

Viability of English Proficiency Tests for All Bilinguals: A Cognitive Hypothesis on L1 and L2 Readers Through a TOEFL Test



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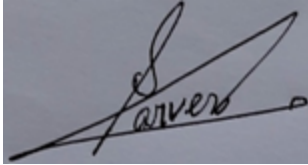
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CERTIFICATE OF APPROVAL

I hereby declare that this thesis is the student's own work and effort. All sources of information incorporated here have been duly acknowledged. This thesis has been submitted with my approval.

A handwritten signature in black ink, appearing to read 'M. Mosiur Rahman', is written over a horizontal line.

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DECLARATION

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

A handwritten signature in cursive script, appearing to read 'Jarin', is shown within a light blue rectangular box.

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Dedication

This thesis is dedicated to my father and the architect of my dreams AFM Nazrul Islam and my husband and the perpetual inspiration Fahim Mashroor Bhuiyan whose constant support made me come where I am today.

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In the name of Allah, the gracious and the most merciful.

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Abstract

Higher education is unquestionably attached to English proficiency tests (EPT) for those whose first language is not English. TOEFL is one of such eminent tests which has the ubiquitous illustration of measuring English proficiency where test takers have to corroborate their English language skills in academic contexts. However, all nonnative English users are in obligation to sit for these tests no matter what level of excellence they procure. The current study aims to investigate on discreet mental and individual reading processes i.e., text-driven, and knowledge-driven factors of readers and make a hypothesis about significant response of first language readers (FLRs) and second language readers (SLRs) of English. Moreover, the findings of the investigation have questioned the viability of such English proficiency tests for all nonnative readers of English at all levels. The research has applied the general reading ability model of Foorman & Siegel (2017) i.e., lexical access, propositional encoding and text modelling to decipher independent reading response of each FLR and SLR participant. The experiment was conducted on a mixed method where noteworthy cognitive reading theories has been applied, a survey of 15 TOEFL Test takers of FLRs and SLRs has been supervised and 1 surveyed participant were interviewed. The test result and data analysis has confirmed that both FLRs and SLRs have registered for similar text-driven strategies but not for knowledge-driven strategies due to socio-cultural reasons. The uncovering of the inspection has established this hypothesis is that English Proficiency tests are not for all nonnative readers of English but for those who had recognizable English learning background and limited exposure by birth.

Introduction

Reading any text whether it is for entertainment or academic purpose requires specific cognitive, visual, and interpersonal abilities among each individual reader. Before going through the vast investigation on each cognitive ability of readers, we must first encounter the understanding of reading. Reading means going through written documents of any kind (printed or online) and processing the stated and unstated information that the author of the written piece intended to layout. Bernhardt (1993) implies that “reading is a meaning-extracting or a meaning-constructing process.” But it is not the words, phrases, or syntactic structures of the text that should be comprehended and learned. Rayner et al. (2016) precisely exhibited in this case that “Successful reading ..requires more than recognizing a sequence of individual words. It also requires understanding the relationships among them and making inferences about unstated entities that might be involved in the scenario being described.” However, reading requires other procedures such as identifying certain information in a given context, attending to, and orchestrating individual information, monitoring comprehension, and critically analyzing texts in an academic context. With a focus on achieving reading success every reader subconsciously employs some common metacognitive strategies including utilizing background knowledge, mental translation, self-questioning, summarizing, predicting context clues, and others. These strategies not only facilitate reading but also makes the reader consciously give effort to why they are reading and the outcome of that knowledge.

Understanding the concept of schema is one of the prime focuses of cognitive science and particularly for understanding the intricacies of language comprehension. According to Rumelhart (1980) “they are the fundamental elements upon which all information processing depends.” This theory comprises that all knowledge is collected into units and these units are

schemata. Brown (2012) specifies the construction of meaning-making by the readers in a given context using the schema theory. He explains, “.. a text does not by itself carry meaning. The reader brings information, knowledge, emotion, experience, and culture that is schemata to the printed word.” However, schemata do not reveal the individual differences of reading ability in readers. Foorman & Siegel (2017) has in this case exemplified a general reading ability model which discusses the accessibility of words at a time, the construction of transitory meaning-disposition in the working memory and the manufacturing of a mental model of the text being read. These stages are labelled lexical access, propositional encoding, and text modeling. These steps make closer distinction between each reader, even for readers who read texts in their second and third languages.

Language is the eternal configuration of human exchange. Human beings are bound to get immersed into an ocean of languages right after their birth. A person when by birth gets acquainted with a particular language which is closely associated with that person’s individual, kinfolk and cultural identity, the language is called the first or native language. The languages learned after that are referred as second and third languages and so forth. Bernhardt (1993) states that second language refers to a language that is not spoken in the home, and yet, may be the language of wider communication.

Reading in a second language is a prescribed phenomenon all over the world where most of the students in their elementary, secondary or in higher studies have to read and study in a language which is not their native and daily practiced language, and their academic success is widely dependent on reading this second language. Even though there are not many investigations conducted on second language research, there is verification of major contrastive distinction between reading an L1 text and an L2 text. Reading in a first language does not require explicit

and conscious efforts because a reader from his/her early childhood gets acquainted with the linguistic competence of his/her mother tongue. On the contrary, a reader who is reading in a second language requires more complex cognitive and interpretative abilities to master word recognition skills, and syntactic and semantic processing skills in order to read in that second language. However, it is an established fact that reading skill characterized by universal phenomenon and is a complete detached unit from linguistic competence in a language whether it is the first language or not. (Clarke, 1980) Nevertheless, reading in a second language has always been a matter of interest for the researchers since there is an obligation for specific social-political, pedagogical, and psychological approach for the literacy development of readership in a second language. For the cognitive nature of second language reading Bernhardt (1993) debriefed “the learning of two encoding systems.. involve whether there are two separate, yet parallel cognitive processes at work or whether there are generic language and, more specifically, generic discourse processing strategies that accommodate both first and second languages.” (p. 2) The question persists how an individual grow and utilize more than one linguistic competence and manifest expertise in every sphere of second language. A well-established fact is the prolonged linguistic experience that an individual has over his/her life span.

Among all the language entities of world cultures, English is widely accepted and made primary medium of exchange around the globe. There are approximately 379 million native English speakers around the globe whose L1 reading is in English. (“List of languages by number of native speakers,” 2022) The United States is one of major English-speaking countries of the world that has racial, cultural, and linguistic diversification more than any other country in the world. According to Garcia (1992) about 50% of all Californian students speak a language other

than English as their primary, or only, language, and it is predicted that by 2030 that percentage will increase to about 70%.

The most consequential spectrum for nonnative English speakers to testify themselves as “skilled” English language users principally is when they seek to migrate, go for higher education or employment in major English-speaking countries. An “ideal” measurement for such competence is undergoing an established English proficiency test imposed by these major English-speaking countries. The exploitation of “idealized accepted English language norms” has questioned the exonormative nature of English. As Davies et al., (2003) puts it “An International English (IE) view insists that the only acceptable norms are those of native English speakers (NES).” As a result, Therefore, as long as an aspirant do not acquire a determined amount of aptitude in the English proficiency test, the higher education sector, corporation administration and immigration division will not recognize them as “dignitary” to come and engage in these spheres. The maneuver of enacting such a precondition to every nonnative user of English is debatable. In the contemporary era of globalization, English is no longer confined to “inner circle” linguistic entities but as a whole world circle. It also put questions to how “unworthy” a nonnative user can be juxtaposed to a native English user. To answer the question, the current study was motivated to investigate the mental issues related to reading English as a first language and as a second language. Inevitably, there are English proficiency tests all over the global higher education sphere where a nonnative or “outer circle” individuals have to sit for this test.

About 6 million students were seeking to become international students in English-speaking countries in 2019. (“International student,” 2022) Ambitious individuals then need to exhibit certain degree of mastery in the language if they want to get approval for their aspirations. There

are some renowned English languages proficiency tests such as the Test of English as a Foreign Language (TOEFL), the International English Language Testing System (IELTS), Duolingo, Pearson Test of English Academic (PTE-A), Cambridge English Language Assessment, Michigan English Language Assessment Battery (MELAB), and the Michigan English Test (MET). These tests are designed to demonstrate the English language competence in these students no matter how trained they are in the language.

According to ETS (2022), the TOEFL iBT test is specially designed on the basis of EAP (English for Academic Purpose) that is accepted worldwide by more than 11,500 universities and institutions in over 160 countries for study, work, and immigration purposes and is estimated as the most acceptable English language proficiency test. The test measures all the skills of the English language including reading, listening, speaking, and writing in academic contexts. All of the sections are scored on a scale of 0 to 120 points, each section receives a scaled score from 0 to 30 points. The reading section of the test measures the reading ability which usually consists of 4-5 passages, each containing approximately 10-12 questions. The total time allocated for the test is about 54-72 minutes. The question types in the reading section include vocabulary, factual information, negative factual information, inference, rhetorical purpose, sentence simplification, insert text, prose summary, fill-in-a table, and reference questions. The reading comprehension passages vary in numerous domains of academia that comprise topics related to the Arts, Humanities, Social Sciences, Physical Sciences, or Life Sciences.

The ESL learners in major English-speaking countries like the US and Canada, are considered to have “limited proficiency in English” compared to the native and US/Canada born individuals.

This established norm imposes questions like this for researchers:

- ✓ What kind of reading strategies i.e., text-driven, and knowledge-driven factors do first language readers (FLRs) and second language readers (SLRs) employ in the TOEFL reading test and how distinct they are for individual comprehension?
- ✓ How frequently does a native reader and a nonnative reader make specific eye-movements for better understanding of the reading text?
- ✓ How accurate is it to impose English proficiency tests for all Bilinguals?

The current study is therefore crucial as ESL reading research scope has been limited particularly on the cognitive processes of ESL learners. The paper will focus on international students who are currently living in the US and Canada, especially for higher education and immigration purposes. In addition, the paper will try to demonstrate cognitive abilities of native English readers and make a comparison between L1 and L2 readers through a TOEFL test. From that initiative, the study has two purposes (a) exploring the significant cognitive abilities i.e., text-driven, and knowledge-driven factors of reading of ESL readers and native English readers during a TOEFL test and (b) compare certain cognition between these two groups of readers and exemplify the plausibility of these tests among ESL readers.

