jew Degree College, in Cuttack, Odisha, and 3. The Commerce Hub (TCH), a popular coaching institute for 11^{th} and 12^{th} grade students in Bhubaneswar, Odisha. Thus, all of them had sufficient years of exposure to English as an L2. Participants were further divided into two groups: English medium and Odia medium, including an equal number of members (20+20).Participants of the study belonged to the age group of 16-18 yrs. The medium of instruction in the institutions selected for the present study was English. Thus, the English and Odia medium participants were differentiated on the basis of their schooling background they had before joining the intermediate course. All the participants were in the first year of their intermediate course. They belonged to different social strata; 65% participants belonged to urban setting and the other 35%some were from rural setting, so far, the socio-economic background of the participants is concerned; there was a kind of mixed background students. The 40 participants belonged to the Commerce and Arts stream. Almost 70% participants had much more informal exposure to the English language through their frequent exposure to media, movies, music, sports, and friends etc. whereas 30% had least informal exposure to the language.

3.3. Instruments

Different tests involved in the present study have been discussed below in this section. Information regarding the test format, their scoring and the reason behind using these tests in the present study are also discussed in this section.

3.3.1. Vocabulary Levels Test (VLT)

In order to know the level of receptive vocabulary knowledge of the initially selected 120 participants, the Vocabulary Levels Test (Nation, 1990) was conducted. The original test consists of 90 items from five word-frequency levels (2000, 3000, 5000, the University Word List and 10,000 words). Considering the level of difficulty, in the present study, only 3000, 5000 and the University Word List were used in the test. Each frequency level consisted of 30 items. The format of the test had slightly been modified for the present study. According to the original format, students had to match the definitions with the words given as options which they thought are the right ones. Here, the same format was also used but only for 5000 frequency level and the University Word List. For the 3000-frequency level, the format had been slightly modified; this level had 30 items, where the participants had to fill in the blank in a sentence with the right word. Keeping in mind the participants' level of interest and involvement, this step had been taken. The maximum possible score for the test was 90. Thus, this particular test has been used in the study to estimate the participants' receptive English vocabulary at different word frequency levels and to observe whether they had enough vocabulary knowledge to read texts that include words from these frequency levels. Apart from that, this test was used as a Pre-test to select appropriate participants for the main inferencing study.

3.3.2. Inferencing Test

This test was meant to look into the participants' inferencing behaviour in detail. For the same, participants were asked to read aloud five passages in English which contained some difficult words. Those difficult words were typed in bold format in order to make it easy for the participants to trace them out. While reading the passage aloud, they had to say the meaning of those difficult words; irrespective of right or wrong. They had to think aloud at that time, means, they had to say it aloud what they were thinking while trying to get the meaning of these words. Details about the think-aloud procedure are presented in the following section of this chapter. Their readings were recorded for further interpretations. Two important parts of this test are the texts and the target words.

3.3.2.1. Texts

Initially, for this test, texts were selected according to the participants' level of interest. Therefore, no texts from their syllabus were included. The selected passages belonged to the general interest of the students, viz. politics, movies, social awareness, etc. the five passages those were selected initially for this study are:

1. Women in Art: A brief Introduction
2. Social networking Site: Its Advantages and Disadvantages
3. Talking about Depression: Deepika was wonderful but what was wrong with Barkha Dutt?
4. Women Safety in India: Has anything changed since16 December 2012
5. When Kejriwal defeated the Media.

After conducting the pilot study and analysing the data, it was found that these passages were not so proper for the study. One important reason for the rejection of these passages was the text comprehension level: apart from the target words in the passages, there were other

words which were creating hindrances in the inferencing procedure of the students. Therefore, after a long discussion, the decision was taken to change these passages and to include the kind of texts, where the contexts, as well as the surrounding words of the target words, will facilitate participants' inferencing procedure. Finally, it was decided to take texts from the syllabi of one-year upper standard and one-year lower standard of the participants, viz. texts from standard 10^{th} and 2^{nd} year of 12^{th}-grade courses. The five texts which were finally selected for the present study were:

1. The Legend behind a Legend (By Hariharan Balakrishnan)
2. In London in Minus Fours (By Louis Fischer)
3. The Doctor's Word (By R. K. Narayan)
4. Childhood (By Pandit Jawaharlal Nehru)
5. Tryst with Destiny (By Pandit Jawaharlal Nehru)

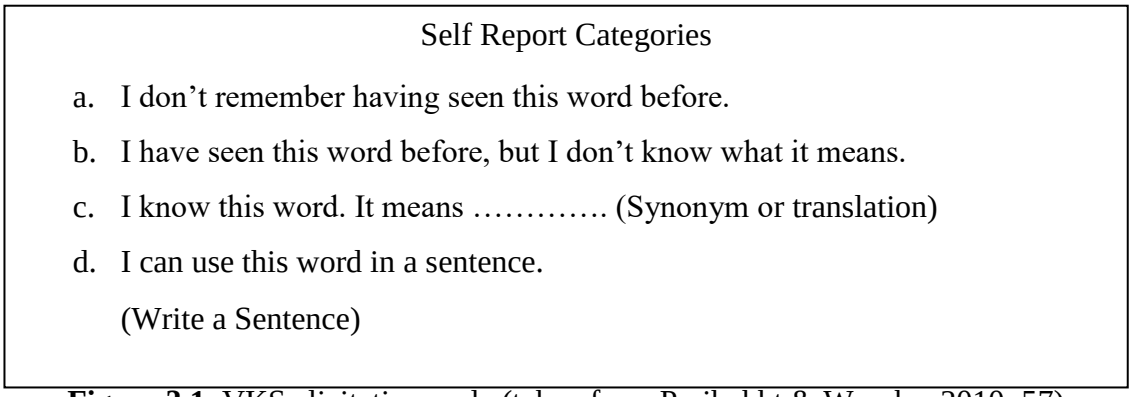
The text difficulty or textual difficulty or text comprehensibility was also checked in order to make sure that words apart from the target words will not obstruct the inferencing process of the participants rather will help them. By using the Longman Vocabulary Checker, the lexical difficulty of the text was identified. (www.longmandictionaries.com/vocabulary_checker) The summary of this checking can be found in the appendices.

3.3.2.2. Target Words

Target words were those difficult words presented in bold font and the participants had to infer their meaning while reading the text. Initially, 50 target words were chosen. But as texts were changed so the target words too. Later, for the final study, 53 target words were selected. These words belonged to different grammatical categories, viz. noun, adjective, verb etc. These words were checked by the Longman Vocabulary Checker in order to know their frequency level before finalizing them for the study.

3.3.3. Vocabulary Knowledge Scale Test (VKS)

Vocabulary Knowledge Scale (Wesche & Paribakht, 2010) test is also called as Retention test in the present study. The idea of implementing this test for the present study was taken from Wesche and Paribakht's 2010 publication. This test was meant to measure the participants' immediate gains after the inferencing test in terms of the newly acquired word meanings. To put it in other words, this test was conducted in order to know how much knowledge about the target words the participants retain after the inferencing task. In the test format, each target word was individually presented with four different options. Participants had to select the appropriate option for each word which they thought as more accurate. Figure 3.1 below presents the format of the vocabulary knowledge scale test.


Self Report Categories

a. I don't remember having seen this word before.
b. I have seen this word before, but I don't know what it means.
c. I know this word. It means ……. (Synonym or translation)
d. I can use this word in a sentence.
(Write a Sentence)

Figure 3.1. VKS elicitation scale (taken from Paribakht & Wesche, 2010: 57)

The result of this test is then scored on a 1–4-point scale for each target word, representing the participants' knowledge from total unfamiliarity to the ability to use the word in a sentence appropriately.

3.3.4. Questionnaire on Participants' Dealing with Difficult Words

A questionnaire was designed to find out the strategies used by the participants to deal with difficult words in a text. 10 possible strategies with four frequency level by side (Often, Sometimes, Rarely, Never) were inside the questionnaire. Participants had to choose one of the four frequency levels for the strategies given. Each frequency level was then scored

(Often = 04, Sometimes = 03, Rarely = 02 and Never = 01). The idea of this Questionnaire was taken from Zhaochun, 2011.

3.4. Procedure of Data Elicitation

In the present study, the primary aim was to observe the inferencing behaviour of the selected intermediate Odia ESL participants. Based on that, the main elicitation procedure was the participants' inferencing of the meaning of the difficult target words given in the texts. It was done with the help of think-aloud procedure followed by an interview and the recording of these think-aloud protocols as well as the interviews.

3.4.1. The Think Aloud Procedure

Think Aloud procedure is a famous tool for the researcher to give insight into the processes of a working memory. Think-aloud methods of data collection have achieved an increasing prominence in the study of cognitive processing and in the investigations of individual differences. According to Ericsson & Simon (1980), think-aloud methods involve highly specified tasks that produce more reliable results than hypothetical ones, and they lessen the problem of memory failure since the reporting is nearly concurrent with the processes being described (Cited in Soria 2001: 8). In recent L2 lexical inferencing research think-aloud technique has occupied an important place because:

> "A speaker often takes several minutes to disclose one thought. In his mind the whole thought is present at once, but in speech it has to be developed successively…Precisely because thought doesn't have its automatic counterpart in words, the transition from thought to words leads through meaning…and then through words. (Vygotsky, 1962 in Charters, 2003)"

In this process, the reader has to speak aloud what she/he is thinking about the difficult word (target word) while reading the text. And while thinking aloud, the reader should not be

interrupted because that will affect the natural flow of his/her "inner speech". Thus, the participants in this study had to follow think aloud procedure while they were trying to infer the meaning of target words in the texts. Each participant took around 45-50 minutes to complete the inferencing task in this way. These think-aloud protocols of each participant were recorded carefully for further interpretation.

The challenges faced during the pilot study with regard to the think-aloud procedure were taken care of before conducting the main study. Previously, during the pilot study, it was observed that only demonstration about the think-aloud procedure was not enough for the participants. They were still facing difficulties while trying to think aloud. Thus, before conducting the actual inferencing tasks, a short practice session was arranged for all the participants. During that practice session, participants were exposed to some videos where the think-aloud process was being simplified. After that, some visuals were displayed in front of them and participants were asked to think and talk-aloud about those visuals. Participants were instructed to feel free to choose among their L1 and L2 during the think-aloud sessions. These practice sessions helped the participants to a great extent in order to follow the think-aloud procedure efficiently.

3.4.2. Interview of the participants

As we know that while thinking aloud, participants shouldn't be disturbed in any condition. Therefore right after their inferencing task for one text, they were interviewed by the researcher for 5-10 minutes. The primary aim behind conducting such small interviews was to know a little more detail about the participants' thinking process and about their experience of the test. This was a one-to-one interview between the participant and the researcher. These interviews were also recorded for further analysis.

3.5. Analysis and Interpretation of Data

The recordings were transcribed and verified for accuracy. Based on those transcriptions, analyses were carried out for each participant and each target word in order to get answers to the research questions. In the qualitative analysis of the data, the primary aim was to find out all the possible types of knowledge sources used by the participants to reach the intended meaning of the target word. The transcriptions of the recordings were done carefully; by hearing the audio again and again. The transcriptions were further checked out and discussed for accuracy. Thereafter, the intended information were extracted from them. From those information, the different types of knowledge sources were identified. Following the process of identification of knowledge sources, calculations were carried out in order to find out the frequency of the usage of these knowledge sources and their subtypes by the English and Odia medium participants.

Each participant's transcript was also analysed in detail in order to find out whether their inferences were successful (semantically & syntactically appropriate), partially successful (semantically correct but not syntactically appropriate) or unsuccessful (means they inferred the wrong meaning). In order to determine the inferencing success rate, the scores were given to each response and the scoring system was (Successful Inferencing = 02, Partially Successful Inferencing = 01 and Unsuccessful Inferencing = 00). The average scores of the participants' inferencing success were calculated from their individual scores.

For the quantitative analysis of the collected data and to determine the significance level of all the results various statistical methods were employed. Frequency and Mean calculation were operated in order to determine the average usage scores of knowledge sources and their subtypes, average scores of inferencing successes, and retention of new word knowledge. In order to find out the relation between the inferencing success result and

the retention test result, the correlation value or ***r***-value was calculated using the Pearson Correlation Coefficient methods. Last but not the least, to find out whether or not the differences between the English medium and Odia medium participants' inferencing behaviour in certain aspects were statistically significant, the data were subjected to T-tests. These T-tests varied in different contexts as per the nature and intention of the analysis. There were paired as well as unpaired T-tests. Paired T-tests were used in those contexts where the two sets of data are dependent on each other. On the other hand, unpaired T-tests were used for independent data sets. The T-tests used in the present study are two-tailed by nature which implies that the tests were aimed to find out whether the differences between two sets of data are significant or not.

All the statistical calculations for the present study were done with help of Microsoft Excel,www.socscistatistics.com/tests/studentttest/Default.aspx,andwww.mathportal.org/calculators/statistics-calculator/t-test-calculator.php.

3.6. Some Important Points to Ponder

In this section, some difficulties and challenges are mentioned which the researcher faced during the field study. It is important to mention these points; so that it will help other researchers working in this area to prepare themselves by keeping these points in mind before planning a field study:

1. Time constraint is the most irksome difficulty, a researcher will face. The researchers, as well as the participants, are time bound. On the other hand, the study in concern is time fetching (nearly 45minutes for each participant). Conducting the study by restricting them from their class is pretty much difficult. Intermediate students, in general, have a packed schedule from college to coaching institutes and vice-versa.

Thus, coordination of time between the participants and the researcher should primarily be taken care of during the field study.

2. Involvement of the participants is another important factor. For the present study, initially, some of the participants were not so interested in reading all the five passages; they considered it as boring and were not willing to complete the task. Thus, motivating the participants to complete the task is very important. Researchers should be innovative in offering extrinsic motivations as per the participants' interest.
3. To make the participants ready for thinking aloud. This is another challenging factor among others. Sometimes, participants felt language as a barrier in the way of their thinking aloud; though they were instructed to use any language they are comfortable with (L1/ L2). Some of them were feeling shy to speak entirely in Odia and while speaking in English, they missed many points. Thus, before training them for think aloud process, it's important to make them feel comfortable while speaking in any of the languages.

These are some of the important points observed during the field study for the present work. Further, these points may help the other researchers in their field study planning.

3.7. The Pilot Study

Before conducting the main field study, a decision was taken to conduct a pilot study in order to observe the students' reactions towards the tests involved in the study; especially the inferencing test and the process of thinking aloud while reading. To find out whether or not they are taking interest in the think-aloud procedure and what are the difficulties they are facing in the process were the primary aim behind conducting the pilot study. 10 intermediate Odia ESL learners had participated in the pilot study. They belonged to two different colleges of Odisha (Ravenshaw Junior College and B.J.B Autonomous College). All of them were part

of a famous coaching institution in Bhubaneswar, The Commerce Hub. The participants were the final year students of their intermediate course. There were equal numbers of male and female students in the group. All the participants went through Nation's Vocabulary Levels Test (1990). They were given a text "When Kejriwal defeated the Media" (507 words) to read and infer the meaning of 10 difficult words placed in the text. They were asked to think aloud while inferring the meaning of those difficult words. The sole aim of the pilot study was to test the familiarity and trace the difficulties, students faced at the time of completing the tasks, specifically the inferencing task. It was supposed to help us in conducting the main study in a more efficient way. The outcome of the pilot study, on one hand, gave a positive indication in a sense that all the participants made an attempt to complete the test. At the same time, few shortcomings were noticed which were taken care of before conducting the main study. These shortcomings are mentioned below:

- Firstly, think aloud procedure was completely new to them. During the pilot study, the researcher gave a demonstration about how to think aloud. Later on, it was observed that giving a demonstration is not enough. They need a short practice session before doing it for the test. This procedure was followed during the main field study.
- Secondly, while thinking aloud the participants were confused which language they should use. Though they were informed before that they can use either their L1 or L2 or both at the same time. But some of the participants were still confused. Thus, before conducting the main inferencing test, necessary steps were taken to make the participants feel comfortable to use any language (L1/ L2) as per their choice.
- During the pilot study, it was observed that participants were facing difficulties in inferring the meaning of the difficult words due to the text's difficulty level. In other words, apart from the difficult words, there were other words which were creating obstacles in their way of comprehending the text. Thus, for the main study, the

comprehensibility of the text was taken care of so that the participants will not face the same problem again.

3.8 .Summary

The chapter presents the research questions which are addressed in the study. It gives a clear idea about the participants of the study along with their academic and non-academic details. Also, it talks about the instruments: texts, target words, tests and questionnaires which are to be involved in the present study. Different data elicitation procedures which were selected for the study at hand are also discussed in the chapter. It also briefly presents the pilot study which was conducted before going for the main study. The chapter ends with the mention of few important observations made by the researcher while conducting the pilot study.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

4.0. Introduction

This chapter will focus on the analysis and interpretation of the collected data. Along with that in this chapter, we will try to obtain the answers to the research questions formulated in the beginning of the work. Analysis and interpretations are entirely based upon the responses of the participants to different questionnaires used in the study and the think-aloud protocols of the participants.

4.1. Identified Strategies used by the Participants to Manage the Difficult Words in an English Text

A questionnaire was given to participants to fill up in order to know their immediate action taken as they encounter difficult words while reading an English Text. The questionnaire included ten strategies as the options with four frequency levels (often, sometimes, rarely and never) as choices. The participants had to choose among the four frequency levels on the basis of how frequently they use these strategies in their reading process. The four frequency levels were given scores with a 4-point scale (often= 4, sometimes= 3, rarely= 2 and never= 1). Table 4.1 below presents the frequency calculation which is followed by a discussion:

Participants' Strategies	Often	Sometimes	Rarely	Never
1. Ignore the Word	18 (45%)	15 (37.5%)	07 17.5%)	00
2. Guess the meaning from context	27 (67.5%)	13 (32.5%)	00	00
3. Look into the word itself for clue	05 (12.5%)	10 (25%)	16 (40%)	09 (22.5%)
4. Look into a dictionary	07 (17.5%)	17 (42.5%)	10 (25%)	06 (15%)

5. Ask a teacher for help	00	07 (17.5%)	06 (15%)	27 (67.5%)
6. Ask a friend for help	03 (7.5%)	10 (25%)	19 (47.5%)	08 (20%)
7. Take a note of the word	00	11 (27.5%)	23 (57.5%)	06 (15%)
8. Take help from internet	22 (55%)	12 (30%)	06 (15%)	00
9. Try to relate the word with my L1	00	06 (15%)	10 (25%)	24 (60%)
10. Other than the above options	00	04 (10%)	13 (32.5%)	23 (57.5%)

Table 4.1. Different strategies used by participants to deal with difficult words in an English text.