Literature Review

TOEFL estimates reading proficiency at distinct levels. According to Wikipedia (2022) test-takers who obtain 118-120 are expert users, 110-117 are very good users, 94-109 are good users, 60-93 are competent users, 35-59 on a total scale of 120 are modest users, 32-34 are limited users and 0-31 are extremely limited/intermittent/non-user on a total scale of 120. For the reading section alone, those who obtain 24-30 are advanced readers, 18-23 are high intermediate readers, 4-17 are low intermediate readers and 0-3 are below low intermediate readers on a total scale of 30. These distinctions affirm test score users to classify and give credit according to their merits in their respective fields. These variations of test score acquirers throw a question on the reading capabilities of each individual reader. But how different it is from the native readers or is it different at all? Is it only extensive reading that will suffice for a good score for the nonnative or second language readers or are there other cognitive reading factors involved here? Some pieces of literature are discussed through the lens of the validity of discrete reading comprehension of any reader who had to go through unfamiliar subject-oriented texts for the comprehension text.

Investigating on TOEFL reading test does not unravel the efficiency of nonnative or bilingual readers but also decrypt certain L2 text, reader pedagogical, socio-political, interpersonal, and other linguistic interpretative issues concerning the test. The monograph by Enright et al. (2000) proposed three broad perspectives that were considered for enhancing reading comprehension by developing communicative language competence. Those were the processing perspective, task perspective, and reader purpose perspective. As part of reader purpose perspective, the paper has elucidated on differences in L1 and L2 reading. This paper is crucial as it demonstrates three

fundamental variations distinguishing L1 and L2 reading (a) L2 readers build on prior L1 reading experience (b) their reading processes are cross-linguistic, involving two or more languages, and (c) their reading instruction usually commences before adequate oral proficiency in the target language has developed (p.7). These issues are dealt with in order to read in an L2 reading test such as TOEFL. The paper provides insight and impart correlational foundation to the current study in relational dynamics on L1 and L2 readers knowledge and comprehension capacities and how specific L1 factors contribute to L2 reading flux in general.

A reader has to engage in stern cognitive and psychological manifestation while reading a text and can fail to grasp the meaning of given passage and text. Rumelhart (1980) in his chapter “Schemata: The Building Blocks of Cognition” explains the notion of schema and how it is directly embedded in our cognition of knowledge. He explains that there are three reasons why a reader can fail to correctly understand a reading passage:

1. The reader may not have the appropriate schemata.
2. The reader may have the appropriate schemata, but the clues provided by the author may be insufficient to suggest them.
3. The reader may find a consistent interpretation of the text but may not find the one intended by the author.

The TOEFL reading test not only measures the English language reading competence of the second language learners but also estimates how efficiently and accurately a test taker can comprehend some given academic texts in a certain amount of time. The test takers may have a

significant amount of exposure to appropriate schemata, but due to the lack of contextual clues and structural intricacy, the reader can face difficulties to answer the questions.

Regardless of academic settings or recreational purposes, there are readers/students who achieve higher levels of reading comprehension while others cannot. It is a phenomenal yet prototypical affair in any given academic setting. A professor at the University of Missouri, Ronald P. Carver (2000) makes a noteworthy stand on the issues of all the important factors regarding the high or low reading achievement in students of different ages. In his book *The Causes of High and Low Reading Achievement*, he explains this with a causal model which is based on a rauding (reading+auding) theory. The central point of this causal model is reading achievement which he redefines with a newer construct called rauding efficiency level (EL). The construct is based on reading accuracy level (AL) and reading rate level (RL). Through this new theoretical construct, other reading gears (scanning, skimming, rauding, learning, and memorizing), individual differences, and other cognitive components are assessed in order to acknowledge how reading achievements happen in every individual.

Apart from the theoretical approaches to reading ability differences, there are significant cognitive components of reading that Foorman & Siegel (1986) pointed out in their edited book “*Acquisition of Reading Skills: Cultural Constraints and Cognitive Universals*”. The editors portrayed three overlapping processes of readers that includes (1) lexical access, (2) proposition encoding and (3) text modeling (p. 19) But there are apparent variations in general reading ability of each reader that include lexical access, working memory and schemata utilization. “Lexical access .. influences all other reading processes. Working memory affects proposition encoding and schemata utilization affects text modeling.” (Foorman & Siegel, 1986)

Successful reading can occur not only by efficient reading but also by prior knowledge or background knowledge. In the article “Indexical Understanding of Instructions” Glenberg & Robertson (1999) propose an indexical hypothesis that connects words and phrases to objects or gives an analogical representation of objects. The article focuses on the experiential component of background knowledge that is crucial for language comprehension. (p. 1) Why the reference to a physical situation is more important than a description is widely focused here. TOEFL is an English language comprehension test where test-takers assuredly use background knowledge in order to answer questions. There are specific accomplishments recognized by test takers that substantiate the notion of background knowledge.

Reading in a second language requires a lot of cognitive processes and one of the common strategies frequently used by L2 language readers is mental translation. The translation is usually defined as the reformation meaning in a language other than the one in which it was originally created. In this regard, Kern (1994) suggests the role of mental translation as “mental processing of L2 words, phrases, and sentences in L1 forms while reading L2 texts.” (p. 442) In his paper, he investigated on fifty-one intermediate-level French students, in high, middle, and low reading ability groups for adopting translation process while reading French (L2) texts and concluded that in the initial stage the low reading ability groups used translation frequently. However, the group decreased the application of the process gradually when they were reading more and more efficiently. The finding was predominant for the present study because there are some TOEFL test takers who customarily adopt translation processes when they read difficult and complex texts.

One of the prime concerns Anita Wenden (1987) mentioned in her review of “Metacognition: An Expanded View on the Cognitive Abilities of L2 Learners” is the notion of metacognition. It is

the knowledge of cognition itself. When a reader reads something then some certain cognition happens which he/she is well aware of. In the paper, the author tried to incorporate and discuss three basic categories of metacognitive knowledge which include person, task, and strategy. The focal point of the paper is to establish metacognitive knowledge on a learner/reader's own implication of gaining second language acquisition. The paper is crucial because in any comprehension test let alone in TOEFL, a test taker is well aware of his/her own weakness and capacities which in turn can be a better solution to overcoming reading difficulties.

A fundamental yet acceptable notion of explaining any reading comprehension is schema theory. But Nassaji (2007) in his article "Schema Theory and Knowledge-Based Processes in Second Language Reading Comprehension" reviewed a novel approach called the construction-integration model of discourse comprehension where he discussed the feasibility of this model more than the schema theory. In his opinion, "The idea of text base-construction processes and the principles underlying integration processes, particularly when combined with ideas from memory and recall research, may help us understand and explain the effects of many of the knowledge-based processes in L2 reading." (92) The paper critically analyzed schema theory and focused on a more detailed account of the role of knowledge and knowledge-based processes of the new model.

Comprehension strategies are the key approaches of any reader when they attempt tests like TOEFL or other L2 language tests. With an insightful contribution, Huan Liu (2020) investigated questioning strategies such as what and why questions on MCQs and SAQs. In his paper, Liu (2020) tried to make a comprehension measurement with these questioning strategies and came up with the conclusion that "Using the questioning strategy significantly facilitated comprehension measured by short-answer questions but not multiple-choice questions." (p. 339)

Moreover, there was an inspection on L2 readers perception where three themes were identified. They were “memorizing text details, understanding main ideas, and disrupting reading fluency.” (Liu, 2020)

Apart from adopting fruitful comprehension strategies, readers are also very careful and conscious in terms of goal setting when they read. They are circumspect readers about what and how they are reading a particular text. Pressley & Afflerbach (1995) reported in their book “Verbal Protocols of Readings: The Nature of Constructively Responsive Reading” that readers report various activities “that comprise meaning identification, meaning construction and coding of text meaning can be categorized into activities that occur before reading, during reading and after reading.” (p. 32) The authors vehemently scrutinize individual goals and strategies embraced by each reader and how they approach their goals in their book. TOEFL reading test measures individual capacities of approaching each question of the test by inferring meaning and conceptualizing the texts given for reading. The book surely gives an in-depth exploration of these issues.

However, comprehension can be a great failure in certain situations. Rayner et al. (2016) brought about an interesting insight between the speed of reading and the accuracy of the reading in their paper “So Much to Read, So Little Time: How Do We Read, and Can Speed Reading Help?”. According to them, “there is a trade-off between speed and accuracy.” (p. 4) In their discussion of the paper, there was a contrastive argument on the comprehension and reading speed of any reading process. “Comprehension must necessarily suffer if the reading process becomes more like skimming.” (p. 5) Moreover, the paper makes an evaluation on visual processing and eye movements of readers in order to assess certain cognitive abilities of readers. Readers can make meaning of certain words and phrases through fixations (remaining in the same locations,

saccades (moving between locations, and regressions. Most importantly, the paper recognized some reading and comprehension difficulties and possible solutions for successful reading. “.. discourse can sometimes contain syntactic ambiguities and it is only via careful reading that the reader will be able to appreciate the appropriate meaning. Readers are often able to fix comprehension problems by rereading” (p. 18) The paper is important for the current study as it focuses on the eye-movement of the readers which is a prime focus for the study. The current study has observed two eye-movement tests of a native and a nonnative reader for initial comprehension of words and syntactic structures.

Methodology

The English proficiency tests are measurements of English language competence among people whose first language is not English. English as a Second Language (ESL) is one of the fundamental bilingual educational programs all over the world. The significance of this program is widely established and measured in every major English-speaking country. In regard to measuring proficiency of the English language, there are some English proficiency tests that every foreigner had to take in order to study, work or pursue immigration to those countries. One of the prominent and well accepted among these tests is the Test of English as a Foreign Language or TOEFL. However, this test is entrenched upon every foreign student who has already ratified their English skills by showcasing their score in SAT/GRE/GMAT and through submitting other important documents for admission in higher studies in these countries. Therefore, the paper is designed to scrutinize the validity of second language users, particularly readers on their cognitive and conceptual abilities who are obliged to showcase certain level of adeptness in the language to get validation from major English-speaking countries. It focuses on investigating the cogency of the reading portion of the English proficiency test i.e., TOEFL of readers who are currently residing in the US and Canada by exploring the cognition of both L1 and L2 users of English and make a comparative interpretation.

Since the research will compare and contrast reading strategies across native language processing behaviors and target language processing behaviors, the evaluation will be interlingual (Bernhardt, 1993). The survey has been conducted in the Nevada state of the US and the participants were foreign students and immigrants from different countries all over the world. The students are mostly undergrad and grad students at the University of Nevada Reno (UNR).

The data collection procedure has been orchestrated in mixed method. The quantitative data collection was adopted in questionnaire surveys and the qualitative data collection was adopted in narrative approach. For the second language readers of English, 10 people were surveyed and for first language readers of English, 5 people were surveyed. The second language readers consist of 1 participant from Germany, 1 from Nepal, 2 from India, 1 from Filipino, 1 from Mali, 1 from Iran, 2 from China and 1 from Bangladesh. Apart from the Bangladeshi and Filipino participant, every other participant is currently living in the US, specifically in Nevada. The Bangladeshi and Filipino participant on the other hand has studied and currently residing in Canada. For the first language readers, 3 of the participants were American and 1 was Egyptian American. The questionnaire contained specific inquiries about individual cognition of a TOEFL reading passage which was collected from the Educational Testing Service (ETS) website. The reading passage is a free practice test for any TOEFL test taker which validated the effort of experimenting with it. Among the second language readers of English, only one person from China was interviewed because of her significant English learning background. Her background and effort in English learning legitimizes such English proficiency tests for immigrants in major English-speaking countries like the US. However, she is not a student but an immigrant spouse and who has been living in the US for 2 and a half years.

In response to data collection and analysis, there will be implementation of some core cognitive components of reading theories. Foorman & Siegel (1986) have constructed three overlapping cognitive processes of readers. They are lexical access, propositional encoding, and text modeling. Lexical access comprises text-driven factors i.e., word recognition, syntax and text structure, conceptual factors, or knowledge-driven factors i.e., intratextual perception, metacognition and background knowledge and finally propositional encoding for integration of

both models and finally text modeling which comprise schemata. Each response of the participants will be measured and analyzed under these models and eventually make a distinction between L1 and L2 readers.

In order to assemble interested participants, the researcher has made a google form and uploaded the questionnaire there. There were two google forms for both L1 and L2 users of English. After designing the form, it was shared to undergrad and grad international student groups of University of Nevada Reno (UNR). For collecting participants for first language users, the form has been shared to senior citizens of current residents in Reno who had affiliation with UNR. Their children and their friends who are also student at UNR responded in the survey.

In the google form, the summarized result of each participant is expressed through pie-charts and bar plots which will give a clear and concise overview of the response.

Reporting Results

There were in total 15 people surveyed and 2 people phone-interviewed for this research. In the survey, 5 people were first language readers (FLRs) and 10 people were second language readers (SLRs). The surveyed participants in this study involve students both undergrad and grad along with recent graduates and working individuals. The FLRs and SLRs were surveyed separately for independent responses. Most of the questions were similar since the aim of the study was to distinguish the behavior of both group participants and reveal specific outcomes. However, the personal questions were discrete.

The first set of questions were asked to uncover the basic mental structures of first language readers FLRs of English to get the gist of native readers react to their own language proficiency tests. On the other hand, the second set of questions were designed to exhibit the cognitive abilities of the second language readers SLRs to acknowledge certain behavioral and mental issues regarding the language English. Most of the SLRs were introduced to English language from their early life. However, there was exception found in the Persian and the Chinese participants.

Question Types and Validity

The personal questions of both groups give an understanding of their current state and affairs in their English learning and practicing. For Second language readers (SLRs) the participants are mostly in their 20s and some in early 30s. The FLRs are all in their early and mid-20s or in other words all the FLRs are undergrad students or doing jobs after their high school. Even though FLRs and SLRs usually have variation in their English language exposure, the SLRs in this study

have distinct years of exposure to English language. The following two charts show SLRs age and total years of English language exposure.

Age:

10 responses

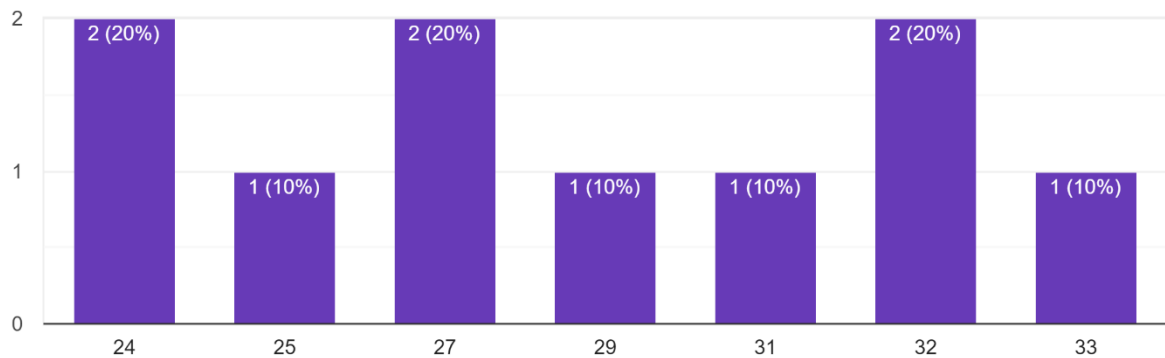


Figure 1.1 Age of SLRs

How long have you been exposed to English language (Total year of English learning and practicing till now)? :

10 responses

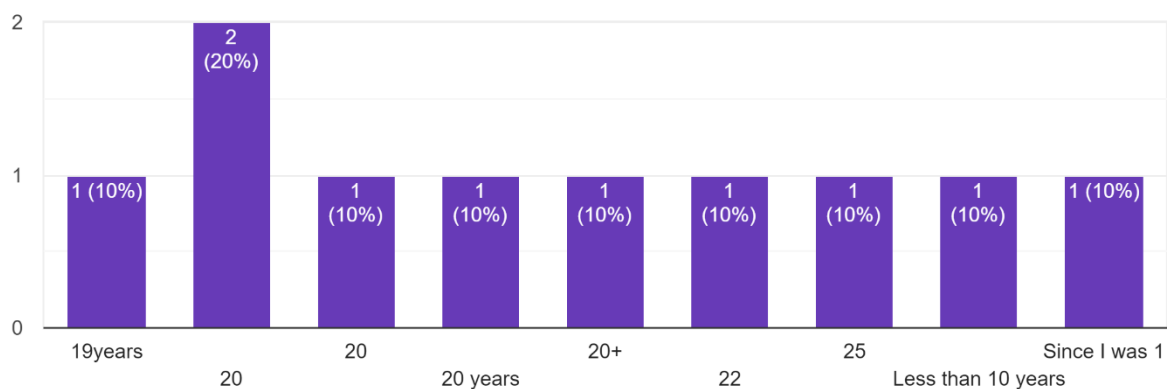


Figure 1.2 Total years of English Language exposure of SLRs

In comparison with these two charts, most of the participants were exposed to English language from the commencement of their academic life. However, the Persian participant and the Chinese participants had the least exposure. The Persian participant was exposed to English for 10 years or less and the Chinese participants were exposed to 19-20 years in total.

❖ **English Language Exposure: Iran and China**

Most of the participants here are acquainted with English language from early childhood, taking classes and other pedagogical manifestations in the language along with taking classes in their native language. Even so, there are participants who do not have as much exposure to ESL as others due to their socio-political circumstances in their country of origin. Some significant findings in the study were identified in the participants of Iran and China.

Iran: Since Persian people go for their elementary to higher studies in their native language, they do not start learning English right after their beginning of academic life. The ministry of education in Iran do not impose any English language exposure until they are around 15 years old or in their high school. Since they realize that they need English for higher education in abroad, doing jobs there and for immigration purpose, most of the parents of the children admit them to private English organizations where they learn and foster English language for good.

Another Persian participant named Peiman was interviewed in this regard, and he commented on that *“We were never required to learn and study in English by the school curriculum for future career in Iran. It was the aspirations for the families to send their children to such privatized tuitions for English language learning so that we can apply abroad and pursue higher studies. We never had any kind of English proficiency tests since all the governmental, administrative, economic affairs were conducted in Persian language.”*

China: The similar notion goes with the two Chinese participants. Nonetheless, the Chinese participants had early exposure to English way before the Persian participant had her exposure. They had some courses in their junior middle school to show minimum proficiency in English. After graduating from high school one of Chinese participant named Sarah had to go through a CET (College English Test) orchestrated by Chinese people. She had been an enthusiast for reading English in her early English learning times.

Sarah says, *“I used to read English learning newspapers now and then when I was in my junior middle school and doing really good in my grades but eventually, I lost interest in reading and practicing English because I was bored. The initial language instruction for English was given in Grammar Translation Method (GTM) in school. At the time of the CET exam, I had to do rigorous study for English Grammar and vocabularies.”*

❖ English Proficiency and Life in the US and Canada

Most of the SLRs participants had gone through English proficiency tests in order to come in the US and Canada with varying degrees of result. However, the results of their English proficiency tests (EPT) do not estimate their overall competency in the language because each participant has unique English language exposure experience all over their lives. The results of EPTs of SLRs are given below:

Indian participants:

Female participant: TOEFL: 91, Reading 23

Male participant: TOEFL: 109, Reading 27

Nepali participant: TOEFL: 85

Malian participant: TOEFL: 104, Reading 28. IELTS: 7, reading band 7.

Persian participant: TOEFL: Reading 29

Chinese participants:

Student participant: affirmative but did not respond to disclose the score

Working participant: She took the TOEFL test back in 2013 but cannot remember her score.

Reading score was the highest of all.

Bangladeshi participant: IELTS 6.5, reading band was 6.

Filipino participant: IELTS 9, reading band 8.

German participant: Never participated in an English proficiency test

Interestingly, the participants having different sets of results in their EPTs display unique and efficient skills in English in their respective fields of education and workspace. The participants of SLRs have been living in the US or Canada from couple months to maximum five years in average.

The participants chose their proficiency levels according to the pie chart below:

Around 50% of the candidates chose *professional working proficiency* as their level of proficiency, 30% chose *full professional proficiency* and rest 20% chose *Bilingual proficiency*. In this category most of the candidates have been practicing English reading and speaking for over 10 years.

Proficiency in English: (Select any one)

10 responses

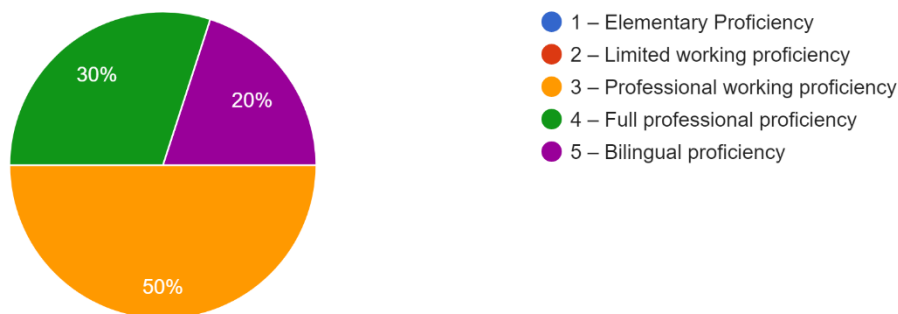


Figure 1.3 Proficiency Level of SLRs

The reason behind choosing professional working proficiency as their proficiency level was that the participants still require some spoken expertise to establish themselves as professionals or Bilinguals. However, such a level is measured by the spoken proficiency for English by the participants. For the reading skill proficiency, the candidates exhibit superior quality of reading strategies which will be discussed later in this section through an eye-movement test.