The data presented in table 4.1 above, reveals about the participants' use of different strategies to deal with difficult words while reading an English text. The table shows that strategies like *guessing the meaning from context* and *taking help from the internet* were used frequently in order to find out the meaning of a difficult word. Some of the participants *often* choose to *ignore the word*. The quantitative figure indicates that 67.5% of the total number of participants often tries to guess the meaning of the difficult words from the context. At the same time, 55% of the participants *often take help from the internet* for the same. According to the responses, 45% of the participants *often ignore the difficult words*. 42.5% of the participants *sometimes* try to *look into the dictionary* for the meaning of the difficult words. The participants' responses to the questionnaire also specify that 57.5% of them do *rarely take note of the difficult words*. *Rarely* do they *ask a friend for help*. 60% of the participants have never taken help from their L1. The analysis reveals that most of the participants (67.5%) *never ask their teacher for any kind of help* in finding the meaning of difficult words. It was decided that the participants' choice of the frequency levels for different options was to be calculated by a 4-point scoring system. On the basis of those individual scores, the

mean value for each strategy was calculated. Figure 1.1 below represents all the strategies with their respective mean scores:

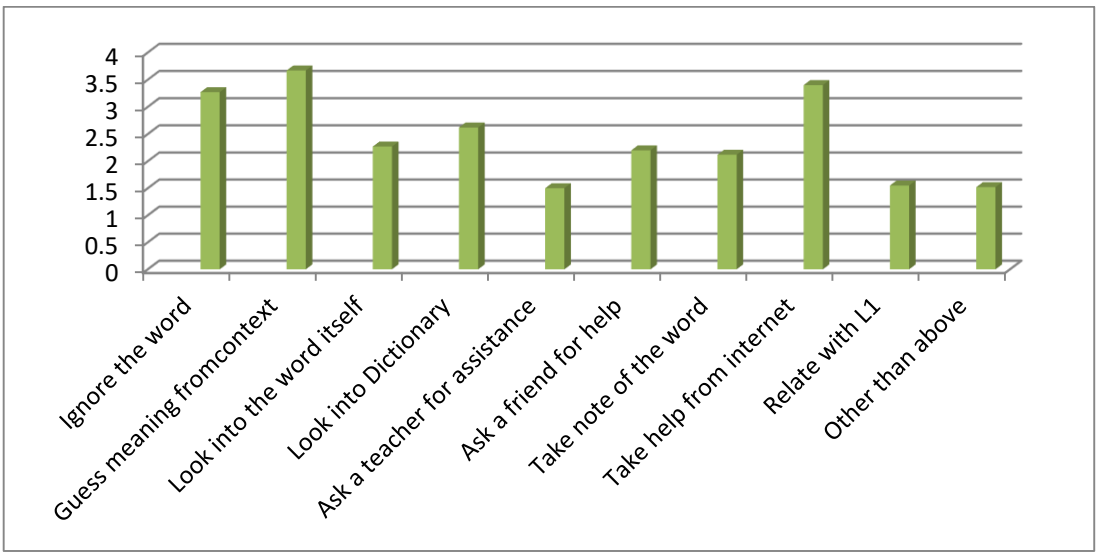


Figure 4.1. Mean score of the strategies used by the Participants'.

Figure 4.1 above presents the mean value of each strategy. The graph reveals that most of the participants used contextual guessing strategy. The mean value for this strategy is thus, the highest amongst all, i.e. 3.67. Similarly, the option, *searching the meaning through the internet* has the second highest mean value, i.e., 3.40. Options like *ask a teacher for help* and *take help from L1* have scored the lowest mean value, i.e., 1.5 and 1.55 respectively. As 45% of the participants have chosen often to ignore the difficult word, accordingly, the mean value for this option is slightly ahead than of others', i.e., 3.27.

4.1.1. Outcome of the Analysis

A successful attempt was made by using he questionnaire survey for finding out how do the participants deal with the difficult words which they encounter while reading a text in English. The result of the survey showed that students often chose to find out the meaning from the context and take help from the internet or to ignore the word. Sometimes they look into a dictionary, ask a friend for help. Rarely do they look into the word itself for cues, and

take a note of the word. Never have they asked a teacher for help and taken help from their L1.

4.2. Types of Knowledge Sources and their Use

One of our aims in this study on lexical inferencing of 40 intermediate Odia ESL learners was to find out the types of knowledge sources (henceforth KSs) used by the participants in order to reach the meaning of the difficult target words. According to Wesche and Paribakht (2010) the categorisation and description of the diverse types of knowledge sources that readers use in lexical inferencing indicates towards the kind of textual information and knowledge the learners draw upon when trying to comprehend unfamiliar words. (P: 76)"

In this section, we will analyse different KSs found from the introspective think-aloud protocols of the participants and discuss how frequently they were being used by the participants. The different types of knowledge sources found from the think-aloud protocols of the participants are discussed below with respective definitions and examples. The KSs are categorised according to the participants' description of the nature and type of knowledge they used during their inferencing processes. The examples given for each knowledge source category are the extracts from the introspective think aloud reports of different participants.

4.2.1. Word-based Knowledge Sources

The first category includes the sources based on the word knowledge. The study defines those sources as word-based knowledge sources, where the participants have tried to get the meaning of difficult words by taking help from words; the target word itself or from other words in the same sentence or from words which frequently occur together. There are few subtypes of this category which are analysed and discussed below with examples:

- Based on word connection
- Based on spelling and pronunciation of the words
- Referring to the word collocation
- Analysing the target word

4.2.1.1. Word Connection

Word connection is the type of knowledge source, where participants connect the target word with other words in the same sentence/ in previous sentences/ even with words from outside the text and try to reach the meaning:

E.g.1. From the passage "*In London in minus Fours*"

"He would cut India off from the Empire entirely, from the British nation not at all, if I want India to, gain and not to ***grieve***."

Target Word: Grieve

SR: I think it means *to lose* or *loss* but I am not sure.

I: Why do you think so?

SR: Because when I read the sentence, it's written "I want India to gain and not to grieve"…as ***gain*** word is there so I connected with it and thought this would be loss.

E.g.2. From the passage "*Childhood*"

"He seemed to me the ***embodiment*** of strength and courage and cleverness, far above all the other men I saw and I treasured the hope that when I grew up I would be rather like him."

Target Word: Embodiment

SR: I don't know the meaning of this word but here looking at the next words 'courage' and 'strength' I think this means *to encourage*. Means his father always encourages him for strength and courage.

4.2.1.2. Spelling and Pronunciation

Sometimes students got confused with the spelling and pronunciation of the target words and they misunderstood it as another word. In other sense, they tried to link target words with those, which have a similar (not fully but partially) spelling or pronunciation. Sometimes they pronounced the target word wrongly and tried to guess the meaning.

E.g.1. From the passage "*Childhood"*

"I was filled with ***resentment*** against the alien rulers of my country who misbehaved in this manner, and whenever an Indian hit back I was glad."

Target Word: Resentment

SR: (pronounced as "risen̪imen̪") I think it means... something to do with emotion or feeling.

I: How do you know?

SR: Because the word *sentiment* is there…and it means feeling…so I am thinking this word means *emotion or feeling*.

E.g.2. From the passage "*Tryst with Destiny*"

"Long years ago we made a tryst with destiny, and now the time comes when we shall ***redeem*** our pledge not wholly or in full measure, but very substantially."

Target Word: Redeem

SR: (pronounced as "ri̪dim"). This means something *musical*. It is always associated with music or songs.

4.2.1.3. Word Collocation

Collocation in general sense refers to the occurrence of one word with another word or words with a frequency greater than chance. When students tried to guess the meaning by relating the target words to other words with which they frequently occur, that source is being categorised as word collocation.

E.g.1. From the passage *"The Legend behind a Legend"*

"I was told that Khairi was under the care of a rather ***gruff*** and tough man called Saroj Raj Choudhury who brooked no nonsense and suffered no fools."

Target Word: Gruff

SR: It is attached with *tough* in the sentence, so I think it means *rough* because rough and tough always occur with each other.

E.g.2. From the passage "*The Legend behind a Legend*"

"For good measure, I referred to a few ***itinerant*** articles I had written for Indian magazines."

Target Word: Itinerant

SR: Itinerant articles…..here I think *itinerant* means *important*.

I: Why do you think so?

SR: Because with article, important is used most of the time…like we say 'this article is important'…that's why I am guessing.

4.2.1.4. Analysing the Target Word

Analysis of the target word itself indicates that sometimes students tried to guess the meaning by analysing the target word form itself; by dividing it into two parts/ by observing the presence of one word and thinking that particular word as the root word and guessing the meaning in relation to that.

E.g.1. From the passage *"Tryst with Destiny"*

"At the dawn of history, India started on her unending quest and trackless centuries are filled with her striving and ***grandeur*** of her success and failures."

Target Word: Grandeur

SR: I don't know what it means….but grand word is there and it means big or large…so I guess it means something *big*.

E.g.2. From the passage *"In London in minus Fours"*

"A delightful photograph taken outside the Greenfield Mill at Darwen shows Gandhi wrapped in white ***homespun*** from neck to knee…. "

Target Word: Homespun

SR: The word has *home* in it…and the sentence has words like neck and knee…so I think it refers to a *dress used at home* that covers neck to knee.

4.2.2. Sentential Knowledge Sources

When students tried to take help from the sentences; by analysing the meaning of the sentences/ looking at the surrounding sentences of the target words/ by reading the sentence again and again, those sources are categorised as sentential knowledge sources or sentence based knowledge sources. This category has its own subtypes too. They are:

- From the sentence's meaning
- From meaning of surrounding sentences

4.2.2.1. Sentence's meaning

Sometimes participants tried to reach at the meaning after understanding the meaning of the sentence where the target word is placed. They tried to relate the target word to the sentence's meaning and by doing so they tried to infer the meaning.

E.g.1. From the passage *"The Doctor's Word"*

"He rolled up his sleeve and stepped into the arena: it might be hours or days, but he never withdrew till he ***wrested*** the prize from Yama's hand."

Target Word: Wrested

SR: I think this word means *receive*.

I: How do you know?

SR: Because the sentence's meaning says: the doctor will try to the point till he has not received a prize from Yama's hand. And Doctors cure patients. Here also the doctor is saying that he will cure the patient and that will be the prize for him.

4.2.2.2. Meaning of Surrounding Sentences

Not only the particular sentence where the target word occurred helped the students to reach at the meaning but also the sentences surrounding the target word also helped them a lot. Sometimes students tried to guess the meaning of the target word by reading and understanding the meaning of surrounding sentences:

E.g.1. From the passage *"The Doctor's Word"*

"….visiting fee was twenty-five rupees and more than that people liked to shirk the fact that the time had come to call in Dr. Raman; for them there was something ***ominous*** in the very association"

Target Word: Ominous

SR: I think the meaning of this word is *restrictions*. I am not sure.

I: Why do you think so?

SR: Because the previous sentence says: "visiting fee was 25 rupees". This means may be people cannot pay 25 rupees at that time and that's why it was a restriction for the people. As a result, they did not call Dr. Raman.

4.2.3. Idea of passage or specific paragraph

Sometimes participants tried to take help from the idea of the passage; e.g. what is being talked about in the passage or to whom the passage is addressing etc. Not only that, they even took help of the idea being centered around the particular paragraph, where the target word occurred. This category of knowledge source has the following subtypes:

- From the central idea of the passage
- From the idea of the paragraph

4.2.3.1. Central Idea of the Passage

Participants tried to reach at the meaning of the target word by linking it with the central idea of the passage; what the passage talks about/to whom it is addressing/subject matter etc.

E.g.1. From the passage *"In London in minus Fours"*

"A delightful photograph taken outside the Greenfield Mill at Darwen shows Gandhi wrapped in white ***homespun*** from neck to knee…."

Target Word: Homespun

SR: I think it means…***mmm****...some clothes made at home*. Because the passage is about Mahatma Gandhi and we know he wore white clothes made by hand…that is why I am guessing.

E.g.2. From the passage *"Childhood"*

"I was filled with ***resentment*** against the alien rulers of my country who misbehaved in this manner, and whenever an Indian hit back I was glad"

Target Word: Resentment

SR: I think it means *revenge*. The passage talks about India's freedom fight…so Indians wanted to take revenge from English people.

4.2.3.2. Idea of the Paragraph

Apart from the central idea, the idea described in particular paragraph where the target word occurred also helped students to infer the meaning. They tried to get an idea what the paragraph is talking about and relate the target word to that idea.

E.g.1. From the passage *"The Doctor's Word"*

"Long years of practice of this kind had ***bred*** in the doctor a certain curt truthfulness."

Target Word: Bred

SR: Bred means I think longtime practice because the paragraph talks about a doctor, Mr. Raman. Doctors do practice a lot. From that I am guessing the meaning.

4.2.4. Grammatical Information

Grammatical Information about the target word also helped the students to guess the meaning; e.g. which category the difficult word belongs to, whether the word is in present tense or past tense, etc. Though the contribution of this knowledge source is less than the above three, it proved helpful for some of the students.

E.g.1. From the passage *"Legend behind a Legend"*

"… Khairi was under the care of a rather gruff and tough man called Saroj Raj Choudhury who ***brooked*** no nonsense and suffered no fools."

Target Word: Brooked

SR: It seems as *the past tense of break* for me….***mmm***…yes, it's the past tense of break.

E.g.2. From the passage *"Tryst with Destiny"*

"Long years ago we made a ***tryst*** with destiny and now the time comes when we shall redeem our pledge… "

Target Word: Tryst

SR: I think it is related to the word try…may be it is the *adjective form of try*…I am not sure.

4.2.5. Previous Knowledge

Previous knowledge about the target word helped the students most of the times in their inferencing process. When they say they have seen/heard the word before, indicates their previous knowledge of the word.

E.g.1. From the passage *"In London in minus Fours"*

"He also addressed ***innumerable*** public meetings and spent two memorable weekends at Oxford."

Target Word: Innumerable

SR: I *know this word before*…it means *uncountable or several*.

4.2.6. World Knowledge

World knowledge is when students know some detail about the target word other than its linguistic features and employ that knowledge to guess the meaning. Sometimes they give some details in support of the target word too; describing its nature/ where it is being used, etc.

E.g.1 From the passage *"Tryst with Destiny"*

"The responsibility rests upon this Assembly, a ***sovereign*** body representing the sovereign people of India."

Target Word: Sovereign

SR: I can't say the exact meaning of this word but I have seen it before in our Political Science course. Particularly in the Preamble of Constitution of India; India is a sovereign, socialist, republic. May be it means free body.

4.2.7. Taking Help from L1

Very few students tried to take help from their L1 while trying to get the meaning of difficult words; either they said the meaning of the word in Odia or they tried to think that the word might mean something in Odia. Some of the examples are:

E.g.1 From the passage *"My Childhood"*

"My childhood was thus a ***sheltered*** and uneventful one. I listened to the grown-up talk of my cousins without always understanding all of it."

Target Word: Sheltered

SR: It means…. mmm…mmm… *mauLika ābasyakatā*… Like we say necessity of the human beings for settlement.

E.g.2 From the passage *"The Legend behind a Legend"*

"The forest guard detailed, to ***escort*** me, took me to the guest house, put me in my room and assured that water was in jug."

Target Word: Escort

SR: *eTHi yā māne…mmm…pacāribā … māne purā tanāghanā karibā detail re. sie seTHi rahuthile ta sethilāgi forest guard tānka bisayare information nauthile.*

4.2.8. Knowledge Sources identified in the Study

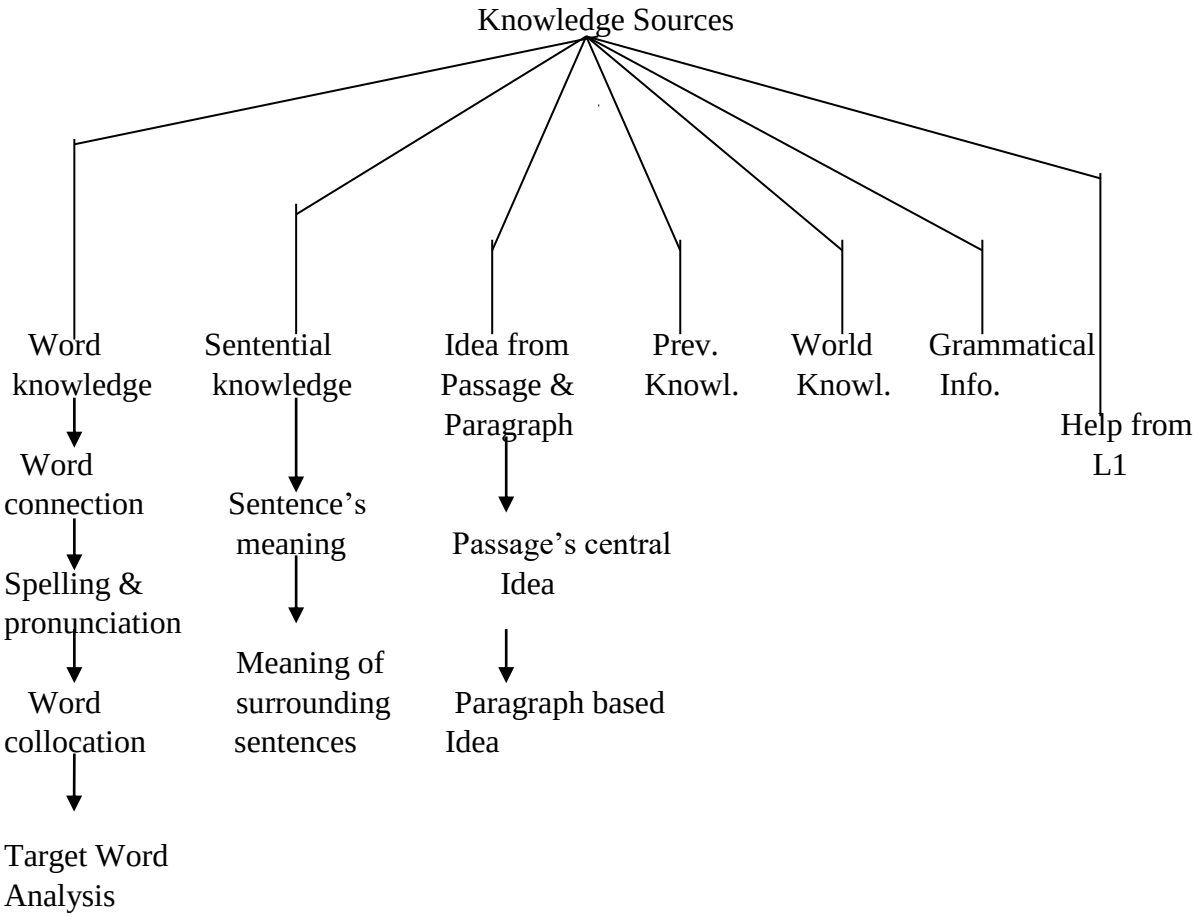


Figure 4.2. Knowledge sources found in the present study.