The TOEFL Test

The central purpose of the survey was the TOEFL test which is the crucial indicator of the comparison of FLRs and SLRs. The test has a single passage with 10 questions. However, it was not a time limited test that an actual TOEFL would have. Hence, the data collected from the test will give an overview of the response but not a clear picture of the result of the test. The 10 questions include questions i.e., factual information, vocabulary, negative factual information, inference, rhetorical purpose, insert text and prose summary. The justification for these questions and the response of each group will be discussed and evaluated below:

1. Factual Information Question.

Factual information questions or detailed questions are usually asked to demonstrate the factual understanding of the given passage. These questions signify the comprehension of facts described in the passages. The factual information questions in the tests were 5 and 6 numbered questions.

The correct answer for question 5 is

A well-exploited and readily available commodity

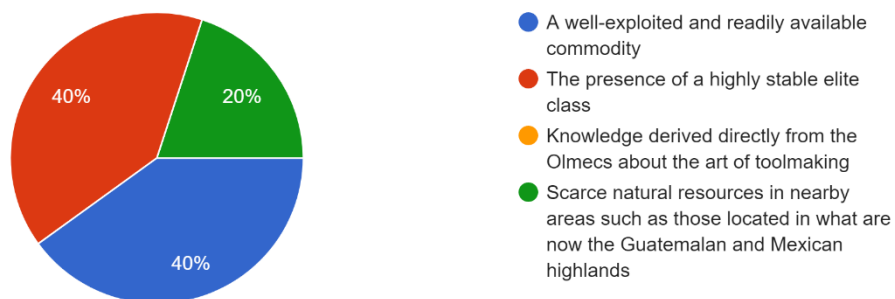
The correct answer for question 6 is

Some of the obsidian used by the Olmecs came from the area around Teotihuacán.

The response from FLRs and SLRs are given below in pie charts.

FLRs response of question 5

5. Which of the following allowed Teotihuacán to have "a competitive edge over its neighbors"?
5 responses



SLRs response of question 5

5. Which of the following allowed Teotihuacán to have "a competitive edge over its neighbors"?
10 responses

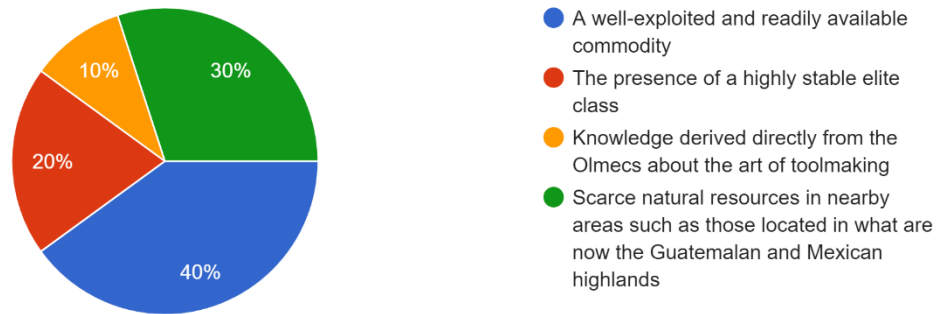
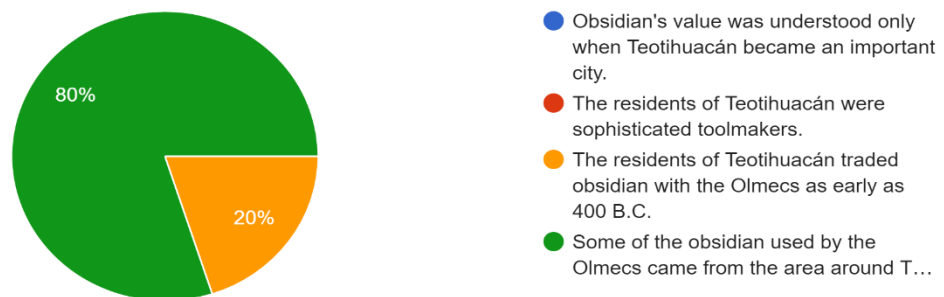


Figure 1.4 Factual Questions 1 Result

FLRs response of question 6

6. According to paragraph 4, what has recent research on obsidian tools found at Olmec sites shown?
5 responses



SLRs response of question 6

6. According to paragraph 4, what has recent research on obsidian tools found at Olmec sites shown?

10 responses

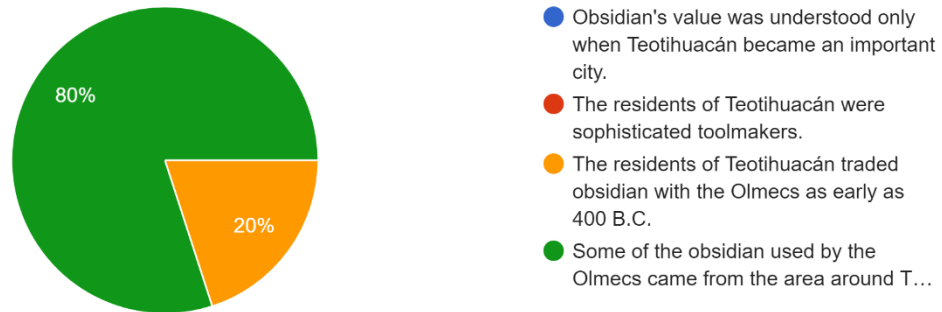


Figure 1.5 Factual Question 2 Result

The response from FLRs and SLRs show that majority of each group has selected the correct answer choice. The factual question 5 has some variations in response but question 6 have all the same response.

2. Negative Factual Information

Negative factual information is quite the same measurement as the factual information question.

The basic difference here is that the examinee has to find out the only correct answer choice from the multiple choices that is not stated in the passage. The negative factual information questions in the tests were 1 and 3 numbered questions.

The correct answer for question 1 is

Several administrative centers spread across the city

The correct answer for question 3 is

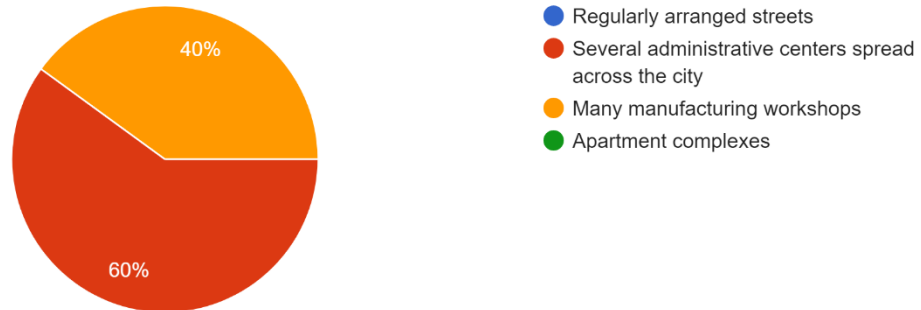
A long period of volcanic inactivity in the Teotihuacán Valley

The response from FLRs and SLRs are given below in pie charts:

FLRs response of question 1

1. In paragraph 1, each of the following is mentioned as a feature of the city of Teotihuacán between A.D. 150 and 700 EXCEPT:

5 responses



SLRs response of question 1

1. In paragraph 1, each of the following is mentioned as a feature of the city of Teotihuacán between A.D. 150 and 700 EXCEPT:

10 responses

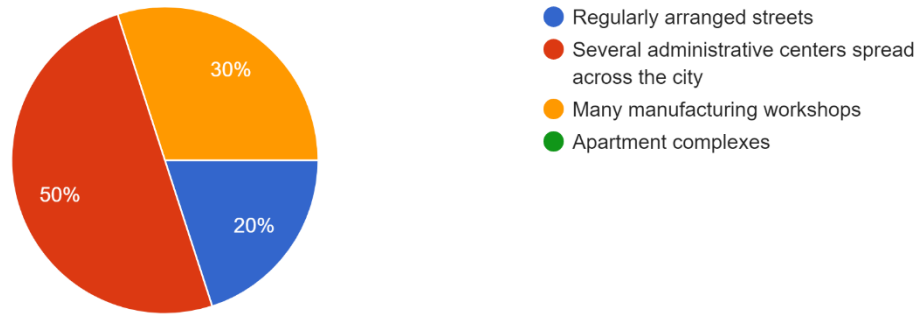


Figure 1.6 Negative factual 1 Result

FLRs response of question 3

3. Which of the following is NOT mentioned in paragraph 2 as a main factor in the development of Teotihuacán?

5 responses



SLRs response of question 3

3. Which of the following is NOT mentioned in paragraph 2 as a main factor in the development of Teotihuacán?

10 responses

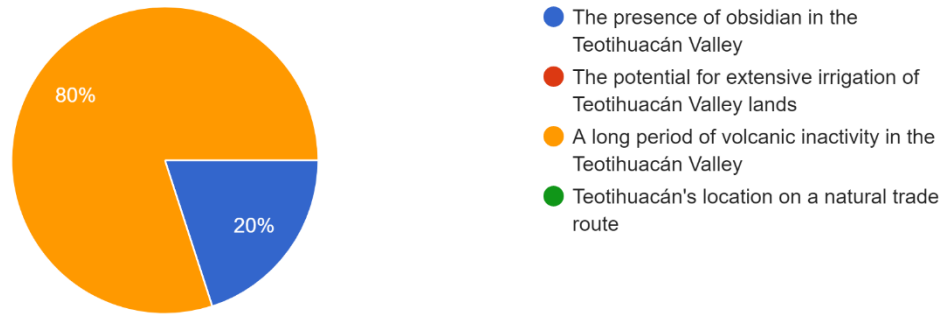


Figure 1.7 Negative factual 2 Result

The result of the response from the majority of the candidates of both group members have selected the correct answer choices. However, for question number 1, the majority of FLRs have chosen the correct answer and for the question number 3, the majority of the SLRs have chosen the correct answer choice.

3. Vocabulary Question

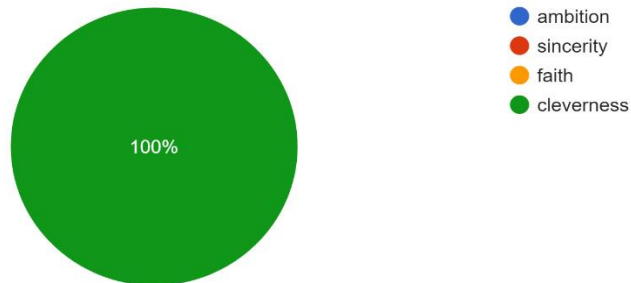
The vocabulary questions are principally designed to estimate the word and phrase knowledge that are frequently utilized in the academic and non-academic contexts. This question is crucial for SLRs, since it evaluates their memorization and the cognitive ability to understand context clues given the passage. The vocabulary question in the test were 2 numbered questions.

The response from FLRs and SLRs are given below in pie charts:

FLRs response of question 2

2. The word "ingenuity" in paragraph 2 is closest in meaning to:

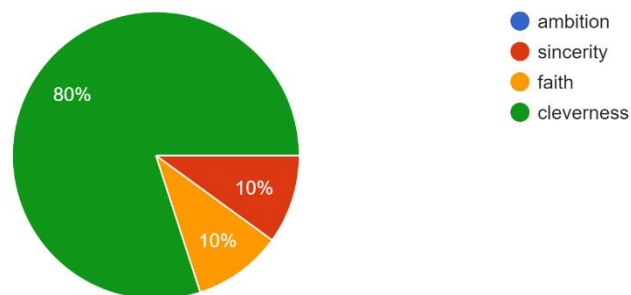
5 responses



SLRs response of question 2

2. The word "ingenuity" in paragraph 2 is closest in meaning to:

10 responses



Figure

1.8 Vocabulary Question Result

The response from figure 1.8 clearly displays how habitual it is to native readers have better grasp on their linguistic units such as words, phrases, and idioms. On the other hand, nonnative readers have difficulties over understanding second language vocabulary questions. Since a lot of SLRs have chosen to look for the word on the dictionary or internet and are not allowed to look for words/phrases on the internet or dictionary in the exam, it is evident that they do not have strong grasp over their English vocabularies.

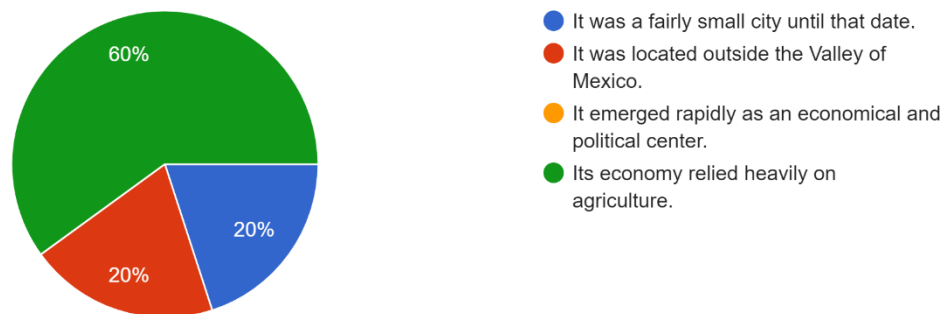
4. Inference Question

This question type is most challenging for many SLRs and exhibits some of the crucial understanding of any written texts for a SLR. This kind of question can be answered only by sturdy interpretation of the passage. An examinee has to understand what is stated and make a summary of the passage sometimes to answer this question. The direct answer is not revealed in the answer choices, so the examinee needs to completely comprehend what the passage has to offer for inference. The inference question in the test were 4 numbered questions.

FLRs response to inference question

4. What can be inferred from paragraph 3 about Cuiculco prior to 200 B.C.?

5 responses



SLRs response to inference question

4. What can be inferred from paragraph 3 about Cuicuilco prior to 200 B.C.?

10 responses

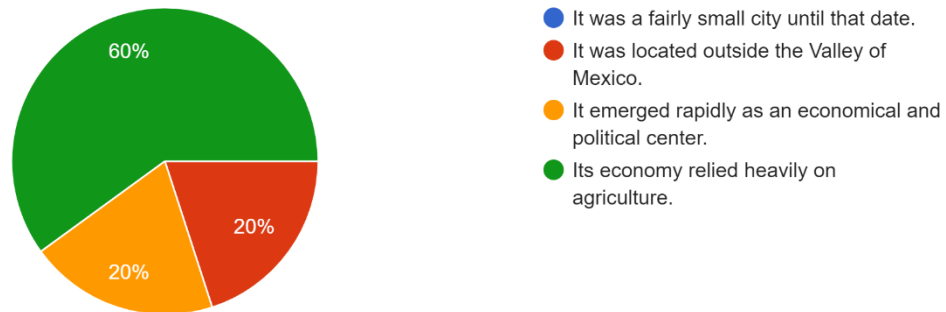


Figure 1.9 Inference Question Result

The result in figure 1.9 is interesting that both FLRs and SLRs have the similar percentage for choosing the correct answer.

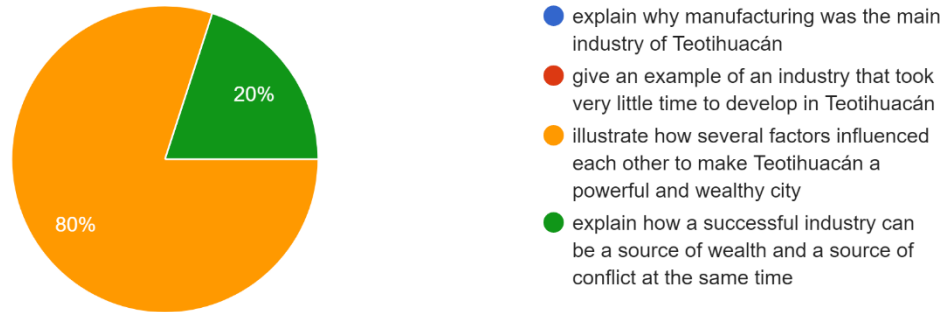
5. Rhetorical Purpose

This question pattern tests the capacity to comprehend the reason why a specific thought or contention has been utilized in the text. It is also called the author's purpose or rhetorical purpose question which is stated to evaluate how well an examinee comprehends the textual structure that facilitates complete apprehension. The number 8 question in the test was a rhetorical purpose as it asks about the authors intention.

FLRs response to Rhetorical purpose Question

8. In paragraph 6, the author discusses "The thriving obsidian operation," in order to:

5 responses



SLRs response to Rhetorical purpose Question

8. In paragraph 6, the author discusses "The thriving obsidian operation," in order to:

10 responses

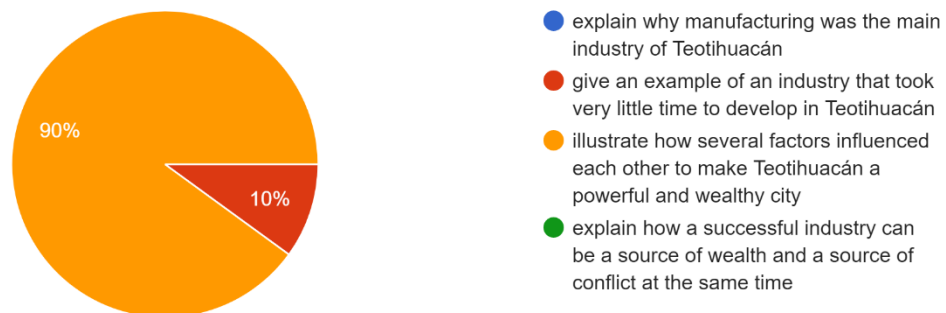


Figure 1.10 Rhetorical Purpose Question Response

The response from the majority of both groups have responded correctly however compared to SLRs, FLRs did not correct it as many times as the SLRs.

6. Insert Text

This question assesses strong grammatical sense of the examinee. The reader needs to carefully observe the extra sentence given in the question and attach it through logical explanation by reading the whole paragraph again. The number 9 question in the test was a sentence insertion questions.

9. In paragraph 1 of the passage, there is a missing sentence. The paragraph is repeated below and shows four letters (A, B, C, and D) that indicate where the following sentence could be added.

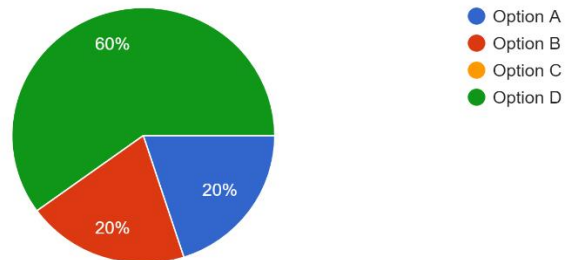
In fact, artifacts and pottery from Teotihuacán have been discovered in sites as faraway as the Mayan lowlands, the Guatemalan highlands, northern Mexico, and the Gulf Coast of Mexico.

Where would the sentence best fit?

The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200 –100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. (A) It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. (B) Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. (C) Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico). (D)

FLRs response to Sentence Insertion

5 responses



SLRs response to Sentence Insertion

10 responses

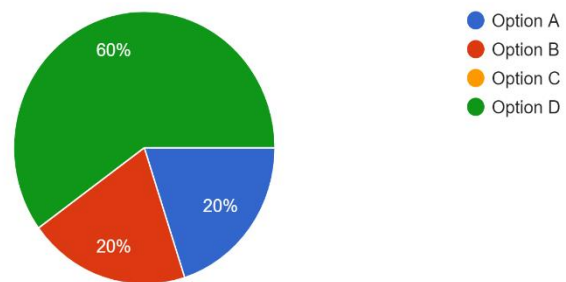


Figure 1.11 Sentence Insertion Question Response

Figure 1.11 illustrates that grammatical construction of both FLRs and SLRs are quite similar as the majority of both groups have chosen the correct answer choice.