So far, from the interpretation and analysis of the think-aloud protocols of the 40 participants helped us immensely to categorise the knowledge sources and their sub-types for the present study. Altogether seven types of knowledge sources were found along with their sub-types. Figure 4.2 above clearly demonstrates the categorisation of the knowledge sources.

4.3. Statistical Analysis of the usage of Knowledge Sources

We have already discussed the types and subtypes of knowledge sources found from the collected data with respective examples. In order to know how frequently they were being used for both English medium and Odia medium participants in their inferencing process, we will focus on the quantitative analysis of the usage of these sources. In order to determine whether the differences between English and Odia medium participants' usage of these knowledge sources are significant or not, the Test statistics test (T-test) was conducted. As the two groups' scores in the usage of different knowledge sources are not paired and the primary aim here is to find out that whether the difference that exists between the usage score of these two groups is statistically significant or not, an unpaired two-tailed T-test was conducted in this context. The level of significance was decided by the calculated ***t***-value. Again the probability value or the ***p***-value was calculated in order to confirm the T-test results. This section will present a statistical overview regarding the usage of different knowledge sources and their subtypes with the help of tabular and graphic form of representations.

4.3.1. Analysis of Word-based Knowledge Sources

In our discussion above we have cleared the idea about word based knowledge sources and their subtypes. Here, we will focus on how frequently they were being used by the English medium and Odia medium participants. The table below presents the total usage of all the subtypes of word-based knowledge sources in quantitative figures.

	Based on Word Connection	Based on Spelling &Pronunciation	Based on Word Collocation	Target Word Analysis
English Med.	160 (53.15%)	114 (43.67%)	88 (60.68%)	62 (57.94%)

Odia Med.	141 (46.84%)	147 (56.32%)	57 (39.31%)	45 (42.05%)
Total	301	261	145	107

Table 4.2. Usage of word-based knowledge sources by the participants

Table 4.2. presents a clear analysis of the use of word-based knowledge sources by English medium and Odia medium participants in their inferencing tasks. **Word connection** has the highest number of usage with the score of 301. Taking help of the **spelling and pronunciation** receives the second highest position with the score of 261. Relying on the source of **word collocation** comes at third with the score of 145 and **analysis of target word** comes at last with the score of 107. The distribution of the usage of these subcategories among English medium and Odia medium participants shows: in case of **word connection**, English medium participants are ahead of Odia medium participants. English medium participants have used **word connection** for 53.15% in their inferencing tasks while the percentage is slightly less in case of Odia medium participants, i.e. 46.84%. In case of **spelling and pronunciation,** Odia medium participants are ahead of English medium participants with 56.32% of usage. For English medium participants, the usage is of 43.67%. In case of the other two categories, English medium participants outweigh the Odia medium participants with 60.68% in **word collocation** and 57.94% in **analysis of the target word** category. Odia medium participants lag behind with 39.31% and 42.05% for the respective categories. Figure 4.2 below represents the above analysis about the usage of word-based knowledge sources by English medium and Odia medium participants in percentiles:

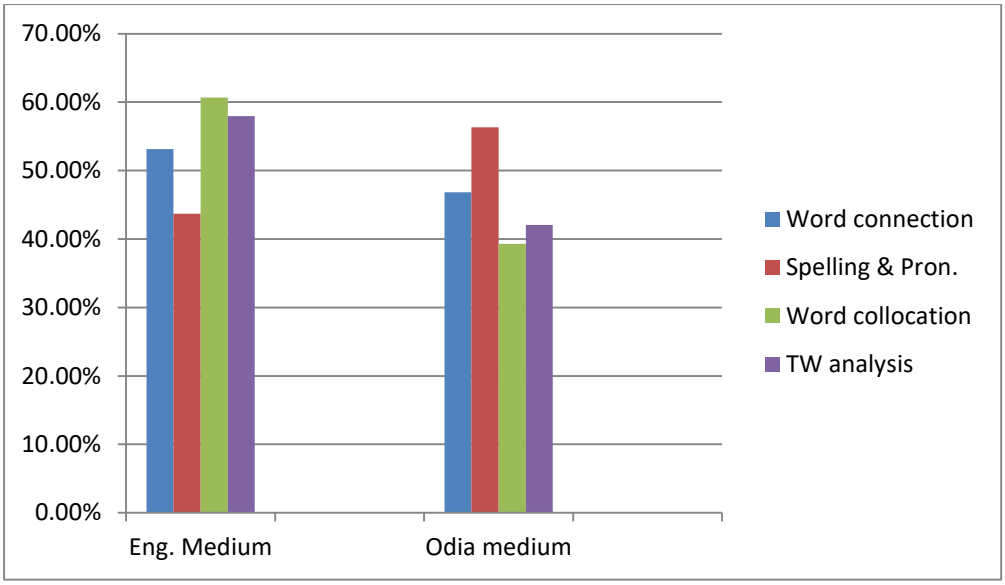


Figure: 4.3. Usage of subtypes of word-based knowledge sources by the participants. (Word connection, Spelling & Pronunciation, Word collocation & Target word analysis)

In order to find out whether the differences between the usage scores of English medium and Odia medium participants with regard to the word based KSs were statistically significant or not the T-test was conducted. There were equal numbers of participants in both the groups. The test was two-tailed because the aim of the test was to find out whether the difference between the usage of the two groups was statistically significant or not. The summary of the test is presented in the box below:

Summary of the T-test result in the usage of Word-based KS_s	
English medium participants	**Odia medium participants**
$N_E = 20$	$N_O = 20$
Mean (M_E) = 21.2	Mean (M_O) = 19.5
STDV (S_E) = 489.2	STDV (S_O) = 381
df (degrees of freedom) = 38 and t_c (critical value)= 2.024	
t-value = 1.123 and ***p***- value = .2 > .05	

Text Box 4.1. T-test result of the usage of Word-based KS_s by the participants.

The above summary says that the size of N = 20 in both the groups. Thus, the degrees of freedom here is (N_E-1+N_O-1) = 19+19=38. The mean values of the usage scores in the two groups are; M_E = 21.2 and M_O = 19.5 respectively. The calculated standard deviations for the two groups are; S_E = 489.2 and S_O = 381 respectively. Based on these initial values, the calculated ***t***-value = 1.123 and the calculated critical value was (t_c- value) = 2.024. As per the rule of a T-test, when $t < t_c$, the difference cannot be considered as significant. In addition to that the calculated probability value (p-value) = .2 > .05. When the calculated probability value is greater than the actual value, i.e., 0.05, the result is considered as not statistically significant. Thus, the difference between the English and Odia medium participants' usage of word-based knowledge sources is not statistically significant.

4.3.2. Analysis of Sources based on Sentential Knowledge

As per the prior discussion sentence-based knowledge sources are divided into two sub types. Here, we will discuss how frequently these sub types are being used by English medium and Odia medium participants in their inferencing process through a quantitative picture.

	Sentence Meaning	Meaning of Surrounding Sentence
English Med.	201 (54.91%)	133 (51.95%)
Odia Med.	165 (45.08%)	123 (48.04%)
Total	366	256

Table 4.3. Usage of the sources based on sentential knowledge by the participants

The distribution in Table 4.3 offers a clear picture of the usages of sentential knowledge sources by English and Odia medium participants. In the first sub-category, i.e. inferring meaning of the target word by understanding the **meaning of the sentence**; English medium participants are ahead of Odia medium participants with 54.91% while the rate of

usage for the later group is 45.08%. In the second sub-category, i.e. guessing the meaning of the word from the **meaning of surrounding sentences**; again, the English medium participants have a high usage score of 133 which is 51.95% of the total score for the above category. For the Odia medium participants, the usage score is 123 which is 48.04% of the total score. The above analysis is summarised in the figure 4.4 below:

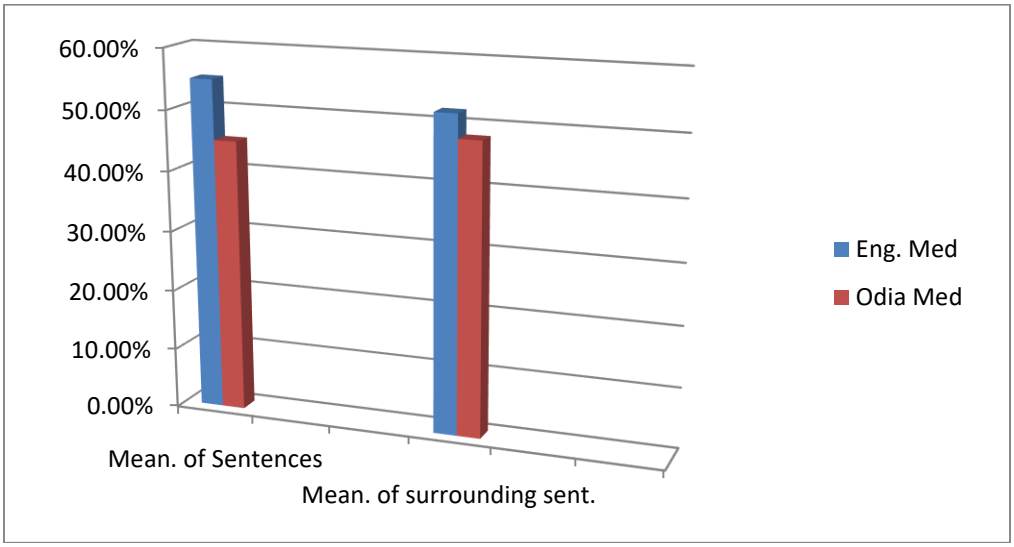


Figure 4.4. Usage of the sentential knowledge sources by the participants (Eng. Med.=English Medium, Odia Med.=Odia Medium, Mean. of Sentences=Meaning of Sentences & Mean. of surrounding sent.=Meaning of surrounding sentences)

The quantitative analysis of the usage of sentential knowledge sources showed few differences among the two groups. The question of statistical significance still needs to be answered. The summary of the T-test with regard to the usage of sentential knowledge sources by the English and Odia medium participants is presented below. Here also the number of participants is same in both the groups. Again our aim lead us towards a two-tailed T-test to find out the whether the difference between two groups is significant or not. Text Box 4.2 below summarises the results:

Summary of the T-test result in the usage of Sentential KS_s	
English medium participants	**Odia medium participants**

N = 20	N= 20
Mean (M_E) = 16.7	Mean (M_O) = 14.4
STDV (S_E) = 338.2	STDV (S_O) = 346.8
df (degrees of freedom) = 38 and t_c (critical value) = 2.024	
t-value = 1.713 and ***p***- value = .09 > .05	

Text Box 4.2. T-test result of the usage of Sentential KS_s by the participants.

The summary of the result of T-test displayed in the text box above reveals that the mean value of English medium participants' usage score is 16.7 and the same for Odia medium participants is 14.4. The calculated standard deviation for the first group is 338.2 while the second group has a standard deviation of 346.8. Finally based on the mean and standard deviation values, the calculated ***t***-value = 1.713. The critical value, i.e. the t_c- value is same here like in the calculation of the usage of word-based knowledge sources. Thus, t_c-value = 2.024. The critical value always depends on the calculated degrees of freedom, which is same for the T-test of all the knowledge sources. The total number of participants in each group is same everywhere, i.e. ***N*** = 20. Thus the degrees of freedom in each group is (***N-1)***= 19. As per the rules of the T-test when $t < t_c$, the difference between the averages of the two groups is not statistically significant. Here, ***t***-value = 1.713 < t_c- value = 2.024. In addition to that, the calculated probability value is .09 > .05. Hence, the conclusion says that the difference between the usage score of these two groups with regard to sentential knowledge sources is not statistically significant.

4.3.3. Analysis of Sources based on the Idea of the Passage and Paragraph

There are two subtypes of this category; from the idea of the passage and from the idea of the paragraph. The distribution of the usage of these subcategories by English medium participants and Odia medium participants are presented in Table 4.4 below.

	From the central idea of the passage	From idea of the paragraph
English Med	63 (41.44%)	86 (44.10%)
Odia Med	89 (58.55%)	109 (55.89%)
Total	152	195

Table 4.4. Analysis of sources based on the idea of the passage & the paragraph

The table above shows the statistical distribution of the usage of knowledge sources based on the idea of the passage and paragraph by English and Odia medium participants. For the first subcategory, i.e. **central idea of the passage**, the percentage of usage in case of Odia medium subjects is slightly higher than English medium subjects. For Odia medium, the frequency of usage is 58.55% and for English medium, it's 41.44%. In the next subcategory, also, the Odia medium subjects are ahead of English medium subjects with 55.89% of usage frequency and for the latter group, the frequency of usage is 44.10%. The above description is presented through a graph below:

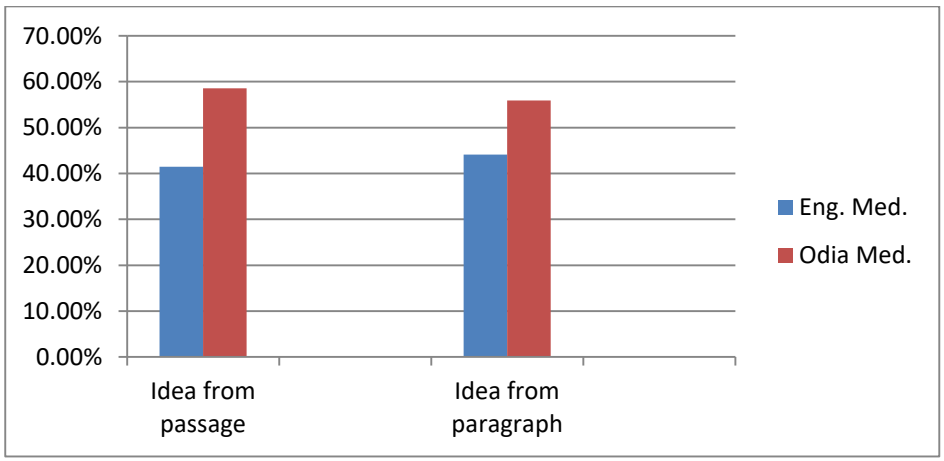


Figure: 4.5. Analysis of the sources based on the idea of the passage & paragraph.

Differences in the usage of sources based on the idea of passage and paragraph were marked between the English and Odia medium participants. The result of the T-test for this particular knowledge source revealed that the differences marked here cannot be labeled as statistically significant. The calculated average score of usage for English medium participants was M_E = 7.45 and the average usage score for the second group was M_O = 9.9.

With the same degrees of freedom and the critical value, i.e. 38 and 2.024 respectively, the calculated ***t***-value = -1.764 < t_c- value = 2.024. In support of that, the calculated probability value was .8 > .05. Thus, the difference of usage of this knowledge source between the two groups is not significant. The above description is presented in Text Box 4.3 below:

Summary of the T-test result in the usage of Idea from Passage & Paragraph	
English medium participants	**Odia medium participants**
N = 20	N= 20
Mean (M_E) = 7.45	Mean (M_O) = 9.9
STDV (S_E) = 422.95	STDV (S_O) = 309.8
df (degrees of freedom) = 38 and t_c (critical value) = 2.024	
t-value = -1.764 and ***p***- value = .08 > .05	

Text Box 4.3. T-test result of the usage of Idea from Passage & Paragraph by the participants

4.3.4. Analysis of Other Knowledge Sources: Previous Knowledge, World Knowledge, Grammatical Information & Help from L1

Table 4.5 presents a neat distribution of the usage of these four categories by the English medium subjects and Odia medium subjects.

	Previous Knowledge	World Knowledge	Grammatical Information	Help from L1
Eng Med	85 (57.04%)	51 (43.22%)	15 (27.27%)	02 (13.33%)
Odia Med	64 (42.95%)	67 (56.77%)	40 (72.72%)	13 (86.66%)
Total	149	118	55	15

Table 4.5. Analysis of Previous Knowl., World Knowl., Grammatical Info, & Help from L1

The above four categories of knowledge sources do not have any sub-categories and for this reason, the analysis of their usage by English and Odia medium of participants are presented in one table. First, let's discuss the use of the **previous knowledge** by English and Odia medium subjects. The total usage for this category is 149; out of which the score of English medium subjects is 85 and the score for latter group is 64. The next category is **world knowledge,** which has a total usage of 118, from which English medium subjects have scored 51 and for Odia medium, the score is 67. For the category, **grammatical information**, the total usage is 55 out of which 40 usages come from Odia medium subjects and the rest 15 are from English medium subjects. And the last category of this section is taking **help from L1** for which the total response is very few, i.e. 15. Mostly the Odia medium subjects have used this source in their inferencing. 13 Odia medium subjects and 2 English medium subjects have used this source. The above description is presented through a graph below:

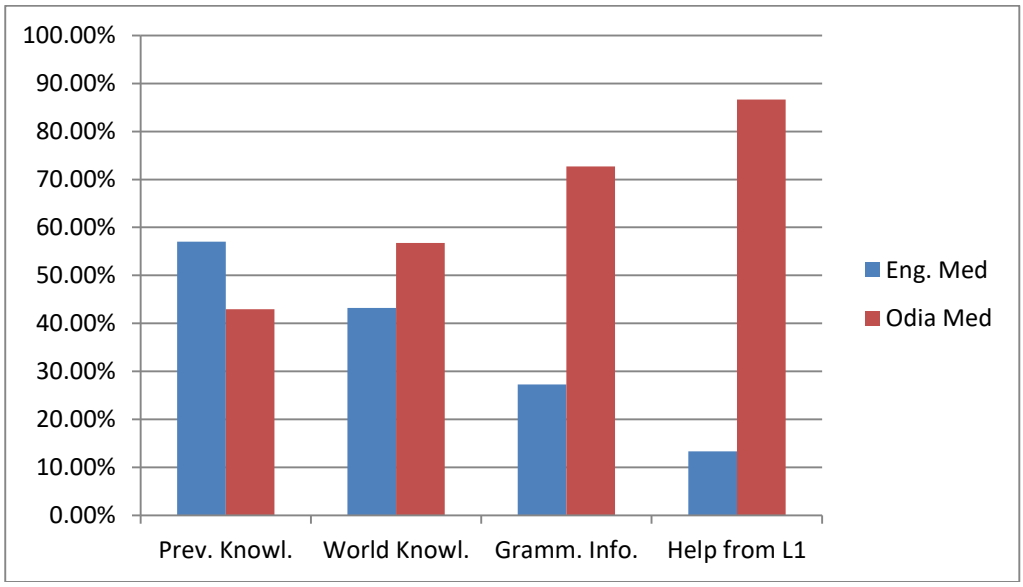


Figure 4.6. Analysis of Previous Knowl., World Knowl., Grammatical Info, & Help from L1 (Prev. Knowl.=Previous Knowledge, World Knowl.=World Knowledge, Gramm. Info.= Grammatical Information)

Usages of these four knowledge sources are being discussed together due to their less number of usages by the participants in comparison to other three sources. Therefore, the T-test results of these knowledge sources are also presented conjointly. First, let's discuss the

usage of participants' previous knowledge and their world knowledge. Participants in both the groups had used these two sources in their inferencing tasks. The question of significance again arises here. Whether the two groups have showed a significant difference in the usage of these two knowledge sources?