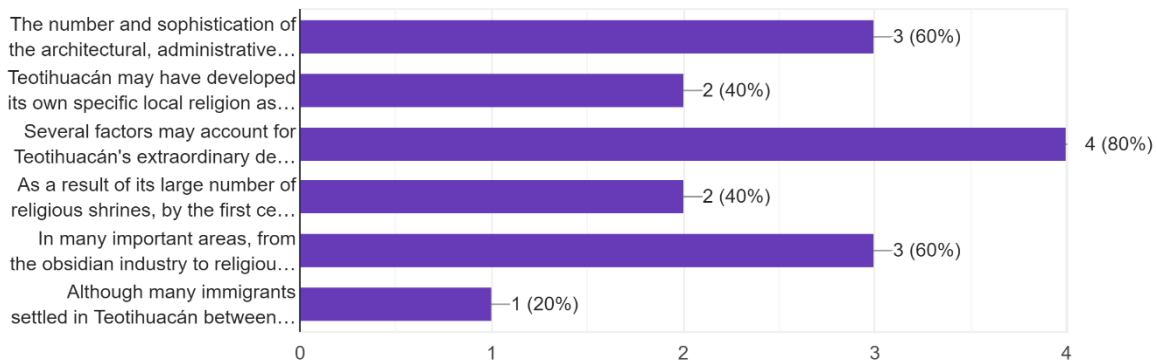
7. Prose Summary

In TOEFL reading Prose Summary will be asked to identify the major arguments of the whole passage. There will be single question on prose summary or fill-in a table question. To solve this kind of question the examinee needs to learn discerning minor attributes in the given passage and pay attention to whole idea and the argument. This question contains the highest credit. This question also measures the overall understanding of the examinee as it requires one to remember every single detail.

FLRs response to Prose Summary

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE ans...in the passage. This question is worth 2 points.

5 responses



SLRs response to Prose Summary

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices in the passage. This question is worth 2 points.

10 responses

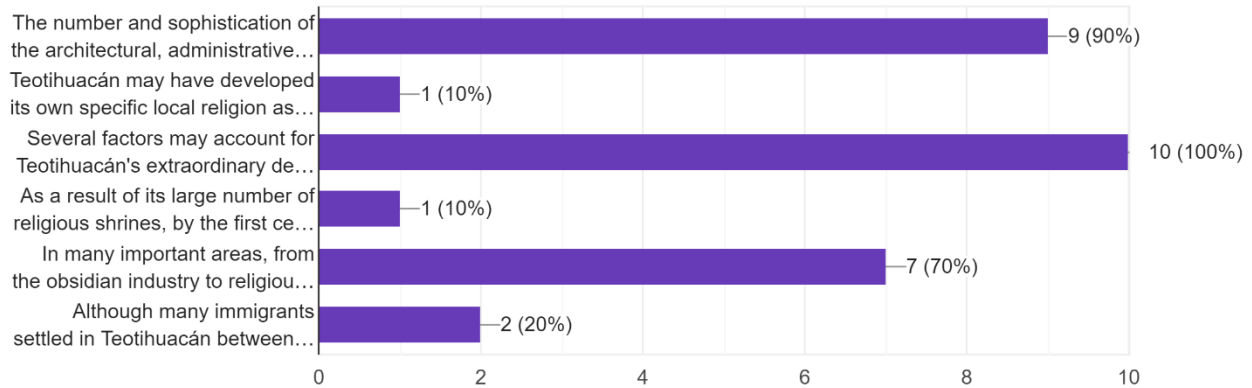


Figure 1.12 Prose Summary Question Response

Figure 1.12 demonstrates the result of prose summary from both groups and the enthralling fact here is that most of the SLRs have chosen the correct answer choices which are option A, C, and E.

In order to investigate on the research question *how frequently does a native reader and a nonnative reader make specific eye-movements for better understanding of the reading text?* The paper has demonstrated an eye-movement test from an FLR and an SLR.

Eye-Movement Test

For the purpose of acquiring better understanding of word recognition strategies by FLRs and SLRs, there was an eye movement test. Since every participant could not be interviewed and did not agree to do the eye-movement test, only 1 participant from each group participated in the test. Moreover, as they already have gone through the reading passage of the TOEFL test, they were given a separate reading passage for this test. Since, this test could not be computed in a lab, the initial response for test results will only be calculated.

Native Reader / First language Reader (FLR):

Name: Dawa (Female)

Major and Occupation: Community College (Elementary Education, 2nd Year) and a receptionist.

Nationality: American Egyptian

English Language Exposure: From birth

Total Period of Living in the US: 11 years

Table 1: Eye-movement Test Result of an FLR

Criteria	Response
<i>The number of Eye Fixations on words in a single sentence</i>	<i>8-10 times</i>
<i>Lexical Category of Fixation</i>	<i>Content Words, Vocabularies</i>
<i>The number of reading complex Syntactic Structures</i>	<i>3-4 times</i>
<i>Facing an Unknown Word</i>	<i>Look up on the internet</i>
<i>Remembering from the initial Reading</i>	<i>Forgot Almost everything</i>

Nonnative Reader/ Second language Reader (SLR):

Name: Arjun Vettath Gopinath (Male)

Major and Occupation: Graduated on Computer Science at UNR and a software engineer.

Nationality: Indian (Kerala)

English Language Exposure: 20 years

Total Period of Living in the US: Around 3 years

Table 2: Eye-movement Test Result of an SLR

Criteria	Response
<i>The number of Eye Fixations on words in a single sentence</i>	<i>4-5 times (the participant prefers slowing down, not fixating)</i>
<i>Lexical Category of Fixation</i>	<i>Content Words, Vocabularies</i>
<i>The number of reading complex Syntactic Structures</i>	<i>2-3 times</i>
<i>Facing an Unknown Word</i>	<i>Use Context Clue</i>
<i>Remembering from the initial Reading</i>	<i>Remembers the main ideas, but hardly remembered the rhetoric.</i>

Table 1 indicates that FLR devoted her maximum attention to detail reading and fixated her eye on words that were new to her. On the other hand, Table 2 indicates that SLR has been allocating his time in skimming and reread sentences which did not make sense on the initial reading. Both FLR and SLR fixates more on vocabularies. However, the FLR went to look for the word on the internet and the SLR used context clue. The FLR cannot remember most of the content from the reading passage from her first reading, although the SLR can remember the main idea alone.

Data Analysis

Any language constitutes four basic skills i.e., reading, writing, speaking, and listening to master the language. Reading efficiency is one of the core requirements of any language proficiency. Book reading consistently has been found to have the power to create interactional contexts that nourish language development. (Dickinson et al., 2012)

English is the lingua franca that has spread across the globe surpassing cultural and linguistic boundaries. Whether it is because of its historical manifestations, linguistic imperialism, or political and economic dominance over certain nations, English is now predominantly established in every sphere of human civilizations. In addition to such imperialistic implications of the English language, it has many “varieties” around the globe which gave rise to the importance of standard English practice to non-native English users all over the world. However, it is not solely dependent on numerous “varieties”, rather leaning more on Higher educational demonstration imposed by major English-speaking countries. Due to the fact of linguistic dominance and many “varieties” of English, the language itself impose linguistic appropriation on people whose first language is not English. Non-native speakers of English worldwide have to go through English Proficiency Tests to pursue higher education or immigration to any major English-speaking countries around the world. These English proficiency tests represent the language "English" to non-native users in a situation that exploits them to use English exonymatively. Such an enforcement signals other “varieties” of English “inappropriate” to these major English-speaking countries. The native English language users in this regard are in favor of this complicated circumstance. Davies et al., (2003) differ in their opinion and outline

that, a strong World Englishes (WEs) view maintains that imposing IE (international English) on users of WEs may be discriminatory against non-native English speakers (NNES).

The field of cognitive psychology has closely investigated the psychology and cognition of reading. Just & Carpenter (1987) have included their definition of taking a cognitive perspective means:

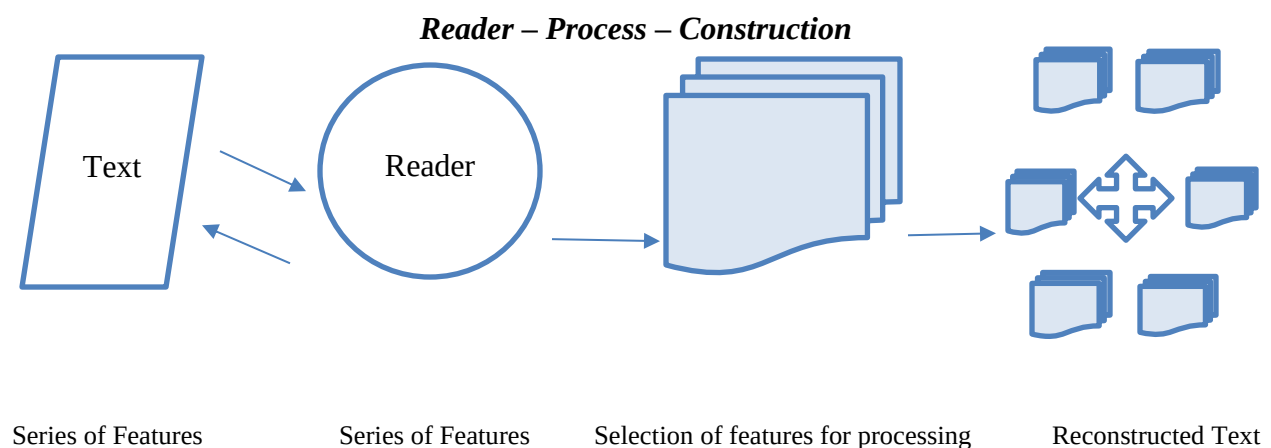
- What information in the text starts the process
- How long does the process takes
- What information was used during the process
- The likely sources of mistakes
- What the reader has learned when the process is finished

The reading process is an individual and intrapersonal problem-solving endeavor which takes place within the brain's knowledge foundation. According to Bernhardt (1993) "In a cognitive view on reading, the conceptualization of the problem (i.e., the material to be understood) as well as the way out (i.e., processes for understanding) take place 'inside the head'." Every language has its own set of ordinances and functions when it is being interacted with and anticipated. For instance, the English language entails a certain obligation on the article *the*. The article is introduced in the adjective and noun phrases, but it cannot be implied in verb phrases. A native speaker of English has this kind of innate language competence from his/her childhood. These rules are recollected during linguistics activities such as reading, which (Bernhardt, 1993) expresses "enabling readers to anticipate, moment by moment, information that is being input." This gives birth to an innate cognitive ability. For the second language reader, this innate cognitive ability will be already wired in the brain if similar ordinance and functions are present in their native language.