In case of the usage of participants' previous knowledge, the average scores for the two groups are: $M_E = 4.25$ and $M_O = 3.2$. Standard deviations for both the groups are: $S_E = 155.75$ and $S_O = 75.2$. The difference between the mean values and the standard deviations are clearly visible. These differences cannot be considered as statistically significant because the calculated ***t***-value = 1.346 < $t_c = 2.024$. In addition to that the probability value is ***p*** = .1 > .05. Similarly, in case of the usage of world knowledge of the participants, the difference cannot be stated as statistically significant. Here also, despite of the differences between the mean values ($M_E = 3.35$ and $M_O = 2.55$) and standard deviations ($S_E = 126.55$ and $S_O = 80.95$) in both the groups, the probability of statistically not significant is higher, i.e. ***p***-value = .2 > .05. The calculated ***t***-value = -1.082 < $\boldsymbol{t_c}$-value = 2.024. The above discussion has been summarised in the text box presented below:

Participants	Previous Knowledge	World Knowledge
English medium	N = 20 $M_E = 4.25$ $S_E = 155.75$ $t_c = 2.024$	N = 20 $M_E = 3.35$ $S_E = 126.55$ $t_c = 2.024$
Odia medium	N = 20 $M_O = 3.2$ $S_O = 75.2$ $t_c = 2.024$	N = 20 $M_O = 2.55$ $S_O = 80.95$ $t_c = 2.024$
	$t = 1.346 < 2.024$ $p = .1 > .05$	$t = -1.082 < 2.024$ $p = .2 > .05$

Text Box 4.4. T-test results of the participants' usage of Previous know. World know.

In case of the last two categories of knowledge sources, i.e. grammatical information and taking help from L1, the quantitative figures as well as the T-test result showed a significant difference. Data revealed that Odia medium participants used these sources more times than the English medium participants. The T-test also showed differences between the mean values and standard deviations. In case of using grammatical information as a source, the mean values of both the groups differed significantly (M_E = 0.75 and M_O = 2). The calculated standard deviations for the same were (S_E = 21.75 and S_O = 88). The calculated ***t***-value = -2.325 > t_c- value = 2.024 and ***p***-value = .02 < .05. Hence, the difference of usage between the two groups is statistically significant here. Talking about the last category, i.e. taking help from L1, here also the mean values of the two groups are significantly different from each other (M_E = 0.1 and M_O = 0.65). Standard deviations drawn from each group are; S_E = 1.8 and S_O = 22.55. The calculated ***t***-value = -2.172 > t_c- value = 2.024 and ***p***-value = .03 < .05. Finally, the result of the T-test analysis revealed that the difference of usage of these two categories of knowledge sources between the English and Odia medium participants are statistically significant. In both the cases, Odia medium participants used these sources more times than the English medium participants. The summary of the above discussion is presented in the text box below:

Participants	Grammatical Information	Help from L1
English medium	N = 20 M_E = 0.75 S_E = 21.75 t_c = 2.024	N = 20 M_E = 0.1 S_E = 1.8 t_c = 2.024
Odia medium	N = 20 M_O = 2 S_O = 88 t_c = 2.024	N = 20 M_O = 0.65 S_O = 22.55 t_c = 2.024
	t = -2.325 > 2.024 p =.02 < .05	t = -2.172 > 2.024 p =.03 < .05

Text Box 4.5. T-test result of the usage of Gramm. Info. & Help from L1 by participants

4.3.5. Inter-Knowledge Source & Intra-Knowledge Source Hierarchy

The outcome of the analysis of the knowledge sources revealed a hierarchical figure by indicating that sources based on word knowledge were used more frequently and with the highest number, i.e. 814 than other sources. Relying on sentential knowledge source occupy the second highest position with 622 responses, which is followed by idea from passage and paragraph knowledge sources with 347 responses. Among the last four categories, previous knowledge category supersedes the other three; grammatical information, world knowledge and help from L1 with 149 responses. World knowledge and grammatical information follow after that with 118 and 55 responses respectively. The last category, i.e., taking help from L1 has only 15 responses. An observational view reveals that the sum of the usage of different knowledge sources forms a hierarchy. In other words, it can be called the inter-knowledge source hierarchy. Table 4.6 presents the distribution of the usage of seven major knowledge sources by the participants.

	Based on Word Knowl.	Based on Sentential Knowl.	From Passage & Paragraph	Prev. Knowl.	World Knowl.	Grammatical Info.	Help from L1
No. Of	814	622	347	149	118	55	15
Usage	38.39%	29.33%	16.36%	7.02%	5.56%	2.59%	0.70%

Table 4.6. Distribution of seven major knowledge source usages by the participants

Note: Percentage of usage for each category is calculated from the total response by all the students, i.e. 2120.

The statistical figure given in the above table is presented through a graph below for more clarification. The figure 4.7 below clearly shows the inter-knowledge source hierarchical picture.

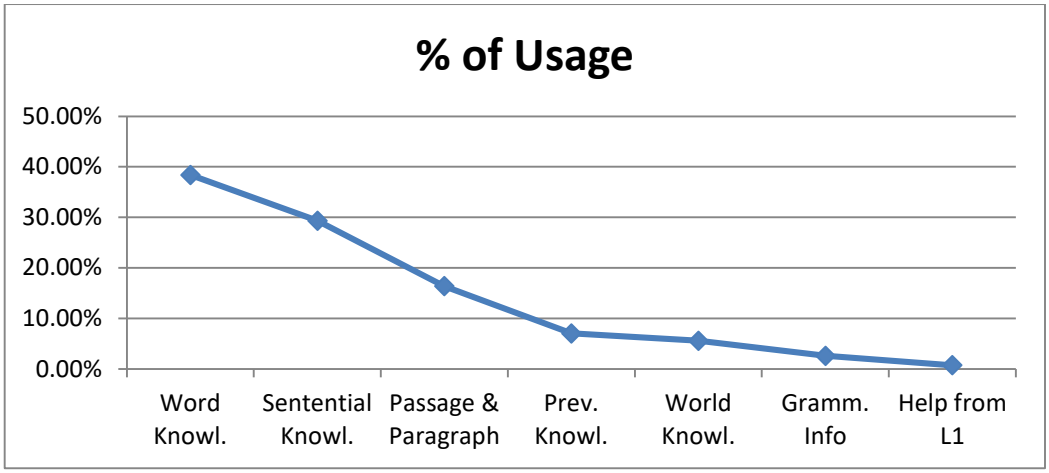


Figure 4.7. Inter-knowledge source Hierarchy

Already, we have discussed the inter-knowledge source hierarchy and now the focus is on intra-knowledge source hierarchy. Some of the knowledge sources have their subtypes too. On the basis of that, a hierarchy in between the subtypes can also be established. It can be termed the intra-knowledge source hierarchy. Both the inter-knowledge source and intra-knowledge source hierarchical figure is summed up below:

Word Knowledge > Sentential Knowledge > Passage and Paragraph > Previous knowledge > World knowledge>Grammatical Information >Help from L1

1. Word based KSs = Word Connection > Spelling & Pronunciation > Collocation > Target Word Analysis
2. Sentence based KSs = Sentence Meaning > Meaning of Surrounding Sentences
3. Idea from Passage & Paragraph = Passage idea > paragraph idea
4. Previous knowledge
5. World Knowledge
6. Grammatical Information

Figure 4.8. Hierarchical representations of Inter & Intra knowledge sources.

4.3.6. Outcome of the Analysis of Knowledge Sources

In this section, we discussed the use of different knowledge sources by the intermediate ESL participants of the present study. The analysis showed how frequently the sources were used by the participants in their inferencing tasks. It has been found that among the seven major

knowledge source categories, **sources based on word knowledge** were used most frequently by the participants. Also among all the categories, this category has the highest number of sub-types. This reveals that the participants have used their word knowledge innovatively in different ways in order to infer the meaning of the difficult words. The second most frequently used source was **sentential knowledge**. This category has two subtypes. Participants also very substantially made use of the **ideas of the entire passage** as well as the particular **paragraph,** in their inferencing process to draw the meaning of difficult words in the texts. Apart from these most frequently used knowledge sources, there are other sources used by the participants but less frequently than the above sources: participants' **previous knowledge** about the target words, their **worldly knowledge** (extra-linguistic), from the available **grammatical information** and last but not the least they took **help from their L1**.

Along with these seven major categories, the analysis also cast light on the frequency of usage of different sub-types of these categories. In case of word knowledge, there are four subtypes. Among them, participants more frequently used **word connection** in their inferencing process. **Spelling and Pronunciation** has the second important role to play in reaching the meaning of difficult words. We cannot ignore **word collocation** and the **analysis of the target words**. Similarly, in case of sentential knowledge, participants often tried to get the meaning of the target word by relating it to the **meaning of the sentence**. Sometimes they tried to look into the **meaning of the surrounding sentences** in order to get some clues.

The analysis also points towards another important aspect, i.e. difference between the usage of knowledge sources by the English and Odia medium participants. One of the aims of the present study was to find out whether differences exist between the English medium and Odia medium participant's usage of different knowledge sources. At the end of our analysis of the usage of knowledge sources, we reached at the conclusion that differences exist between the English and Odia medium participants. In the usage of **word-based knowledge**

sources, English medium participants are ahead of their counterparts in case of *word connection, word collocation,* and *target word analysis*. In case of *spelling and pronunciation*, Odia medium participants are ahead of English medium group. In the second category, i.e. **sentential knowledge sources**, in case of both the subcategories, English medium participants outweigh Odia medium participants. If we look at the third category, i.e. **sources based on the idea of passage and paragraph**, the Odia medium participants supersede the English medium group entirely. In case of using their **previous knowledge**, English medium group is again ahead of the Odia medium group. In the usage of last three categories: **world knowledge**, **grammatical information** and **taking help from L1**, English medium participants lag behind and the later group supersedes. The difference of usage between the English and Odia medium participants in case of word-based KSs, sentential KSs, ideas from passage & paragraph, participants' previous knowledge and their world knowledge cannot be termed as statistically significant. The T-test results of each of these categories revealed that the value of $\mathbf{t \leq t_c}$ and on the other hand, the probability value was greater than the .05 significance level and therefore the differences are not significant. But in case of the last two categories; grammatical information and taking help from L1, significant differences were marked between both the groups which are supported by the calculated ***t***-value and ***p***-value.

4.4. Analysis of Inferencing Success of English Medium and Odia Medium participants:

Success and failure, both should be considered as a standard to increase the motivation among the learners (L2 learners especially). In relation to that, it is important to take note of the participants' inferencing success or failure for ensuring further improvement. In order to understand how far the participants of the present study have achieved success or failed in their inferencing test, all the introspective think-aloud protocols were interpreted and the successful, partially successful and unsuccessful inferences were sorted out. Before moving

on to the analysis part, the idea behind these three levels; successful inference, partially successful inference and unsuccessful inference needs to get cleared.

4.4.1. Definition and Examples of Different Levels of Inferencing Success

Successful inferences are where the students have provided syntactically and semantically correct answers. This refers to the exact meaning of the word. The text box below presents the examples of successful inferences. These examples are the extracts from the introspective think-aloud protocols of the 40 Odia intermediate ESL learners.

E.g., 1 Target word: "Ominous" in the passage *The Doctor's Word*

"…more than that people liked to shirk the fact that the time had come to call in Dr. Raman; for them there was something **ominous** in the very association."

SR: I think Ominous means……*mmm*….*mmm*…. it means bad because the previous sentence says about a doctor ….so may be something bad has happened.

E.g., 2 Target word: "Pledge" in the passage *Tryst with Destiny*

"…and now the time comes when we shall redeem our **pledge** not wholly or in full measure, but very substantially."

SR: I know this word before. This means promise. Here it implies to the promise made by the people to the country means to protect their country.

Text box 4.6. Examples of successful inferences

Partially successful inferences are where students have provided syntactically incorrect but semantically correct answers. This may refer to the synonym/ near synonym words of the target word/ some translation of the target word

E.g., 1 Target word "Resentment" in the passage *Childhood*

"I was filled with **resentment** against the alien rulers of my country who misbehaved in this manner"

SR: I think it means….a feeling….means… angry feeling here….because in the paragraph they are saying about freedom of India and torture of Britishers. So Indians are angry with the Britishers.

E.g., 2 Target word "Escort" in the passage *The Legend behind a Legend*

*"*The forest guard detailed to **escort** me, took me to the guest house, put me in my room…*"*

SR: I don't know the meaning of escort….but from the meaning of the sentence ….I think it means…to give respect or show respect.

Text box 4.7. Examples of partially successful inferences

Unsuccessful inferences refer to responses where students have given wrong answers both syntactically and semantically or when they do not know the target word.

E.g.1 Target word "Discerned" in the passage *In London minus Fours*

"He went even further; he saw what many of his followers have not yet **discerned**."

SR: I think it means decide. The sentence says …Gandhiji's followers had decided something.

E.g. 2 Target word "Menagerie" in the passage *The Legend behind a Legend*

"… I spent two days and two nights with Khairi and the **menagerie** of Saroj and Nihar."

SR: I don't know the word. I have never seen it before.

Text box 4.8. Examples of unsuccessful inferences

The various levels of inferencing success have been termed differently by different researchers in their work, which has already been discussed in chapter two (Review of Literature) of the present thesis. The levels of inferencing success and their respective definitions used in the present thesis have been taken from Wesche & Paribakht (2010).

4.4.2. Statistical Analysis of the Levels of Inferencing Success

It will now be easier to get into the analysis of the levels of inferencing success of the participants after getting a clear idea about the levels in the previous section. First, the overall calculation of the inferencing success was completed which was then followed by the difference between the English and Odia medium participants' inferencing success. The participants' proposed meanings were checked against the original meanings of the target words and then they were tagged into these three levels accordingly.

4.4.3. The Overall Result of the Levels of Inferencing Success

In order to determine the rate of successful, partially successful and unsuccessful inferences, respective scores were decided for each of them. Successful inferences = 02, partially successful inferences = 01 and unsuccessful inferences = 00. These scores were further helpful in determining the differences between English and Odia medium participants' inferencing success as well as the correlation between their success scores and retention scores, which are discussed in the later section. Responses for each target word were analysed and calculated in order to get the final quantitative figure for these three levels of inferences. The levels of inferencing success of all the 40 participants over 53 target words are presented below with their respective quantitative figure. Table 4.7 below presents the same:

	Successful	Partially successful	Unsuccessful
Total Response	393	620	1107
%	18.53%	29.24%	52.21%

Table 4.7. Levels of inferencing success of 40 participants

The table above clearly shows the hierarchy of the responses in respect of three inferencing success levels. The unsuccessful inferences occupy the topmost position with 1107, and of 52.21% of the total response. Partially successful inferences come next to the highest with 620 and 29.24% of total responses. Successful inferences come at last with 393 and 18.53% of the total responses. The above figure is presented through a graph below for more clarification:

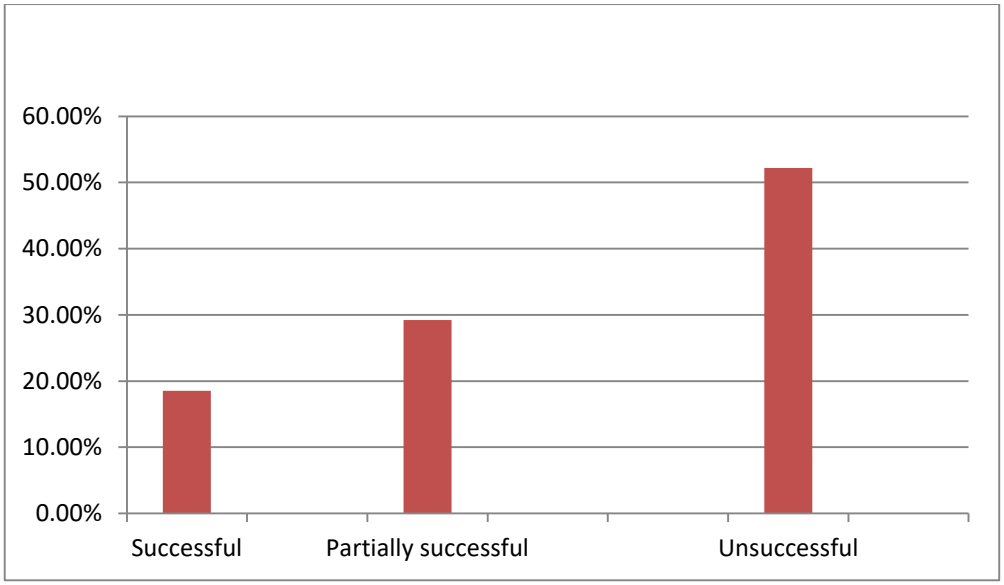


Figure 4.9. Overall results of the levels of inferencing success

4.4.4. Difference between English and Odia medium Participants' Inferencing Success Scores in each Passage

The analysis of the levels of inferencing success also revealed the difference between the English and Odia medium participants' success scores. In relation to that, Table 4.8 below presents the quantitative figures for each level of inferencing success of both the groups:

	Successful Inferences	Partially Successful Inferences	Unsuccessful Inferences	Total
English Med	239 (22.54%)	341 (32.16%)	480 (45.28%)	1060
Odia Med	154 (14.52%)	279 (26.32%)	627 (59.15%)	1060

Table 4.8. Quantitative figures for inferencing success levels of English & Odia medium participants.

The quantitative figures in the above table show, in case of successful inferences, English medium participants have scored 22.54% while Odia medium participants' score is 14.52%. Similarly, in case of partially successful inferences, English medium participants have scored 32.16% while Odia medium participants are at 26.32%. And for the last category, i.e. unsuccessful inferences Odia medium participants have set a high percentage with 59.15% than English medium participants' score of 45.28%. The result

for inferencing success is presented through a bar graph below which makes the distinction clearer:

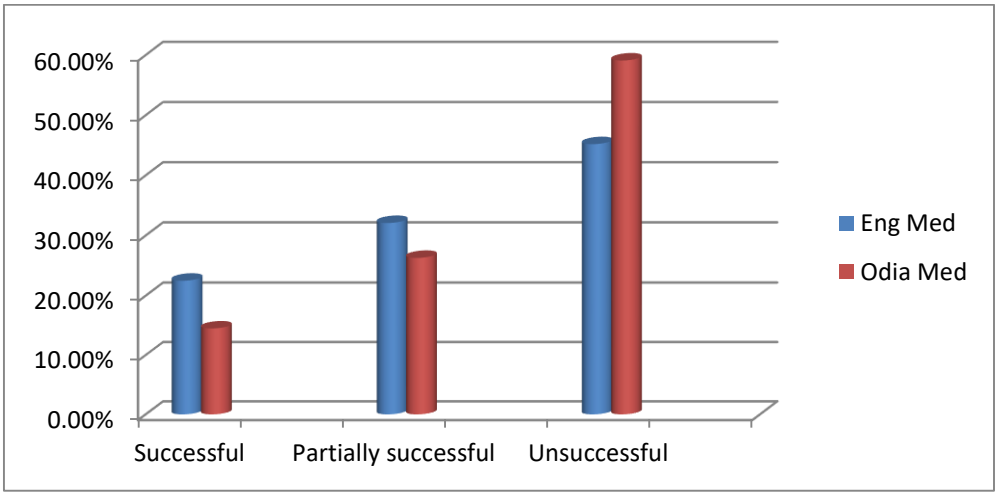


Figure 4.8. Levels of inferencing success between English & Odia medium participants

T-tests were carried out in relation to the participants' inferencing success scores for the target words placed in different passages. The primary aim was to figure out whether the differences between the success scores of English medium and Odia medium participants are statistically significant or not. For the above aim, two-tailed paired T-tests were conducted for each passage (containing the set of difficult words). Paired T-tests were conducted because the aim here was to compare the success score of the participants in both the groups for the same items (difficult words). As the other aim was to find out that the differences between the scores of these two groups are significant or not, therefore the T-tests carried out here are two-tailed by nature. The results of these T-tests are summarised in the text boxes below which are then followed by a brief discussion. Results are presented and discussed according to the passages. Text box 4.9 below summarises the T-test results of Passage 1.

4.4.4.1. Passage 1 (The Legend behind a Legend)

English medium	Odia medium	E -O
M_E = 0.78 S_E = 0.417 N = 10	M_O = 0.49 S_O = 0.350 N = 10	M_{E-O} = 0.29 S_{E-O} = 0.231 N =10
		Df = 9 t_c = 2.262 t = 4.029 p = .002977

Text Box 4.9. T-test result of participants' success score in passage 1.

The above box reveals clearly the details of the T-test conducted on the inferencing success scores of both the groups in Passage 1(The Legend behind a Legend). As per the aforementioned information, the T-test conducted in this context is a paired test. Thus, in the above text box displays three columns. The first column presents the score details of English medium participants. Score details of the Odia medium group are presented in the second column. The third column presents the difference between the scores of English and Odia medium participants (henceforth E-O). For a paired T-test, this difference column plays an important role. The calculation of the critical value, ***t*** value and the probability value depends on the E-O data. Therefore, all these values are mentioned in the E-O column in the above text box.

In case of passage 1, the mean values of the two groups are different; M_E = 0.78 and M_O = 0.49. The mean value of the E-O group (M_{E-O}) is 0.29. The standard deviations of these three groups are: S_E = 0.417, S_O= 0.350 and S_{E-O} = 0.231. The critical value calculated from the degrees of freedom (10-1=9) is t_c = 2.262. The degrees of freedom (Df) here is based upon the N-size of the E-O group. Finally the calculated ***t***- value = 4.029 > 2.262 here. As per the rule when the $t > t_c$, the difference between two groups are considered as statistically

significant. The data showed few differences in the inferencing success scores of both the groups and now they can be labeled as statistically significant. In addition to that, the calculated probability value was 002977 < .05.

4.4.4.2. Passage 2 (In London in Minus Fours)

English medium	Odia medium	E -O
$M_E = 0.81$ $S_E = 0.460$ N = 10	$M_O = 0.67$ $S_O = 0.452$ N = 10	$M_{E-O} = 0.14$ $S_{E-O} = 0.200$ N =10
		df = 9 $t_c = 2.262$ t = 2.285 p = .04

Text Box 5.1. T-test result of the participants' success score in Passage 2

In case of passage 2 (In London in Minus Fours), also the results conclude that the difference between the English and Odia medium participants are significant. Here, M_E = 0.81 and M_O = 0.67 and M_{E-O} = 0.14. The standard deviations of the three groups are: S_E = 0.460, S_O = 0.452 and S_{E-O} = 0.200. The calculated ***t***-value here is 2.285 > t_c- value = 2.262 and the ***p***-value = .04 < .05. Hence, as per the result of the T-test, we can term the difference of the mean values of the success scores between the English and Odia medium participants as statistically significant here.

4.4.4.3. Passage 3 (The Doctor's Word)

English medium	Odia medium	E –O
M_E = 0.55 S_E = 0.332 N = 10	M_O = 0.36 S_O = 0.357 N = 10	M_{E-O} = 0.19 S_{E-O} = 0.157 N =10
		Df = 9 t_c = 2.262 t = 3.807 p = .004172

Text Box 5.2. T-test result of the participants' success score in Passage 3

In case of passage 3 (The Doctor's Word) N= 10. The mean values of the success scores of English and Odia medium groups are: M_E = 0.55 and M_O = 0.36. The mean value of E-O is = 0.19. The standard deviations are: S_E = 0.332, S_O = 0.357 and S_{E-O} = 0.157. The calculated ***t***-value is = 3.807 which is greater than the t_c- value = 2.262. Differences which exist between the scores of English and Odia medium participants, they can be considered as statistically significant here. This result is again confirmed with the probability value of.004172 < .05.

4.4.4.4. Passage 4 (Childhood)

English medium	Odia medium	E -O
M_E = 0.018 S_E = 0.482 N = 11	M_O = 0.76 S_O = 0.534 N = 11	M_{E-O} = 0.25 S_{E-O} = 0.263 N =11
		Df = 10 t_c = 2.228 t = 3.145 p = .01

Text Box 5.3. T-test result of the participants' success score in passage 4

In passage 4 (My Childhood) the total number of items are (N) = 11. Thus, here the degrees of freedom is (11-1 =10). The calculated mean value for the English medium

participants is (M_E) = 0.018 For the Odia medium participants the mean value is (M_O) = 0.76. The mean value of E-O is 0.25. The deviations for the three groups are: S_E = 0.482, S_O = 0.534 and S_{E-O} = 0.263. Based on this the calculated ***t***-value here is = 3.145 which is greater than the critical value (t_c) = 2.228. As the $t > t_c$, the difference between the success score of the two groups in case of passage 4 can be considered as statistically significant. The probability value here is .01 < .05 which affirms the result.

4.4.4.5. Passage 5 (Tryst with Destiny)

English medium	Odia medium	E -O
M_E = 0.68 S_E = 0.512 N = 12	M_O = 0.45 S_O = 0.500 N = 12	M_{E-O} = 0.22 S_{E-O} = 0.181 N =12
		Df = 11 t_c = 2.201 t = 4.373 p = .001112

Text Box 5.4. T-test result of the participants' success score in Passage 5

There were 12 difficult words in passage 5. Thus, the size of N = 12. Based on this the degrees of freedom here also varies from the other passages, i.e. (N-1) = 12-1 = 11. The mean values of the success scores of both the groups are M_E = 0.68 and M_O = 0.45. The mean value for E-O is = 0.22. Standard deviations in the scores of English medium and Odia medium participants are M_E = 0.512 and M_O = 0.500 respectively. For E-O, the deviation is 0.181. The calculated critical value (t_c) here is = 2.201. The test statistics value for passage 5 is = 4.373 which is greater than the critical value. Finally, the calculated probability value here is .001112 < .05. Hence, the conclusion of the analysis says that the difference in the success scores of English and Odia medium participants in case of passage 5 is statistically significant.

4.4.5. Predictable Reasons behind the Participants' Inferencing Success and Failure

One among the primary aims of the present study was to look into the participants' inferencing success as well as failures in relation to the 53 target words. The statistical analysis and result of the participants' inferencing success and failure have already been discussed above. This section will discuss few predictable reasons behind the participants' achievement and failure with regard to their lexical inferencing process. The reasons discussed here are solely based on the qualitative observations made out of the participants' verbal report in the inferencing task. These observations revealed about certain qualities which were followed in case of successful inferences and on the other hand, lacked in unsuccessful or partially successful inferences. Observations are few in numbers but it is important to mention them because making the learners aware of these facts will help them to achieve more success in their inferencing. These qualitative observations are mentioned below:

4.4.5.1. Appropriate use of Knowledge Sources

We already have discussed the types and usage of knowledge sources by the participants of the present study in their inferencing tasks. Thus, the importance of the knowledge sources in the process of lexical inferencing is well known now. On the other hand, it is not true that only by using different types of knowledge sources participants will achieve success in their inferencing. The verbal reports of the participants revealed that in case of few successful inferences some strategies were marked in using the available KSs. It clearly showed that the usages of KSs were not random rather they indicated towards the thoughtful steps taken by the participant. First, participants tried to read the sentence again and again. Then they tried to choose one or more KSs in order to infer the meaning. Not only that, they even revised

their choices time to time in order to increase the appropriateness according to the context. Certain combinations of KSs were observed in case of these few successful inferences.

- Sentential KSs + word based KSs.
- Word-based KSs + previous knowledge + world knowledge.
- Sentential KSs + Idea from passage & paragraph + world knowledge.
- Word-based KSs + taking help from L1.
- Word-based KSs + Sentential KSs + Idea from passage & paragraph.
- Word-based KSs + Grammatical Information + Previous knowledge.

The usage of the above combinations of KSs did not always lead to a successful inference in the present study. But the importance behind mentioning them here is at some points they showed the participants' involvement and seriousness towards the inferencing tasks. On the other hand, the less successful inferences lack these combinations and the qualities mentioned above. Even the less successful inferences, as well as the unsuccessful inferences in the present study, lacked the quality of revision.

4.4.5.2. Participants' Involvement in the Tasks

Involvement of the participants is one of the most important reasons behind achieving inferencing success. Their involvement is directly related to their level of interest. If a participant shows interest in the test, he/she will be more involved in it which will make him/her think about the difficult words in different ways. In case of successful inferencers, involvement was noticed from their verbal reports. It showed how they tried to infer the meaning of difficult words. They not only relied on the textual clues but also used their analytical ability to analyse the target word in relation with its connection to other words, its position in the sentence, and also by reading the sentence repeatedly. Sometimes, they were

involved in a small interaction with themselves regarding the difficult word. The following example shows the involvement of one of the participants in the task:

E.g., Target word: *Arena* in the passage "The Doctor's Word"

"When he glimpsed the faintest sign of hope, he rolled up his sleeve and stepped into the ***arena***: it might be hours or days, but he never withdrew…"

SR: I think I have heard this word before somewhere….. ***hmm…hmm***…. Yes, I heard it in boxing context. There it means the area where boxing is going on which is covered by some type of rope or something. But here**…** ***hmm***…it's written… 'rolled up his sleeves and stepped into the arena'… ***hmm***…I think here also it means the same, *area*. Because the sentence also means that the doctor has entered into that area where the patient lies. Yes, it means area here." (Excerpt from the participant's verbal report).

But the less successful and unsuccessful inferences lacked the involvement quality.

4.4.5.3. Quality of Self-Assessment

Successful inferences do not happen at one take. An inferencer has to assess his/her inferences step by step in order to aim at accuracy. In the present study, few successful inferencers tried to correct themselves from time to time. They did not reach the conclusion immediately rather they judged themselves at every step. This quality is also important like the others because, by self-assessment, a learner understands his/her mistakes more convincingly and tries to correct them in order to reach appropriate destination. The following example justifies this discussion:

E.g. Target word: *Buzzed* in the Passage "In London in Minus Fours".

"He was a wonderful newspaper copy and journalists *buzzed* around him incessantly."

SR: Buzzed…I have heard this word before…*hmm…hmm*…yes, this word is used for the sound made by flies and bees…buzzing sound…that is different *naa*…also, the buzzer sound is there you know that is used to alert someone but that does not apply here. Hmm (read the sentence)… 'journalists buzzed around him'…I think means journalists were all around him and by that crowd noise was coming out…the *sound of that noise* it means here.

On the other hand lack of self-assessment quality in the inferencing process can lead to unsuccessful inferences. Participants who lacked self-assessment quality hovered around in confusion and finally ended up with a wrong inference. The following example proves this point clearly:

E.g., Target word: *Curt* in the Passage "The Doctor's Word"

"Long years of practice of this kind had bred in the doctor a certain curt truthfulness."

SR: I think it means *belief.* I am not sure but the word 'truthfulness' is there so I tried to relate it with that. I guess it means belief

4.4.6. Outcome of the Analysis of Participants' Inferencing Success

In this section, the idea about different levels of inferencing success was clarified. The three levels of inferencing success: successful, partially successful and unsuccessful were defined with respective examples from the verbal reports of the participants. The quantitative figures were analysed with the help of different statistical tools. The analysis showed that in case of the 40 intermediate Odia ESL learners, the number and percentage of unsuccessful inferences was the highest among all the three levels of inferencing success. The percentage of fully successful inferences was the lowest. The participants were partially successful in their inferencing in most of the cases. Some qualitative observations made out of the participants' verbal reports revealed few important characteristics of successful and less successful inferences. These observations are few in number but they do need attention.

So far the differences between the English and Odia medium participants are concerned, differences exist in each level and on the basis of T-test result, these differences can be labeled as significant. The result of the present study is not ready for making any generalisations at this point. The aim of the present study is only to trace whether or not significant differences exist between the inferencing success scores of the two groups. The initial observations can lead to further explorations in a bigger platform.

4.5. Analysis of Vocabulary Retention (Vocabulary Knowledge Scale Test)

It is always important to check how much word knowledge the L2 learners retained after their inferencing task. Retention tests are of two types: immediate retention test and delayed retention test. For the present study, an immediate retention test was conducted. In the present study, the vocabulary retention test (otherwise called as Vocabulary Knowledge Scale Test) was conducted for two purposes:

- To check whether or not there are differences between the retention scores of English medium and Odia medium participants and
- To find out whether or not the participants' scores of inferencing success are related to their subsequent retention of newly acquired word meanings.

In order to fulfil the above purposes, the immediate retention test was conducted for all the 40 participants over 53 target words. The result of this test is being discussed and analysed below with tabular and graphic presentations.

4.5.1. Analysis of English and Odia Medium Participants' Scores in Vocabulary Retention Test

As the Vocabulary Knowledge Scale (VKS) test was conducted over 53 target words, the analysis of the participants' retention scores will be discussed for each set of target words as

they occurred in individual texts. The analysis of the first set of target words in the passage "The Legend behind a Legend" is discussed below:

4.5.1.1. Passage 1 "*The Legend behind a Legend*"

Target Words	English medium	Odia medium
1. Menagerie	2.05	1.7
2. Struck	3.3	2.8
3. Gruff	2.65	2.5
4. Brooked	2.45	2.4
5. Itinerant	1.8	1.95
6. Escort	2.9	2.65
7. Assured	3.05	3.1
8. Bearer	3.05	3
9. Frail	2.85	2.3
10. Humane	3	2.85

Table 4.9. Vocabulary retention scores of Eng. and Odia medium participants in passage 1

The above table presents the participants' average score of vocabulary retention for each individual word. They were calculated from the participants' obtained scores in the VKS test. The test was measured with a 1-4 scale scoring system. On the basis of that, the figures in table 4.9 reveal that differences exist between the retention scores of English and Odia medium participants. In case of words like '*menagerie, itinerant, gruff etc*.' which most of the participants had declared as tough to infer, the average retention scores of both the groups are different. In case of the word *gruff,* the retention score of Odia medium group is 2.5 whereas the English medium group stands ahead with a score of 2.65. Overall, to find out whether these differences between the two groups are significant or not, T-tests were conducted for each set of target words. The T-tests conducted here are paired and two-tailed by nature. Paired T-tests were found to be the best suited for these calculations because here

the scores of the two groups are related, i.e. the scores of the two groups for the same items were being compared here. The text box below summarises the T-test result of paragraph 1:

English medium	Odia medium	E –O
M_E = 2.71 S_E = 0.228 N = 10	M_O = 2.52 S_O = 0.203 N = 10	M_{E-O} = 0.18 S_{E-O} = 0.228 N =10
		Df = 9 t_c = 2.262 t = 2.559 p = .03

Text Box 5.5. T-test result of the participants' retention score in Passage 1

In the above text box, there are three columns. The first column represents the score summary of English medium participants. Odia medium participants' score summary is presented in the second column. The third column actually displays the difference between the English and Odia medium participants' retention score (henceforth E-O group). As it is mentioned above that it is a paired T-test, therefore in the paired T-test, the E-O details play an important role. All the values are calculated on the basis of these E-O details. Thus, the mean values of English and Odia medium participants are M_E = 2.71 and M_O = 2.52 respectively. The mean value of the E-O section is M_{E-O} = 0.18. Standard deviations of the three groups are: S_E = 0.228, S_O = 0.203 and S_{E-O} = 0.228. The degrees of freedom (Df) here is calculated as per the N-size of E-O group, i.e. 10-1=9. Finally, the calculated critical value t_c here is = 2.262. On the basis of that the ***t***- value = 2.559. As per rule when $t > t_c$, the difference between two groups can be considered as statistically significant. Further, the calculated ***p***-value = .03 < .05 affirms the result.

4.5.1.2 Passage 2 "*In London in minus Fours*"

Target Words	English medium	Odia medium
1. Buzzed	2.95	2.8
2. Incessantly	2.75	2.6
3. Agog	2.1	2.1
4. Innumerable	3.3	3.1
5. Grieve	2.65	2.4
6. Asserted	2.25	2.25
7. Agitation	3.1	2.8
8. Discerned	2.2	1.8
9. Homespun	2.25	2.1
10. Applauding	3.25	2.9

Table 5.1. Vocabulary retention scores of Eng and Odia medium participants in passage 2

The above table shows the average rate of vocabulary retention for the next set of target words placed in the second paragraph. The quantitative figures indicate the differences between the scores of both the groups. In fact, in certain cases like the words *agog* and *asserted*, the average score is same for the English and Odia medium participants, i.e. 2.1 and 2.25 respectively. In case of words like *buzzed*, *incessantly*, and *innumerable*, there are not many differences between the scores. For English medium participants, the retention scores are 2.95, 2.75 and 3.3 respectively and for the latter group of participants, scores are 2.8, 2.6 and 3.1 respectively. On the other hand, in case of words like *agitation*, *discerned* and *applauding*, there are differences between the scores and English medium group are ahead of Odia medium group. In order to find out whether the differences traced between scores of the two groups are statistically significant or not T-test was carried out. The result of the T-test will resolve the issue. The Text Box 5.5 below presents the summary of the T-test result of passage 2.