The components of general reading ability described by (Foorman & Siegel, 2017) analyze the intention of understanding what is read and often remembering what is read. That is why they discuss the overlapping processes of reading tasks into three categories. Lexical access, propositional encoding, and text modeling. Lexical access defines the reading and understanding of the words written or printed down. Foorman & Siegel (2017) characterized it as the “central recurring cognitive event of reading.” Absolute comprehension depends heavily on the lexical access of any reader because it inaugurates other dimensions which are propositional encoding and schema activation or text modeling. Successful lexical accessing allows text representation in working memory. Differences in reading ability is usually due to differences in lexical access competence. Propositional encoding is the stage where the reading ability difference can be identified. Propositional encoding can be sub-divided into three categories: 1. Encode the sentence; 2. Retrieve information from semantic memory; 3. Compare encoding with representation. A high-ability reader can encode and retrieve information more efficiently than any low-ability reader. Foorman & Siegel (2017) in addition outlines that “a less able reader can remember less of the text currently being read” because “a currently encoded proposition needs to be attached to a recently encoded proposition.” This in turn reveals the necessity of the low-ability reader to have the necessary encoded proposition to their working memory as they do not have it there at present. Lastly, text modeling which is the construction of a more “global mental model” has a close association with schemata and conceptual structures of texts. Foorman & Siegel (2017) describes “these structures include specific knowledge with which to link the text content knowledge, for example, baseball for a baseball text.” They added (2017) that “the glue for the text model is the inferences the reader makes to link information in the text with his or her knowledge.” To investigate the in-depth alliance of these cognitive components of general

reading abilities, the paper will go under a thorough review of their internal issues and evaluate the collected data from the participants.

Reading a text does not mean going through its linguistic connotations alone. A reader when reading a text brings along many social and cultural ideologies with him/her. This acts as a result and adds a new dimension to the meaning of the text. In other words, a reader has his view and method of reacting to a text which in turn evokes a selection of differential features of the processing of that particular text. Bernhardt (1993) explains that “Text is no longer characterized simply by its linguistic elements (semantics and syntax), but also by its structure, its pragmatic nature, its intentionality, its content, and its topic. These sets of features interact with the reader in the process.” In her opinion, readers are not static entities, but unique individuals who add, behave, and sometimes change the meaning of the text. In conclusion, they try to “reconstruct” the important parts of the text according to their needs and understanding. The consequences are the input text, and the output text becomes separate units. (Sungatullina et al., 2016) substantiate the claim here that “Reading itself encompasses four crucial elements: the text, the reader, the interaction between the reader and the text, the mental state of the reader after the text interaction.” A reader-based perspective in the comprehension process is given below:



Comprehension: A reader-based perspective

In order to focus on the research question of the paper *what kind of reading strategies i.e., text-driven, and knowledge-driven factors do first language readers (FLRs) and second language readers (SLRs) employ in the TOEFL reading test and how distinct they are for individual comprehension*, the study will go in depth analysis of these models.

Lexical Access/Text-driven Operations: The text-driven discipline is also called the visibility of reading or as (Bernhardt, 1993) puts it “the text as it appears on paper or screen”. This sector of research is very limited as most of the second language reading research is focused on knowledge-driven operations and with holistic overview. However, any reading research should initially focus on componential processes and text-based inference which bears the most basic level comprehension fundamentality in this case. Text-driven operations also focus on the internal variable of readers that allow them to orchestrate microlevel features of texts. If the micro-level processing is punctuated, then the processing of other stages also get interrupted. (Bernhardt, 1993) The following sections will cover the visibility of reading elements with their connotations in second language reading.

Word Recognition: The textual inference is the fundamental core notion of literacy development of any language and the standard measurement of lexical access of any language reader.

However, in the case of second language readers, their reading approach comes from their first language framework. Due to such a linguistic transitional system, second language readers tend to become slow readers even if they showcase certain levels of proficiency in their second language. Favreau & Segalowitz, (1982) has demonstrated this procedure may reflect “the operation of reading specific mechanisms.” They also have indicated that “the operation of

specific mechanisms underlying reading varies across individuals and across reading situations.” It reflects the “reduced effectiveness of certain specific processes.” An example of such an occurrence in the orthographic level given by (Favreau et al., 1980) is “in a visual letter detection task, fluent bilinguals showed a smaller word superiority effect in the second language than in the first, indicating that these bilinguals were less able to utilize the second language orthographic redundancies compared to those in their first.” Moreover, the processing and reaction time, and fluency are heavily dependent on orthography. According to Bernhardt (1993), bilingual children usually take more reaction time in word length. The bigger the word, the more time they require to make full comprehension. This finding however does not go parallel with the adults’ bilinguals or second language readers. This concludes that readers develop from “component processing to holistic processing.” (1993) Adding to that hypothesis, skilled readers however sometimes devote their attention to whole words as well as a component part of the word according to their necessity. One of the Indian participants of this study in an eye movement study implies here “I didn’t stop when I saw a peculiar word. I slowed down (A teeny bit) and proceeded at my normal pace once the word was done.” In his reading of a text, he addressed and fixated on many words according to his need. Apart from the processing and reaction time, the role of context is crucial here. A reader grasps a larger processing unit over time with sufficient exposure to familiar contexts. Patberg et al. (1981) describe those skilled readers who seem to make employment between the component or holistic processing as an “option” according to their obligations, however, unskilled readers appear to be jammed into component processing. Skilled readers gain skills from their frequent and solid reading which allows them to have some sort of automaticity. On the other hand, unskilled readers become encircled to distressed decoding with little knowledge left to understand the message of the text.

A cardinal factor in the word recognition system allows us to focus on orthographic resemblance among languages. For instance, languages containing the same orthographic pattern such as English and Spanish allow readers of each language to adopt particular orthographic sensitivity, they have already developed in their first language. A similar phenomenon goes with German and French readers. Bernhardt (1993) in her work denotes a study of English readers who had zero exposure to French and were able to discern between words and nonwords in French. Having said that, second language readers who have to switch their orthographical pattern to understand the language being read experience unyielding circumstances. According to Bernhardt (1993) in this case, the readers have to learn like a child or in other words develop a sense of orthography in their second language. An example can be English to Arabic or German to Korean. The Chinese participant who has a significant English learning background in this study have a similar kind of experience.

Syntax: Another pivotal element in text-driven factors is word order or syntax. Syntactic competence is as influential as word recognition because it not only reveals communicational pattern but also define new relations among words stated in the sentence. Second language readers, tend to use their available processing tools present in them if they face difficulties in decoding the complex syntactic structure. Bernhardt (1993) defines this as “second language readers who are syntactically constrained like first language children use the tools that they have available to them for syntactic processing.” In addition, they expect to experience certain processing features as they proceed with reading. This knowledge is stored in working memory and the reader then tries to connect that reading to a proper constituent structure in their cognition. if they do not get a complete connection, they tend to proceed further and read the next word to make an “ideal chunking” for better comprehension. Bernhardt (1993) classifies

two unique systems of second language syntactic processing. “A native language syntactic processing system that signals the end of constituent elements, and an imperfectly developed knowledge of the signaling system in the second language.” These systems are measured by an eye-movement behavior of native, nonnative experienced, and nonnative inexperienced reading abilities. An experimentation on these three types of readers have been conducted by (Bernhardt, 1993). Her initial finding concludes that a native reader makes fixations more in the initial stage of reading and eventually gets better understanding which allows them to make less fixations eventually. This is because a native reader has his/her own processing features which in parallel to the language structure since it is his/her first language. In case of nonnative experienced reader, the fixations are employed in every line of the text which demonstrate his/her deliberate effort and own effective processing measurement. Finally, the nonnative inexperienced reader makes fewer fixations on the sentence structure but more on content words such as low frequency vocabularies.

Eye-Fixations: From Table 1 & 2, the eye-movement tests of both FLR and SLR candidates demonstrate that each has unique way of attending to syntactic structures. Some clarifications regarding the eye-movement test are given below:

FLR: The FLR participant went for the “big picture” of the text, she fixated on multiple words on each sentence and tried to make full concentration. As a result, she fixates about 8-10 times for each sentence.

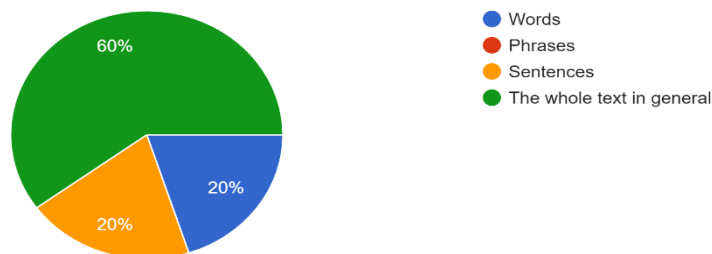
SLR: The SLR participant in his opinion, “I read one or two sentences 2 - 3 times, it was not because I didn’t understand the sentence. It was due to thoughts and distractions that prevented

me from fully paying attention.” The SLR candidate at his normal pace did not need to fixate for understanding the text.

In order to get a summary of the response from all the participants, there was a measurement of textual structural difficulty. The following two pie-charts demonstrate the response from each group:

First Language Readers Response (FLRs)

8. What is more complex to you while you read a text in English?
5 responses



Second Language Readers Response (FLRs)

8. What is more complex to you while you read a text in English?
10 responses

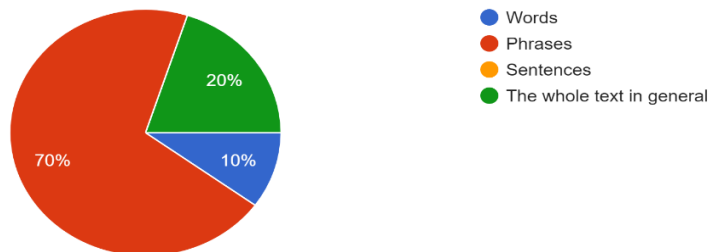


Figure 2 Textual Structural Difficulty Level

Figure 2 signifies that most of the FLRs face difficulties in reading and making sense of the whole reading passage. Other FLRs find it hard to comprehend syntactic structures and words in the text. However, they do not find it hard to understand any kind of phrasal structures. On the other hand, most of the SLRs face difficulties in understanding the phrases in a reading passage. Phrasal structures are tough for the SLRs as there is a variation between denotative and connotative meaning there. For the rest of the SLRs words and the whole reading passage has varying degrees of difficulties for them.

The Structure of Text: Another key element in text-driven factor is the structure of the text. The structure of the text comprises the rhetorical and graphic display of the text. The physical features of the text are important variables for second language readers. This text-driven measurement is widely accepted for any kind of reading research because most research investigates on rhetorical structures to evaluate comprehension abilities of the readers. The rhetorical structure defines how a text is organized to evoke the main ideas of the text. On the other hand, graphic display defines the print size, punctuations, the use of color and more. These features are salient and induce culturally specific notions that facilitate comprehension to many readers.