English medium	Odia medium	E -O
ME = 2.68 SE = 0.459 N = 10	M_O = 2.48 S_O = 0.420 N = 10	M_D = 0.19 S_D = 0.134 N =10
		Df = 9 t_c = 2.262 t = 4.592 p = .0013

Text Box 5.5. T-test result of the participants' retention score in passage 2.

The above summary says the mean values calculated from the retention scores of English medium, Odia medium, and the E-O group are M_E = 2.68, M_O= 2.48 and M_{E-O} = 0.19. The calculated standard deviations are S_E = 0.459, S_O = 0.420 and S_{E-O} = 0.134. Size of N = 10. Thus, based upon these initial details, the calculated t_c- value = 2.262 and the ***t***-value = 4.591 and here again $t > t_c$. The probability value here is .0013 < .05. Thus, the result of the T-test indicates that the differences exist between the English and Odia medium participants' retention scores are statistically significant.

4.5.1.3. Passage 3 "*The Doctor's Word*"

Target Word	English medium	Odia medium
1. Shirk	1.8	1.9
2. Ominous	2.75	2.75
3. Wavering	1.9	2.25
4. Bred	2.8	2.7
5. Curt	2.9	2.95
6. Dope	1.9	1.95
7. Glimpsed	3.15	3
8. Arena	2.85	2.55
9. Wrested	2.45	1.7

10. Mopped	3.05	3.05

Table 5.2. Vocabulary retention rate of Eng and Odia medium participants in passage 3

The table above shows the quantitative figure of the vocabulary retention for the third passage. In the table we can see that for words like *ominous* and *mopped,* the average scores of retention in case of English and Odia medium participants are same, i.e. 2.75 and 3.05 respectively. In case of words like *shirk* and *bred,* the difference between the two groups is not high. English medium participants have scored 1.8 whereas Odia medium has scored 1.9. If we look at the score for *wavering,* Odia medium participants are ahead of English medium group with a score of 2.25 and later group stays behind with a score of 1.9. Similarly in case of words like *curt* and *dope,* also the Odia medium participants scored slightly higher than the English medium participants. The T-test result of the above set of target words is presented in the text box below:

English medium	Odia medium	E -O
M_E = 2.55 S_E = 0.510 N = 10	M_O = 2.48 S_O = 0.496 N = 10	M_D = 0.07 S_D = 0.291 N =10
		Df = 9 t_c = 2.262 t = 0.812 p = .4373

Text Box: 5.6. T-test results of the participants' retention score in passage 3.

The mean values of the English and Odia medium participants' retention scores are M_E = 2.55 and M_O = 2.48 respectively. For the E-O group, the calculated mean is = 0.07. Differences are marked in the standard deviations of the English and Odia medium groups; S_E = 0.510 and S_O = 0.496. For the E-O group, the standard deviation is 0.291. With the same size of N and degrees of freedom like in the first two passages, the calculated $\boldsymbol{t_c}$- value here is

also 2.262. Finally, the ***t***-value is = 0.812 < t_c- value. Here, the ***p***-value is .4 > .05. As the ***t*** -value is smaller than the critical value, thus, the difference between the two groups cannot be considered as statistically significant. Again the calculated probability value also is greater than the significance level of .05.

4.5.1.4. Passage 4 "*Childhood*"

Target Word	English medium	Odia medium
1. Sheltered	2.25	2.15
2. Notorious	3.5	2.9
3. Acquitted	2.6	2.2
4. Resentment	1.9	1.85
5. Alien	3.25	3.25
6. Resound	3.1	2.8
7. Peep	3.4	3.05
8. Dragged	3.45	3.45
9. Embodiment	3.45	3.25
10. Shivered	3.6	3.4
11. Indulge	3.2	2.65

Table 5.3. Vocabulary retention rate of Eng and Odia medium participants in passage 4

The above table presents the quantitative figure of the vocabulary retention scores for the set of target words appeared in the fourth text. The data shows in some cases the average rate of retention is same for both the English and Odia medium participants. For words like *alien* and *dragged,* the retention rate is 3.25 and 3.45 respectively which is same for both the groups. We can see slight differences between the retention rates of both the groups in words like *sheltered, acquitted, resentment, resound* and *peep*. The average retention scores for these words in case of English medium participants are 2.25, 2.6, 1.9, 3.1, and 3.4 respectively. In case of Odia medium participants, the scores are 2.15, 2.2, 1.85, 2.8 and 3.05

respectively. In case of most of the words in the above set, English medium participants are slightly ahead of Odia medium participants. In order to answer the question of significance, the T-test was carried out for the above set of data. The results are summarised in the text box below:

English medium	Odia medium	E -O
$M_E = 3.06$ $S_E = 0.563$ N = 11	$M_O = 2.81$ $S_O = 0.544$ N = 11	$M_{E-O} = 0.25$ $S_{E-O} = 0.209$ N =11
		Df = 10 $t_c = 2.228$ t = 3.952 p = .0027

Text Box 5.7. T-test result of the participants' retention score in passage 4

The above summary says the mean values calculated from the retention scores of English medium, Odia medium, and the E-O group are $M_E = 3.06$, $M_O = 2.81$ and $M_{E-O} = 0.25$ respectively. The calculated standard deviations are $S_E = 0.563$, $S_O = 0.544$ and $S_{E-O} = 0.209$ respectively. Size of N = 11, so the degrees of freedom is = 11-1=10. Based on these initial details, the calculated t_c- value = 2.228 and the ***t***-value = 3.952 and here again $t > t_c$. The probability value here is .0027 < .05. Thus, the result of the T-test indicates that the differences exist between the English and Odia medium participants' retention scores are statistically significant.

4.5.1.5. Passage 5 "*Tryst with Destiny"*

Target Words	English medium	Odia medium
1. Tryst	1.7	1.7
2. Redeem	2.4	2.35
3. Pledge	3.2	2.6

4. Substantially	2.45	2.35
5. Utterance	3	2.2
6. Solemn	2.25	1.9
7. Striving	2.2	2.2
8. Grandeur	2.75	2.6
9. Triumph	3.25	3.25
10. Sovereign	3	2.35
11. Endured	3.35	3.4
12. Beckons	1.9	1.75

Table 5.4. Vocabulary retention rates of Eng and Odia medium participants in passage 5

The above table presents the quantitative figures of average scores of vocabulary retention of the last set of target words placed in the fifth passage. The analysis here shows that in certain cases the rates of retention for English and Odia medium participants are same. In case of words like *tryst*, *striving* and *triumph* the retention scores are same for both the groups, i.e. 1.7, 2.2 and 3.25 respectively. As the data reveals, in other cases, the English medium participants are slightly ahead of the Odia medium participants. The text box below presents the result of the T-test for the above passage which will lead us to conclude whether the differences between the two group's scores are statistically significant or not.

English medium	Odia medium	E -O
$M_E = 2.62$ $S_E = 0.55$ N = 12	$M_O = 2.38$ $S_O = 0.52$ N = 12	$M_{E-O} = 0.23$ $S_{E-O} = 0.29$ N =12
		Df = 11 $t_c = 2.201$ t = 2.748 p = .01

Text Box 5.8. T-test result of the participants' retention scores in passage 5

The result summary in the text box above shows the mean values calculated from the retention scores of English medium, Odia medium groups are M_E = 2.62 and M_O= 2.38 respectively. The mean value of the E-O group is = 0.23. The calculated standard deviations are S_E = 0.55, S_O = 0.52 and S_{E-O} = 0.29. Here, the size of N = 12. Therefore, the Df here is = 12-1= 11. Thus, based upon these initial details, the calculated t_c- value = 2.201 and the ***t***-value = 2.748 and here again $t > t_c$. The probability value here is .01 < .05. Thus, the result of the T-test indicates that the differences exist between the English and Odia medium participants' retention scores are statistically significant.

4.5.2. Outcome of the Analysis of Vocabulary Retention Scores of English and Odia Medium Participants

Now we have arrived at the end of the analysis of the scores of subsequent vocabulary retention of the English and Odia medium participants. Each set of target words were analysed in terms of the retention scores obtained by the participants of both the groups. A revisional look into the quantitative figures and the descriptions given below reveals that participants of both the groups are quite near to each other in their scores of retentions. Of course, differences exist and the T-test results indicated that except in Passage 3 in all the other passages we can label the differences as statistically significant. Only in case of Passage 3, the differences do not match the significance level. Results of the T-test test clearly indicated the ***t***-value > t_c –value in case of target words placed in Passage 1, 2, 4 & 5. Only in Passage 3, the ***t***-value was lesser than the critical value. The probability value again affirmed the results respectively. Hence, we reached the conclusion that in most of the cases significant differences exist between the retention scores of the English and Odia medium participants. One important point to remember here is that the result found in the present study doesn't lead to any generalisations at this point of time. Larger observations may lead to further explorations too.

4.6. Relation between Participants' Inferencing Success and Vocabulary Retention

We already have analysed and discussed the inferencing success result of all the 40 participants (English and Odia medium). In this section, we are going to focus on whether the inferencing success has anything to do with the retention of the newly acquired meaning of the target words. In order to observe how many meanings, do the students have retained, Vocabulary Knowledge Scale (VKS) test for each set of the target words was administered to them. Here, we will discuss the correlation between the inferencing success result and the VKS result. First, the average scores of Inferencing success and Vocabulary retention were calculated from the obtained scores of the participants in the respective categories. Then the correlation between these two sets of data was calculated through, Pearson Correlation Coefficient method where the value of ***r*** represents either a positive or a negative correlation. The analysis for each passage (containing the target words) is discussed separately below.

4.6.1. Passage 1 "The Legend behind a Legend"

Target Words	Inferencing Success Rate	Retention rate
1. Menagerie	0.22	1.87
2. Struck	0.92	3.05
3. Gruff	0.35	2.57
4. Brooked	0.45	2.42
5. Itinerant	0.1	1.87
6. Escort	0.57	2.77
7. Assured	1.07	3.07
8. Bearer	0.85	3.02
9. Frail	0.62	2.57
10. Humane	1.2	2.92

Table 5.5. Participants' inferencing success and vocab. retention scores of target words in Passage 1

The above table presents the mean values of inferencing success scores and retention scores for the first 10 difficult words incorporated in Passage No.1 entitled "The Legend behind a Legend". The individuals' score in each category (inferencing success and vocabulary retention) were summed up and then divided by the total number of participants. Thereby, we calculated the mean value for each category. In order to find out the correlation between inferencing success and immediate vocabulary retention, the ***r*** value was calculated.

X Values (Inferencing success rate)

$\sum = 6.35$

Mean = 0.635

$\sum(X - M_x)^2 = SS_x = 1.214$

Y Values(Vocabulary retention rate)

$\sum = 26.13$

Mean = 2.613

$\sum(Y - M_y)^2 = SS_y = 1.829$

X and Y Combined

$N = 10$

$\sum(X - M_x)(Y - M_y) = 1.329$

R Calculation

$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 1.329 / \sqrt{((1.214)(1.829))} = 0.8914$

[**For the above calculation and for the later calculations, *Mx* = Mean of X values, M_y= Mean of Y values, $(X-M_x)$ and $(Y-M_y)$ = Deviation scores, $(X-M_x)^2$ and $(Y-M_y)^2$= Deviation squared]**

For the above set of data ***r = 0.8914*** which shows a strong positive correlation between the two sets of data. This means when the scores in the first set of variables, i.e. the inferencing success scores go high, it results in a higher score in the second set of variables,

i.e. the retention score. The calculated *p*-value = **.000533** which shows that the result is significant at $p < .05$.

4.6.2. Passage 2 "In London in Minus Fours"

Target Words	Inferencing Success Rate	Retention Rate
11. Buzzed	0.7	2.87
12. Incessantly	0.52	2.67
13. Agog	0.22	2.1
14. Innumerable	1.7	3.2
15. Grieve	0.67	2.52
16. Asserted	0.62	2.25
17. Agitation	1.1	2.95
18. Discerned	0.25	2
19. Homespun	0.55	2.17
20. Applauding	1.17	3.07

Table 5.6. Participants' inferencing success and vocab. retention scores of target words in Passage 2

The next 10 target words with their inferencing success score and retention score are presented in the above table. The correlation value for the above set of data was calculated and the result shows:

X Values (Inferencing success rate)
$\sum = 7.5$
Mean = 0.75
$\sum(X - M_x)^2 = SS_x = 1.851$

Y Values(Vocabulary retention rate)
$\sum = 25.8$
Mean = 2.58
$\sum(Y - M_y)^2 = SS_y = 1.701$

X and Y Combined
$N = 10$
$\sum(X - M_x)(Y - M_y) = 1.563$

R Calculation

$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 1.563 / \sqrt{((1.851)(1.701))} = 0.881$

The calculated ***r***-value = **0.881** which again shows a positive correlation between the two. If we take the example of word no.14 *innumerable*; the inferencing success rate for this word is 1.7 and hence the retention rate is 3.2. Similarly, in case of word no. 13 *agog*; the inferencing success rate is 0.22 which is the lowest, hence, it results in lower retention score of 2.1. The result is significant at $p < .05$ because the calculated value of ***p*** = **.000758**

4.6.3 Passage 3 "The Doctor's Word"

Target Words	Inferencing Success Rate	Retention Rate
21. Shirk	0.12	1.85
22. Ominous	0.47	2.75
23. Wavering	0.2	2.07
24. Bred	0.47	2.75
25. Curt	0.55	2.92
26. Dope	0.07	1.92
27. Glimpsed	1.1	3.07
28. Arena	0.77	2.7
29. Wrested	0.12	2.07
30. Mopped	0.7	3.05

Table 5.7. Participants' inferencing success and vocab. retention scores for target words in passage 3

The above table presents the inferencing success rate and retention rate for Passage 3 with another 10 target words. According to the participants, the target words in this passage seemed to be the most difficult ones than others. The calculation of ***r*** for this set of data reveals:

X Values (Inferencing success rate)

$\sum = 4.57$

Mean = 0.457

$\sum(X - M_x)^2 = SS_x = 1.022$

Y Values (Vocabulary retention rate)

$\sum = 25.15$

Mean = 2.515

$\sum(Y - M_y)^2 = SS_y = 2.095$

X and Y Combined

N = 10

$\sum(X - M_x)(Y - M_y) = 1.307$

R Calculation

$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 1.307 / \sqrt{((1.022)(2.095))} = 0.8932$

The calculated value of ***r*** = **0.8932** which signifies a positive correlation between the two sets of data. It indicates, when the inferencing rate is high, the retention rate is higher too. In case of word no.27, *glimpsed,* the inferencing success rate is 1.1 and the subsequent retention rate is 3.07 which indicates a positive correlation. And the result is significant at $p < .05$ because here p = .000499.

4.6.4. Passage 4 "Childhood"

Target Words	Inferencing Success Rate	Retention Rate
31. Sheltered	0.42	2.2
32. Notorious	1.2	3.2
33. Acquitted	0.2	2.4
34. Resentment	0.32	1.87
35. Alien	1.55	3.25
36. Resound	0.62	2.95

37. Peep	1.2	3.22
38. Dragged	1.45	3.45
39. Embodiment	0.77	3.35
40. Shivered	1.45	3.5
41. Indulge	0.62	2.92

Table 5.8. Participants' inferencing success and vocab. retention scores for target words in Passage no.4

Inferencing success scores and retention scores for Passage 4 is presented in the above table. If we observe both the score lists, it' clearly evident that there is a positive correlation between them. The calculation of the ***r*** value for the above set of data is presented below:

X Values (Inferencing success rate)

$\sum = 9.8$

Mean = 0.891

$\sum(X - M_x)^2 = SS_x = 2.437$

Y Values (Vocabulary retention rate)

$\sum = 32.31$

Mean = 2.937

$\sum(Y - M_y)^2 = SS_y = 2.968$

X and Y Combined

$N = 11$

$\sum(X - M_x)(Y - M_y) = 2.255$

R Calculation

$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 2.255 / \sqrt{((2.437)(2.968))} = 0.8384$

The calculated r-value = 0.8384. This signifies a strong positive correlation between the success scores and retention scores. Whenever the success score goes high, the retention score also becomes higher. In case of the word no. 38 *dragged* and 40 s*hivered,* we can observe slight deviations. Both the words have a similar success score but when it comes to

retention score one is higher than other. This is the case because according to the interpretation of the inferencing test, most of the participants knew word no.38 before rather than word no.40. Thus, it was easy for them to remember, hence the retention rate for *dragged* is higher than *shivered*. The result is significant at $p < .05$ because here ***p*** = **0.001264**.

4.6.5. Passage 5 "Tryst with Destiny"

Target Words	Inferencing Success Rate	Retention Rate
42. Tryst	0.12	1.7
43. Redeem	0.45	2.37
44. Pledge	0.95	2.9
45. Substantially	0.35	2.4
46. Utterance	0.85	2.6
47. Solemn	0.2	2.07
48. Striving	0.12	2.2
49. Grandeur	0.4	2.67
50. Triumphs	1.62	3.25
51. Sovereign	0.4	2.67
52. Endured	1.27	3.37
53. Beckons	0.07	1.82

Table 5.9. Participants' inferencing success and vocab. retention scores of target words in Passage 5

The last 12 target words involved in Passage no.5 are displayed with their inferencing success rate and retention rate in the above table. The calculation of the ***r***-value for the present set of data is presented below:

X Values (Inferencing success rate)

$\sum = 6.8$

Mean = 0.567

$\sum(X - M_x)^2 = SS_x = 2.728$

Y Values (Vocabulary retention rate)

$\sum = 30.02$

Mean = 2.502

$\sum(Y - M_y)^2 = SS_y = 2.951$

X and Y Combined

N = 12

$\sum(X - M_x)(Y - M_y) = 2.55$

R Calculation

$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 2.55 / \sqrt{((2.728)(2.951))} = 0.8989$

Here also the two set of data show a positive correlation. The calculated value of ***r*** = 0.94 which again signifies that the correlation between the two scores is positive. The result for the above set of data is significant at $p < .05$ and here ***p*** = .00007.

4.6.6. Outcome of the Analysis of Correlation between Inferencing Success Scores and Vocabulary Retention Scores

We have reached at the end of this analysis. After analysing all the 53 target words given in 5 different passages, the results indicate a strong positive correlation between the two. In other words, it means, when the inferencing success scores go higher, it results in high retention scores too. Hence, the students remember the meaning of those target words which they have successfully inferred and the retention scores are a bit lower for those words where the inferencing proved to be unsuccessful. This implies that the participants' inferencing success scores facilitate their subsequent vocabulary retention.

4.7. Summary

This chapter contains a comprehensive analysis and interpretation of the collected data. In order to fulfil the objectives of the present study, the analysis and interpretations were divided into five sections: Section 4.1. presents the analysis of different strategies used by the participants to deal with difficult words in an English text. Analysis of the use of different types of knowledge sources by the participants is presented in section 4.2. & 4.3. Participants' inferencing success and their inferencing failures were discussed in section 4.4. The section also presents few reasons which are accountable for the inferencing success and the failures of the participants. How far the participants were able to retain the newly acquired meanings is discussed in section 4.5. Finally, section 4.6. presents reveals the relationship between the participants' inferencing success and their vocabulary retention. The chapter presents both the quantitative and qualitative analysis of the data. The outcomes of the analysis are discussed separately in each section in order to make it more comprehensible.

Chapter 5

Findings and Conclusions

5.0. Introduction

In the previous chapter, we had analysed and interpreted the collected data and reached the results. In this chapter, we will discuss our findings from the results of the data analysis. This section will also cast light on the practical implications of the present research. Last but not the least recommendations for future research will be focused on. Finally, this chapter will give a concluding shape to the present thesis.

The findings of the study are discussed in the following sections in terms of the research questions formed at the beginning of the study.

5.1. Research Question 1

"How do the intermediate Odia ESL learners deal with the difficult words while reading an English text?"

The first research question aimed to find out what strategies do the intermediate Odia ESL learners follow while they encounter difficult words at the time of reading an English text. Along with that it also aimed to reveal how frequently they use these strategies when they face difficult words in an L2 text. A questionnaire survey was conducted for all the 40 intermediate Odia ESL participants. Analysis and the results of the survey were already discussed in Section 4.1 of Chapter 4. The present section will discuss the findings of the previous analysis.

The result of the analysis revealed that the selected participants often chose to get the meaning of the difficult words by guessing it from the particular context. At the same time, the responses also showed that some participants do ignore the difficult words often. Ignoring a difficult word in a text primarily depends on the reader's level of interest and her/his

involvement with the text. Nowadays internet has become the inevitable part of human beings in every field. Keeping that in mind, most of the participants are used to search the meaning of the difficult words through the internet. Very interestingly, looking into a dictionary for finding out the meaning has become rare. One possible reason behind this attitude may be the popularity of the web dictionaries among the learners at present time. Participants' responses to the questionnaire also revealed that when it comes to a strategy like asking a teacher for assistance, they rarely follow that. Sometimes they do take note of that particular word. According to the responses, participants even rarely take help from their L1 which has also been proved in the later stage of the data analysis.

Undoubtedly, the questionnaire survey helped to a great extent in knowing the participants' choices of the strategies in order to deal with difficult words in an L2 text. At this point of time, the result of the survey is not pointing towards any kind of generalisations on the nature of all the intermediate Odia ESL learners. The reason is that the study at hand involves only some selected intermediate Odia ESL participants who have their own academic peculiarities. The choices and frequency of following a strategy may vary with a different group of participants. Further explorations are needed before making generalisations.

5.2. Research Question 2

"How do the intermediate Odia ESL learners infer the meaning of difficult words while reading an English text in terms of the use of knowledge sources? Do their L1 have a role to play as a type of knowledge source in their process of lexical inferencing?

The answer to this question points towards multiple aspects: what are the different types of knowledge sources used by the 40 intermediate Odia ESL participants in their inferencing

tasks? How frequently they use these knowledge sources in their process of inferring the meaning of difficult target words?

So far we are familiar with the importance of the role of knowledge sources in the process of L2 learners' lexical inferencing. When the L2 learners encounter difficult words while reading a text, in several ways they try to reach the meaning. In this process of inferencing, learners' use of knowledge from different sources has an inevitable role to play. In order to find out the types of knowledge sources used by the participants of this study in their inferencing process, the introspective think-aloud protocols were interpreted, transcribed and analysed carefully.

5.2.1. Types of Knowledge Sources Found in the Present Study

The analysis and interpretation of the think-aloud protocols of the 40 participants finally came up with seven major types of knowledge sources along with their few subtypes. Those are:

1. Word-based knowledge sources
    - Word connection
    - Spelling and pronunciation
    - Word collocation
    - Analysing the target word
2. Sentence based knowledge sources
    - Meaning of the sentences
    - Meaning of the surrounding sentences
3. Idea of the passage and paragraph
    - Idea of the passage
    - Idea of the paragraph

4. Previous knowledge
5. World knowledge
6. Grammatical information and
7. Taking help from L1

As we can see above, amongst the seven major types of knowledge sources found in the present study, some of them have their own subtypes too. The first category of the knowledge source includes the sources based on participants' word knowledge. Sources based on the participants' word knowledge fall into four categories: *word connection, spelling and pronunciation, word collocation and analysis of the target word*. Results of the data analysis revealed that among these four subtypes participants used *word connection* very frequently in their inferencing process. The usage of *spelling and pronunciation* came next with second highest frequency of usage. Lastly, the usage of *word collocation* was at the third followed by the *analysis of target words*. The second category of knowledge sources is based on the participants' sentential knowledge. More specifically, it was based on the participants' observation and understanding of the sentences in the text. More frequently they tried to infer the meaning of target words by understanding the particular sentences in which the words were placed. Also, they tried to infer the meaning by comprehending the surrounding sentences of the target words. The third categories of knowledge sources are based on the central idea or the main idea of the passage and of the particular paragraph in which the target word is placed. Other four categories of knowledge sources include participants' prior knowledge of the target word, their knowledge from world, grammatical information inherent in the target words and taking help from their L1. This shows that the intermediate Odia ESL participants have used these sources in their innovative way. They used their knowledge (linguistic & extralinguistic) and ability to connect the target words with other words of the same sentence or with words from outside to comprehend the meaning. They may or may not

have achieved success in their attempts of inferring the meaning of difficult target words but making an attempt by using this type of sources is a commendable task in case of these participants. Taking help from L1, the final category has the least number of usage but we cannot ignore the role of L1 here. The analysis of think-aloud protocols of the participants disclosed one interesting fact that few students were much comfortable in completing their inferencing task in their L1. As a result, they could better explain their thinking than some of the participants who completed the task in L2 itself but were unable to clarify their points.

One more important fact needs to be mentioned here: while collecting data, it has been observed that few participants used English (L2) in order to complete their inferencing task but they did so not out of interest but out of hesitation. The reason behind mentioning this point here is that, while inferring a meaning the learner should be comfortable in explaining whatever comes to his/her mind and language should not be a barrier over there. L2 learners need to understand this point and they should be encouraged by their teachers and parents to do so.

5.2.2. Frequency of the usage of the knowledge sources

After finding out the types of knowledge sources used by the 40 intermediate Odia ESL participants, now the focus is on the second part, the frequency of their usage. The result of the analysis regarding the usage of the knowledge sources presented in section 4.4 of Chapter 4 revealed that the participants had used word based knowledge sources most frequently than the other categories in their inferencing tasks. 38.39% of the total usage was counted upon the word based knowledge source category. Sources based on sentential knowledge come next with 29.33% of usage. With 16.36% of the total usage, the sources based on the idea of passage and paragraph comes at third. So far these three categories are concerned; differences also exist in the frequency of the usage of their subtypes too. On the other hand, with 7.02% of usage, the previous knowledge of the participants comes at fourth which is then followed

by the world knowledge (5.56%), grammatical information (2.59%) and taking help from L1 (0.70%) respectively.

The analysis of the frequency of usage of these knowledge sources and their subtypes lead to a hierarchical structure. An inter-knowledge source and intra-knowledge source hierarchy have been established on the basis of their usage.

Till now we partly got the answer to the second research question. The question about the types of knowledge sources and their usage in the inferencing process of the intermediate Odia ESL learners has already been answered. So far the role of the participants' L1 as a type of knowledge source is concerned; the answer is yes, it has a role to play. In fact, the analysis and interpretations of the think-aloud protocol clearly revealed that *taking help from L1* was one among the type of knowledge sources found. Quantitatively, the figure for the usage of this category is less in comparison to the other categories. The positive aspect is participants do use their L1 for infering the meaning of the difficult words in L2. Only 0.70% of the total usage is counted on taking help from L1. Some of the participants were comfortable in using Odia (their L1) while they were thinking aloud during the inferencing tasks.

One important point to be mentioned here is that, in one or two inferencing tasks, participants have used Hindi to speak out the meaning of the target words. To prove that whether it was by chance or they intentionally used it in their inferencing process, we need a large number of data. Thus, the participants' L1 also helped them in few cases to identify the meaning of the target words in their L2. The significance level of the L1 contribution is comparatively less in comparison to other knowledge source categories found in the present study.

5.3. Research Question 3

"Is there any relationship between the intermediate Odia ESL learners' inferencing success and their subsequent retention of new word meanings?"

The third research question demands an investigation into the inferencing success and subsequent vocabulary retention of the intermediate Odia ESL participants of this study.

5.3.1. Inferencing Success and Vocabulary Retention of the Intermediate Odia ESL Learners

First, let's discuss the achievements or failures of the 40 participants in their attempt to infer the meanings of difficult words given to them. In course of L2 lexical inferencing, it is important to find out how far the learners have achieved success in their inferences and along with that their failures should also be taken into account. After analysing the recordings of 40 participants, the result showed that the percentage of unsuccessful inferences was much ahead of the percentage of successful and partially successful inferences. 52.21% of the total inferences were unsuccessful which was followed by 29.24% of partially successful inferences and 18.53% of successful inferences.

So far the retention of newly acquired vocabulary knowledge is concerned, a Vocabulary Knowledge Scale Test with the 1-4 scoring system was conducted for all the participants. The primary focus was to know how much word knowledge they retained after their inferencing process. Most of the previous studies have emphasised upon a delayed retention test (conducted after one week or so of the inferencing test) because the percentage of reliability of the learners' retention is higher there. In case of an immediate retention test, actually, the participants are not left with any time to retain the newly learned meanings. Due to the time constraint, the present study has reported an immediate retention test which was conducted one day after the inferencing test. From the scores of the test, the average rate of retention for each target word was calculated. The result showed that the retention rates were high for those words whose meanings were successfully inferred and vice-versa: e.g. in the second set of target words placed in the second text, the target word *innumerable* showed the

highest inferencing success rate of 1.7 which on the other hand showed the highest retention rate of 3.2.(chapter 4, section 4.7.2)

5.3.2. Correlation between Participants' Inferencing Success and Retention of New Word Meanings

The second aspect of the third research question indicates towards the relationship between the participants' inferencing success and retention of newly learned word meanings. The result of the retention test of intermediate Odia ESL participants showed a positive correlation between inferencing success and subsequent retention. This implies that participants have retained most of the word meanings which they have successfully or partially successfully inferred. Correlation between inferencing success and retention of word meanings was confirmed by the Pearson Correlation Analysis. As per the result of this analysis, the calculated correlation value or the ***r***-value was higher in order to establish a positive correlation between the two scores. Along with that, they also retained the correct meaning of the unsuccessfully inferred words. The result proved that inferencing success of the 40 intermediate Odia ESL participants facilitated their subsequent vocabulary retention.

5.4. Research Question 4

"Are there any significant differences between the English medium and Odia medium participants in terms of their usage of knowledge sources, the scores of inferencing success and vocabulary retention of new word meanings?"

The primary aim was to observe, whether any significant differences exist between the English medium and the Odia medium participants in terms of their use of knowledge sources, their inferencing success scores and their vocabulary retention scores. Let's start with the usage of knowledge sources.

5.4.1. Difference between the English and Odia medium Participants in their usage of Knowledge Sources

The analysis of data revealed that differences exist between English and Odia medium participants' usage of knowledge sources and in order to determine the significance level, data in each KS category were subjected to T-tests. As per the T-test rules when the calculated ***t***-value < t_c –value, the calculated critical value then the differences between the mean values cannot be considered as statistically significant. When the data of the present study were subjected to the T-test analysis, the result showed that in case of word-based KSs, sentential KSs, idea from the passage and paragraph, participants' previous knowledge and their worldly knowledge the differences between the mean values of the two groups were not statistically significant ($t < t_c$, & $p > .05$). On the other hand, in case of using grammatical information and taking help from L1, the differences between the two groups were proved to be significant with $t > t_c$ and $p < .05$.

5.4.2. Difference between the Inferencing Success Score of English and Odia medium Participants

So far the inferencing success scores of the participants are concerned; the quantitative figures showed the differences between the two groups. For English medium participants, the total number of successful inferences was 239 which on the other hand were 22.54% of their total number of inferencing success. At the same time for Odia medium participants, the total number of successful inferences was 154 which were 14.52% of their total number of inferencing success. In case of partially successful inferences, English medium participants were also ahead of Odia medium participants with a total number of 341 and for the later the total number was 279. Odia medium participants have a greater number of unsuccessful inferences than the English medium group with a total number of 627 and or the latter group the number was 480. Based on their scores the average rates of inferencing success of both

the groups for each set of difficult words were calculated. Later on these scores were subjected to the T-test analysis. The result of the paired two-tailed T-tests conducted in this context revealed that the differences between the inferencing success scores of English and Odia medium participants are statistically significant. From the result it was evident that in case of difficult words place in Passage 1, 2, 3, and 5 the success scores of English medium participants are higher than the Odia medium participants. Only in case of Passage 4 Odia medium participants are ahead of the English medium group. Findings of the present study cannot be generalised at this initial phase. The result may vary with a larger population.

5.4.3. Difference between the Vocabulary Retention scores of English and Odia medium Participants

We already have discussed about the findings of the correlation analysis of the participants' inferencing success and subsequent vocabulary retention. Here we will focus on the findings related to the analysis of difference between the vocabulary retention scores of English and Odia medium participants. Initially the average retention scores of the participants of both the groups were calculated. Later on, these scores were subjected to a set of paired- two-tailed T-tests in order to identify whether the differences between the scores of both the groups are statistically significant or not. The result of the T-test analysis revealed that in case of the difficult words placed in Passage 1, 2, 4 and 5 the difference between the mean values of English and Odia medium participants' retention scores can be labelled as statistically significant ($\boldsymbol{t} > \boldsymbol{t_c}$ and $\boldsymbol{p} < .05$). In case of Passage 3, the differences cannot be considered as statistically significant ($\boldsymbol{t} < \boldsymbol{t_c}$ and $\boldsymbol{p} > .05$).

5.5. Summary of the Findings of the Present Study

The present study on lexical inferencing was based on few important research questions covering several aspects related to the intermediate Odia ESL learners' inferencing behaviour. Starting with their choices of different strategies to deal with difficult words in an

English text to their retention of new word meanings, the present study covered several important aspects of lexical inferencing. The study at hand was more inclined towards the quantitative analysis of the data. Different statistical measures were deployed at necessary points during the analysis of data. Keeping in mind the result of the data analysis and interpretation a brief summary of the findings discussed above are presented below:

- The intermediate Odia ESL learners (Selected) follow certain strategies when they encounter difficult words while reading an English text. Often they try to guess the meaning from the context. At the same time when due to the wide use of internet across the globe, searching the meaning of a difficult word in internet is gaining popularity among the L2 learners, strategies like asking a teacher for help or taking note of the word are losing their importance.
- In the process of lexical inferencing of intermediate Odia ESL learners, seven major types of knowledge sources along with their subtypes were identified. Not only had they differed according to their nature of usage but also according to their frequency of usage by the participants. As per their frequency of usage, they create a hierarchical structure through the process of lexical inferencing of the 40 participants.
- Participants' inferencing success was investigated at three different levels: successful inferences, partially successful inferences, and unsuccessful inferences. As per the result of the analysis in the present study, the number of unsuccessful inferences was higher than the other two levels. The study has also pointed out few qualitative reasons behind the successful inferences and unsuccessful inferences.
- So far the retention of newly acquired word meanings is concerned; participants' score showed a positive correlation with their inferencing success score. When the inferencing success rate was higher, the retention rate too was higher in that case. It showed that the participants' inferencing success facilitates their subsequent retention

of word meanings. In this connection, findings of the present study go hand in hand with those of Wesche & Paribakht (2010).

- So far the differences between the English and Odia medium participants' inferencing behaviour are concerned; in case of using different knowledge sources statistically significant differences were marked in the usage of word grammatical information and taking help from the L1 categories. On the other hand in case of word-based KSs, sentential KSs, an idea from passage and paragraph, previous knowledge, and world knowledge the differences between the two groups cannot be considered as statistically significant. So far the inferencing success scores of the two groups are concerned, the differences were statistically significant. Lastly, in case of vocabulary retention scores, the differences between the two groups were significant in Passage 1, 2, 4, and 5. In case of Passage 3, the scores of the two groups were not significant.

5.6. Implications of the Present Research

The results obtained from the present study indicates several important points towards the improvement of L2 learners' inferencing skills as well as opens up the wide usage of inferencing skills in the context of L2 vocabulary acquisition.

- Lexical inferencing process provides necessary scopes for the L2 learners to improve their reading skills and acquire new vocabulary on their own. It will not create obstacles in their way of spontaneous reading rather it will help to enhance their involvement with the text. If the L2 learners will get proper guidance in making appropriate inferences of the difficult words they will be more conscious about the strategies they follow during the inferencing process. They can be more innovative in their way of utilising different knowledge sources. Also, by getting involved in the inferencing process, learners get a chance to assess and correct themselves at every step in order to achieve the accuracy. Self-assessment and correction always facilitate

the learning process. Lexical inferencing if followed by the learners properly is going to be one among the most innovative way of vocabulary acquisition.

- It should be the primary duty of a teacher or the instructor to train his/her students to infer the meaning of difficult words while reading a text. He/she must guide the learners how to make use of the knowledge sources and different strategies systematically and effectively in their inferencing process. By observing the learners' inferencing process teachers can trace their strengths and weaknesses. By doing this the teachers or instructors can guide the students in an effective way to achieve more and more success in their inferencing. The findings of the present research will help to create awareness among the L2 teachers or instructors particularly in Odisha about the importance of lexical inferencing. The awareness exists but motivation is needed to carry forward that awareness among the lots for the betterment of the Odia ESL learners.
- Second language learners are always dear to the researchers for various aspects. Lexical inferencing process has already acquired wide popularity among the L2 researchers. This helps the researchers to analyse the learners' behaviour efficiently from time to time. Each step of the lexical inferencing process enlightens the L2 researchers with some new explorations. The findings of the present study are going to be helpful for the researchers who are aiming towards exploring more on the inferencing behaviour of Odia ESL learners. The present study has arrived at some initial observations which are not aiming towards any type of generalisation at this point of time. These observations will definitely help the other researchers to find certain generalisations about the inferencing behaviour of the Odia ESL learners.
- The think-aloud strategy used in the present study as well as in several other studies of lexical inferencing is an excellent way to make the learners comfortable in their L2.

It is true that in most of the studies participants are given a choice between their L1 and L2 to think aloud but that is made from the researchers' point of view. If the L2 learners make a practice of thinking aloud in their L2, later on, it will help them to express comfortably in their second language. Proper training and instructions are needed to make them think aloud properly.

5.7. Recommendations for Future Research

Lexical inferencing (specifically in L2) has already been extensively popular among the second language researchers. Till now various aspects related to lexical inferencing have already been studied; types of strategies used by the learners, types of knowledge sources used by the learners, comparative study of L1 and L2 lexical inferencing, the interface of procedural vs. declarative knowledge in lexical inferencing, inferencing success, subsequent vocabulary retention etc. This is the scenario of lexical inferencing in general. This is not the end. The willingness to explore more and the eagerness to gain more knowledge always lead to some future directions in a particular area. This section mentions few recommendations for future research in lexical inferencing as a general topic as well as lexical inferencing confined to Odia ESL learners.

- Till now most of the studies on lexical inferencing have focused on the language skills of the L2 learners. There are certainly other factors too like the difficulty level of the texts, types of texts and the learners' interest level, gender, background knowledge of the learners etc. Time has come to explore more about the effect of these above aspects on learners' lexical inferencing. Text difficulty and variety are one of the interesting and important aspects in relation to the process of lexical inferencing. It will open up whether lexical inferencing can be considered in all types of texts or they are confined to texts of some particular genre. Here, by types of texts means texts belonging to different disciplines (science and arts.).

- Not only the inferencing success but also the inferencing failures need to be focused on. The errors learners make in their inferencing process can provide important insight into their way of text processing abilities.
- So far most of the studies have focused on the quantitative analysis of lexical inferencing. Time has come to change the focus from quantitative to qualitative analysis. A qualitative analysis of L2 learners' think-aloud reports will lead the researchers to understand what qualities of a learner make him/her a good or accurate inferencer. Comparative studies between the inferencers from their qualitative point of views should be conducted; how they choose the types of strategies and knowledge sources, how they use their choices during inferencing, whether they are involved in the self-assessment or not etc.
- Studies need to be carried out on the involvement level of the L2 learners in the text. This will help to explore more about the difficulties learners are facing while reading a text in their L2. Apart from that, it is important to find out which factors are creating difficulties in their process of inferencing; the difficulty level of the texts, their level of proficiency in L2 or their inappropriate methods of inferencing meaning of difficult words etc.
- In the learners' lexical inferencing process, there is always a great contribution of the L2 teachers or instructors. They can train their students to infer the meaning of difficult words in a text more efficiently. In order to do that, they themselves have to understand the process of lexical inferencing and its' benefits first. Thus, the focus of lexical inferencing researches can be expanded from the L2 learners to the L2 teachers in order to find out whether they are giving proper directions to their students or not. This will be just another way of making the lexical inferencing process more popular and efficient in the context of L2.

- Undoubtedly, the present study has dealt with several aspects of the intermediate Odia ESL learners' inferencing behaviours. Yet there are many to explore. The impact of L2 language proficiency over the lexical inferencing process of Odia ESL learners need to be taken care of. The present study is only focused on some selected intermediate Odia ESL learners. In future, studies can be conducted on Odia ESL learners at different educational stages and those will lead to some comparative analysis between the inferencing processes at different stages.

5.8. Conclusions

The present study was primarily focused on the lexical inferencing behaviour of some selected intermediate Odia ESL learners. Along with that the study also aimed to trace out whether any statistically significant differences exist between the inferencing behaviour of the English medium and the Odia medium (state board medium) participants. The analysis and interpretation of data provided answers for the research questions formulated at the outset of the study. As per the findings from the results of the data analysis and interpretation of the 40 intermediate Odia ESL learners these following conclusions can be drawn:

- The study made a successful attempt to find out the different strategies and their frequency of usage by the participants. This attempt also helped us to understand the participants' immediate reactions when they encounter difficult words while reading a text in their L2.
- The analysis and interpretation of the think-aloud reports of the participants helped to find out different sources of knowledge they used in their inferencing process. Later on, the analysis and interpretation of data also revealed about the frequency of using these knowledge sources by the participants. Finally, based on their frequency of usage a hierarchy was established. The types of knowledge sources found in the

present study are almost similar to those of Wesche &Paribakht (2010) but differences were marked in the frequency of usage of these sources.

- The study also investigated into the inferencing success levels of the participants. The result of the data analysis revealed that in the present study in case of all the 40 participants the number of unsuccessful inferences was the highest. On the other hand, the number of successful inferences was the lowest among the three levels of inferencing success. Also, the study tried to draw some qualitative inferences from the verbal reports of the participants regarding the nature of successful and unsuccessful inferences.
- So far the retention of the new word meanings is concerned the result of the Vocabulary Knowledge Scale test revealed that there exists a positive correlation between the participants' inferencing success scores and their vocabulary retention scores. This indicates that the inferencing success facilitates the subsequent vocabulary retention.
- The most important aspect of the present study which makes it different from the previous studies is the attempt to find out that whether there are any significant differences lies in the inferencing behaviour of the English and Odia medium participants. The result of the data analysis, as well as the subsequent T-test results revealed that:
    - In case of the frequency of usage of different knowledge sources during the process of inferencing, the differences marked between the two groups cannot be considered as statistically significant ($t < t_c$ and $p > .05$) in case of word-based KSs, sentential KSs, Idea from passage & Paragraph, previous knowledge and world knowledge. Only in case of grammatical information

and taking help from L2, the differences between the two groups are statistically significant ($t > t_c$ and $p < .05$)

- In case of the inferencing success score of both the groups the differences marked were statistically significant ($t > t_c$ and $p < .05$).
- Lastly, in case of vocabulary retention scores, the differences between the two groups are statistically significant in case of target words placed in Passage 1, 2, 4, and 5. Only in case of Passage 3, the differences cannot be labeled as significant.

Thus, the present study has successfully attained the answers to the research questions which held the root of this study. Apart from that, the present study has successfully addressed the inferencing behaviour of the 40 intermediate Odia ESL learners with relation to different aspects. Though the findings of the present study do not lead to any type of generalisation at this preliminary stage still the study at hand can be used as a convenient and informative source for other researchers in this area.

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APPENDICES

APPENDIX – I (Questionnaire on participants' dealing with difficult L2 Words)

Dear Participants

This questionnaire asks you what you actually do with unknown words while reading a text in English. Please complete it to help me understand how you deal with the words you don't know.

Thank You.

Place a tick (√) in the corresponding boxes against each of the items below to show your response to unfamiliar words when reading English texts.

No	Items	Often	Sometimes	Rarely	Never
1	Ignore the Word				
2	Guess the meaning from context				
3	Look into the word itself for clues				
4	Look into a dictionary				
5	Ask a teacher for assistance				
6	Ask a friend for help				
7	Take a note of the word				
8	Search the meaning through internet				
9	Try to relate the word with Odia				
10	Other				

Name:
Class:
College:

APPENDIX- II (Passage 1)

THE LEGEND BEHIND A LEGEND

Hariharan Balakrishnan

Khairi made the entire forest where she lived famous. She was not a bandit queen but Khairi, the tigress of Jashipur. It was exactly 25 years ago when I spent two days and two nights with Khairi and the ***menagerie*** of Saroj and Nihar. I had read a small news item in The Statesman about the latest exploits of a domesticated tigress in the Similipal forests of Odisha.

Suddenly, it ***struck*** me that it was happening in my own state. I thought, "why not attempt to experience it myself?" I spoke to N.S.Ayyangar, a senior journalist in Berhampur, and a few elders. I was told that Khairi was under the care of a rather ***gruff*** and tough man called Saroj Raj Chaudhury who ***brooked*** no nonsense and suffered no fools.

I got his address and wrote asking if I could visit him. For good measure, I referred to a few ***itinerant*** articles I had written for Indian magazines. It was a shot in the dark and I did not really expect to hear from him. But, to my utter delight, I got a letter within a week inviting me to Khairi-Jashipur, giving precise instructions about how to reach there. Mr. Chaudhury also asked me to let him know in advance how and when I was reaching. I gave him a date and said I would be taking a bus from Bhubaneswar on a particular night.

I packed my bag, took the train and boarded the overcrowded bus from Bhubaneswar. I arrived sometime before 4:00 am. The Forest Guard, detailed to ***escort*** me, took me to the guest house, put me in my room, ***assured*** that water was in jug; I could sleep as long as I wanted and Saab would see me as soon as I was ready.

I woke up with a start when I heard the unmistakable voice of the tiger just outside my door. I was terror-struck. Within minutes, a ***bearer*** came to the room with hot tea and biscuits. He smiled at the expression on my face and assured me that it was only Khairi outside the door, making friendly enquiries about the new guest in the house. I finished my tea had a quick shower and went to the main house.

Saroj Raj Chaudhury was sitting on a large chair- a ***frail*** man in his fifties, slightly balding on the top. We got talking. I did not find a gruff and rough no- nonsense man. What I found was one of the most ***humane*** human beings I had ever met in my life.

***

APPENDIX- III (Passage 2)

IN LONDON IN MINUS FOURS

Louis Fischer

Gandhi sailed from Bombay on the S. S. Rajputana at noon on August 29,1931, accompanied by his youngest son, Devdas, his chief secretary, Mahadev Desai, Pyarelal Nayyar, an aide, G.D. Birla, the textile millionaire, Pandit Malaviya and Mrs. Naidu. Gandhi was proceeding as sole delegate of Congress to the Second Round Table Conference in London. In London from September 12th to December 5th, he stayed most of the time at Kingsley Hall, as guest of Muriel Lester who had visited him in 1926.

He was a wonderful newspaper copy, and journalists ***buzzed*** around him ***incessantly***. One reporter questioned Gandhi about his dress. "You people", he replied "wear plus-fours. Mine are minus-fours." When he was invited to tea in Buckingham Palace with King George V and Queen Mary, all England was ***agog*** over what he would wear. He wore the usual loincloth, sandals, a shawl and his dangling dollar watch. Subsequently someone asked Gandhi whether he had enough on. "The King," he replied, had enough for both of us.

He also addressed ***innumerable*** public meetings and spent two memorable weekends at Oxford. In these and in private conversations he tried, above all else to explain what he meant by independence of India. He would cut India off from the Empire entirely, from British nation not at all, if I want India to gain and not to ***grieve***. The Emperorship must go and I should love to be an equal partner with Britain. He went even further; he saw what many of his followers have not yet ***discerned***. "Isolated independence is not the goal," he ***asserted***.

He even walked into the lion's den in Lancashire where his ***agitation*** for khadi and against foreign cloth had caused painful unemployment. At a meeting of the textile mill workers, one man said, "I am one of the unemployed, but if I was in India I would say the same thing that Mr. Gandhi is saying". A delightful photograph taken outside the Greenfield Mill at Darwen shows Gandhi wrapped in white ***homespun*** from neck to knee and squeezed in among cheering, ***applauding*** women, one of whom, to his embarrassment was holding his hand.

***

APPENDIX- IV (Passage 3)

THE DOCTOR'S WORD

R K Narayan

People came to him when the patient was on his last stage. Dr. Raman often burst out, "Why couldn't you have come a day earlier?" The reason was obvious, visiting fee was 25 rupees, and more than that people liked to ***shirk*** the fact that the time had come to call in Dr. Raman; for them there was something ***ominous*** in the very association. As a result, when the big man came on the scene it was always a quick decision one way or another. There was no scope or time for any kind of ***wavering*** or whitewashing. Long years of practice of this kind had **bred** in the doctor a certain **curt** truthfulness. For that very reason his opinion was valued; he was not mere a doctor expressing an opinion but a judge pronouncing a verdict. The patient's life hung on his words. This never unduly worried Dr. Raman. He did not think it was any of his business to provide unnecessary ***dope*** when as a matter of course Nature would tell them the truth in few hours. However, when he ***glimpsed*** the faintest sign of hope, he rolled up his sleeve and stepped into the ***arena***: it might be hours or days, but he never withdrew till he ***wrested*** the prize from Yama's hands.

Today, standing over a bed, the doctor felt that he himself needed someone to tell him soothing lies. He ***mopped*** his brow with his kerchief and sat down in the chair beside the bed. On the bed lay his dearest friend in the world: Gopal.

***

APPENDIX- V (Passage 4)

CHILDHOOD

Jawaharlal Nehru

My childhood was thus a ***sheltered*** and uneventful one. I listened to the grown-up talk of my cousins without always understanding all of it. Often this talk related to the overbearing character and insulting manners of the English people towards Indians, and how it was the duty of every Indian to stand up to this and not to tolerate it. It was a ***notorious*** fact that whenever an Englishman killed an Indian he was ***acquitted*** by a jury of his own countrymen. In railway trains, compartments were reserved for Europeans and however crowded the train might be, no Indian was allowed to travel in them, even though they were empty. I was filled with ***resentment*** against the ***alien*** rulers of my country who misbehaved in this manner, and whenever an Indian hit back I was glad.

In the evenings usually, many friends came to visit father and he would relax after the tension of the day and the house would ***resound*** with his tremendous laughter. Sometimes I would ***peep*** at him and his friends from behind a curtain trying to make out what these great big people said to each other. If I was caught in the act I would be ***dragged*** out and, rather frightened, made to sit for a while on father's knee.

I admire father tremendously. He seemed to me the ***embodiment*** of strength and courage and cleverness, far above all the other men I saw and I treasured the hope that when I grew up I would be rather like him. I had seen him losing his temper at servants and others and he seemed to me terrible then and I ***shivered*** with fright, mixed sometimes with resentment at the treatment of a servant. His temper was indeed an awful thing and even in after years I do not think I ever came across anything to match it in its own line. As he grew older this power of control grew and it was very rare for him to ***indulge*** in anything like his old temper.

***

APPENDIX- VI (Passage 5)

TRYST WITH DESTINY

Jawaharlal Nehru

Long years ago we made a ***tryst*** with destiny, and now the time comes when we shall ***redeem*** our ***pledge*** not wholly or in full measure, but very ***substantially***. At the stroke of the midnight hour, when the world sleeps, India will awake to life and freedom. A moment comes, which comes but rarely in history, when we step out from the old to the new, when the age ends and when the soul of a nation, long suppressed finds ***utterance***. It is fitting that at this ***solemn*** moment, we take the pledge of dedication to the service of India and her people and to the still larger cause of humanity.

At the dawn of history, India started on her unending quest and trackless centuries are filled with her ***striving*** and ***grandeur*** of her success and failures. Through good and ill fortune alike, she has never lost the sight of that quest, forgotten the ideals which gave her strength. We end today a period of misfortunes and India discovers herself again. The achievement we celebrate today is but a step, an opening of opportunity to the greater ***triumphs*** and achievements that await us.

Freedom and power bring responsibility. The responsibility rests upon this Assembly, a ***sovereign*** body representing the sovereign people of India. Before the birth f freedom, we have ***endured*** all the pains of labour and our hearts are heavy with the memory of this sorrow. Nevertheless, the past is over and it is the future that ***beckons*** us now.

****

APPENDIX- VII

List of 53Target/Difficult Words

Target Words	Grammatical Categories
1. Menagerie	Noun
2. Struck	Verb (+past)
3. Gruff	Adjective
4. Brooked	Verb (+past)
5. Itinerant	Adjective
6. Escort	Verb
7. Assured	Verb (+past)
8. Bearer	Noun
9. Frail	Adjective
10. Humane	Adjective
11. Buzzed	Verb (+past)
12. Incessantly	Adverb
13. Agog	Adjective
14. Innumerable	Adjective
15. Grieve	Verb
16. Asserted	Verb (+past)
17. Agitation	Noun
18. Discerned	Verb (+past)
19. Homespun	Adjective
20. Applauding	Verb
21. Shirk	Verb
22. Ominous	Adjective
23. Wavering	Verb

24. Bred	Verb (+past)
25. Curt	Adjective
26. Dope	Noun
27. Glimpsed	Verb (+past)
28. Arena	Noun
29. Wrested	Verb (+past)
30. Mopped	Verb (+past)
31. Sheltered	Adjective
32. Notorious	Adjective
33. Acquitted	Verb (+past)
34. Resentment	Noun
35. Alien	Adjective
36. Resound	Verb
37. Peep	Verb
38. Dragged	Verb (+past)
39. Embodiment	Noun
40. Shivered	Verb (+past)
41. Indulge	Verb
42. Tryst	Noun
43. Redeem	Verb
44. Pledge	Noun
45. Substantially	Adverb
46. Utterance	Noun
47. Solemn	Adjective
48. Striving	Noun
49. Grandeur	Noun

50. Triumph	Noun
51. Sovereign	Noun
52. Endured	Verb (+past)
53. Beckons	Verb

***

APPENDIX- VIII (Sample of Vocabulary Knowledge Scale Test)

Please select one of the options given below each word.

Menagerie

1. I don't remember having seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

Struck

1. I don't remember having seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

Gruff

1. I don't remember having seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

Brooked

1. I don't remember having seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

Itinerant

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

……

Escort

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

……

Assured

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

……

Bearer

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

……

Frail

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.

3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

Humane

1. I don’t remember having seen this word before.
2. I have seen this word before, but I don’t know what it means.
3. I know this word. It means……. (synonym/translation)
4. I can use this word in a sentence (write a sentence below)

   ……

APPENDIX- IX (Text Difficulty Level)

Passage 1 (The Legend behind Legend)

Total Word Count	**433**
High Frequency	**77.4%**
Medium frequency	**10.04%**
Low Frequency	**6.9%**
Accademic Word List	**1.8%**

Passage 2 (In London in Minus Fours)

Total Word Count	**362**
High Frequency	**72.1%**
Medium Frequency	**12.2%**
Low Frequency	**7.7%**
Accademic Word List	**2.5%**

Passage 3 (The Doctor's Word)

Total Word Count	**264**
High Frequency	**84.1%**
Medium Frequency	**12.5%**
Low Frequency	**6.1%**
Accademic Word List	**1.1%**

Passage 4 (Childhood)

Total Word Count	**342**
High Frequency	**81.3%**
Medium Frequency	**14.9%**
Low Frequency	**4.1%**
Accademic Word List	**0.6%**

Passage 5 (Tryst with Destiny)

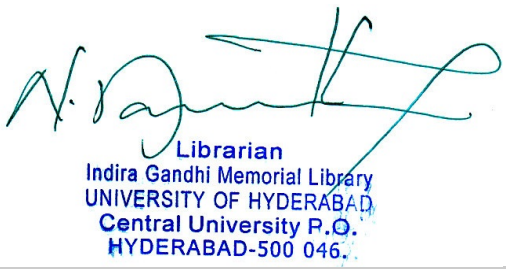
Total Word Count	**251**
High Frequency	**79.7%**
Medium Frequency	**9.6%**
Low Frequency	**9.6%**
Accademic Word List	**2.4%**

The five texts are analysed by using The Longman Vocabulary Checker (www.longmandictionaries.com/vocabulary_checker).

***

Lexical Inferencing in ESL: A Study of Selected Intermediate Level Learners of Odisha

by Sasmita Kanungo



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