In the survey, there was a generic question asked to every participant. Did you look at the question pattern first or the structure of the text (e.g., text length, sentence structure etc.) Choose any or your preferred method.

In response to the question, The FLRs and SLRs chose their own preferred method in Table 3.

Table 3: Preferred Method of Initial Reading

<u>Participants</u>	<u>Question Pattern</u>	<u>Structure of the Text</u>	
		Text Length	Sentence Structure
FLR 1		✓	
FLR 2:		✓	
FLR 3:	✓		
FLR 4:	✓		
FLR 5:	✓		
SLR 1:			✓
SLR 2:			✓
SLR 3:	✓		
SLR 4:	✓		
SLR 5:	✓		
SLR 6:	✓		✓
SLR 7:			✓

SLR 8:	✓	✓
SLR 9:	✓	
SLR 10:		✓

Table 3 denotes individual approach to reading for the first time. It is evident that most of the candidates chose to look at the question pattern first since they knew about the test from that reading. Therefore, their reading became test-based reading. However, there were other participants who chose to look at the text length and sentence structure in the beginning. On top of that, some preferred two methods simultaneously in order to understand the test more. The response from the Persian participant was like “I read the first paragraph at first to know about the subject. Then I review the questions at first and look for the answers within the text.” It is on that account perceptible that most of the participants made a structured reading intention to answer the questions.

Knowledge-driven Operations: The knowledge-driven factors are the “unseen” or implicit notion in texts. These are conceptually driven factors which include background knowledge, metacognition and intratextual perception. Here the knowledge defines as the distinction between information intended by the author and assumed to be acknowledged by the reader. This factor is not solely cognitive rather socio-cognitive in nature. Cultural and social factors play key role in demonstrating the understanding of crucial inferencing factors

Background Knowledge: One of the most researched phenomena in second language reading research is background knowledge. Knowledge-based inferences are culture and background knowledge dependent. The “unseen” portion of reading is inherited from the reader’s knowledge about physical, social, cognitive and spiritual events in their lives. Graesser et al. (1987) reports on cognitive structural issues as “we assume this world knowledge is embodied in a large set of *generic knowledge structures (GKS)* and *specific knowledge structures* stored in long term memory.” They (1987) gave an example here as if a reader reads about a story of a dragon kidnapping a princess from a faraway land, the GKS will activate the *DRAGON*, *PRINCESS* and *FARWAYA LAND*. These variables will be activated during comprehension through “pattern recognition mechanisms” according to Graesser et al. (1987) and construct base knowledge for inference. Moreover, there is a possibility of activation of specific knowledge structure SKS in the reader if the reader has exposure to popular culture and has watched *Shrek* animated film by DreamWorks then the film will eventually pop up in his/her cognition while going through the *DRAGON*, *PRINCESS*, and *FARAWAY LAND* variables.

After going through the TOEFL test, the FLRs and SLRs were asked for reconnect the TOEFL reading passage with their background knowledge. The response is stated below in the table:

Table 4: Background Knowledge of FLRs

FLR Participants	Response
Dawa (American Egyptian)	“Not per say. Re-read.”

Alexis	“I had this Magic Tree House book when I was young that talked about this area in the book. I tried to remember what it had said to see if any of that information would help with my understanding.”
Marie Magera	“No. I read the paragraphs separately and dissected them based on sentences.”
Desiree	“On the initial reading when I was tired and reading specifically to answer the questions, I did not focus much on forming connections between any prior knowledge and the text. I also did not think about prior knowledge the second time through.”
Elissa	“I had no prior knowledge, but as I read the previous context helped understand the new information.”

Table 5: Background Knowledge of SLRs

SLR Participants	Nationality	Response
Tanja	German	“No prior knowledge occurred in my mind”
Kingkini Sengupta	Indian	No
Anusha	Nepali	“No. I read it from the given passage.”
Harvey	Mali	“No, I just understood it as I was reading through with the mindset of wanting to learn and not only answering questions.”
Zahra Faeli	Persian	“No, I did not have any prior knowledge. The concept was not so hard.”
Yu Rong	Chinese	“No”
Shirley Gomes	Bangladeshi	“No, most of the information were very new for me to acknowledge and understand.”

Sarah Feng	Chinese	“Since we just travel back from a historical little town call Genoa. I picture that a few times. It helped.”
Arjun Vettath Gopinath	Indian	“General knowledge pertaining to how civilizations grow such as through trade routes, natural resources etc., thoughts on other ancient, advanced civilizations such as Harappa and Mohenjodaro crossed my mind. The Religion and elite group’s part sort of brought back gaming memories (Assassin's Creed). I didn't have difficulty understanding the text. If I ever do, I always search my mind for stuff that I've read or picked up in the past that I can closely associate with the contents of the text.”

Mary	Filipino	“No, I just skimmed the passage pertaining to the question.”
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Table 4 & 5 demonstrate that each of the group has less response on their background knowledge protocol. For thorough comprehension, a required level of prior or background knowledge is indispensable. However, the participants from each group do not detain necessary prior knowledge in this case. But interestingly, the participants who responded positively of having necessary background knowledge for comprehension had strongly embraced the information of the given passage. They were asked After reading and completing all the answer choices (and coming to this question), did you remember the specific details stated in the passage or did you forget everything?

Their response to this question according to their background knowledge are given below:

FLR (Alexis): “I think that I will remember the parts I felt emotionally connected to like what I remembered in the book Tree House book and the parts like the city itself that sound fun to visit on a vacation.”

SLR (Arjun): “I definitely remember parts of it, for instance, I could write a brief summary on the whole passage. But I would of course not be able to reproduce the dates, or the important names mentioned in the passage (It depends a lot on how difficult or complicated the names are to be honest). I remember some information specifically since I revisited parts of the passage to answer questions.”

SLR (Sarah): “Remember the main idea, forgot all details.”

The response from all three candidates expresses their strong grasp over the reading content. However, for Sarah’s case, it should be remembered that she is a special case who had hard times reading the whole passage. It took almost 20 minutes for her to read the whole reading passage and then she started answering the questions.

Intratextual Perception: This is a prior inner assumption by the reader who by his/her own cognitive abilities perceives and connects to the text being read. Bernhardt (1993) indicates that “intratextual perception concerns how the reader perceives and then reconciles each part of the text with the preceding and succeeding discourse context.” This process is crucial at the beginning of the text. Because in the initial stage what a reader is thinking and reacting to the text will eventually have the capacity to influence the reader’s perception of the whole text.

For the TOEFL test, most of the SLRs were expecting a graduate level academic test. On the other hand, the FLRs took certain preparations for a test only. As the participants were well aware of the test, they did not stage initial conception for the reading passage. Rather they went through portion by portion of the text and took time for their own to make full understanding of the text and then answered the questions.

Metacognition: Metacognition in other words can be referred to as reader’s own conscious attention and response to the text being read. The reader has his/her own significant thinking and evaluating process going forward with the reading. (Bernhardt, 1993) posits that “this feature demonstrates that the reader is monitoring his/her own comprehension process.” In the case of English proficiency tests i.e., TOEFL, employing specific reading strategies is a must for nonnative English readers. Metacognition itself pose all the necessary elements for successful

comprehension for both native and nonnative readers. For any kind of EFL reading test Sungatullina et al. (2016) establishes the importance of metacognition by implying that “.. strategies include planning how to read the passage, checking out any notable discourse features, remembering why the text is being read, checking for prior knowledge of the topic, reading through the whole text, reading portions selectively, looking for markers of meaning, and identifying portions of the text that are unclear.” Metacognitive strategies contain skimming, scanning, setting a goal for the reading passage, activating prior or background and related knowledge, summarizing and paraphrasing, linear or non-linear reading, reading aloud, rereading or multiple reading, making notes, investigating on the structure of the text and many more according to the needs of the readers.

In the collected data, the first and second language readers were asked numerous multiple questions for their own specific strategies for better understanding of the text. Some of the questions were directly arranged to get a gist of their metacognitive strategies which are crucial for comprehension.

The metacognitive questions include:

1. While reading any English academic text, a reader considers multiple approaches. what are your approaches?
2. Before starting to read, what kind of goal do you set to achieve?
3. What do you do when a complex sentence structure prohibits your understanding of the given information stated in there?
4. While reading, if you do not understand a vocabulary what do you do then?

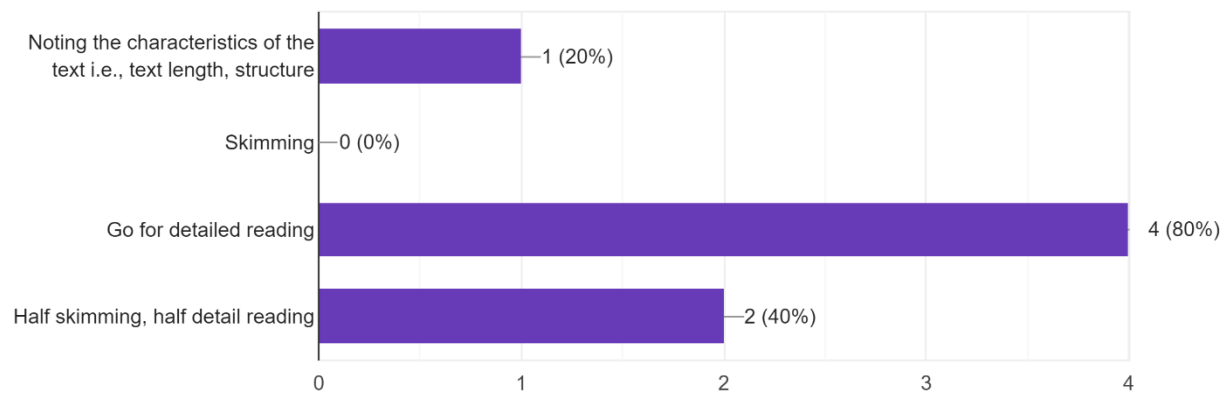
5. What type of strategy do you employ if you want to make a summary of a reading passage?

A. While reading any English academic text, a reader considers multiple approaches. what are your approaches?

First Language Readers Response (FLRs)

3. While reading any English academic text, a reader considers multiple approaches. what your approaches? Please mark your options.

5 responses



Second Language Readers Response (SLRs)

3. While reading any English academic text, a reader considers multiple approaches. what your approaches? Please mark your options.

10 responses

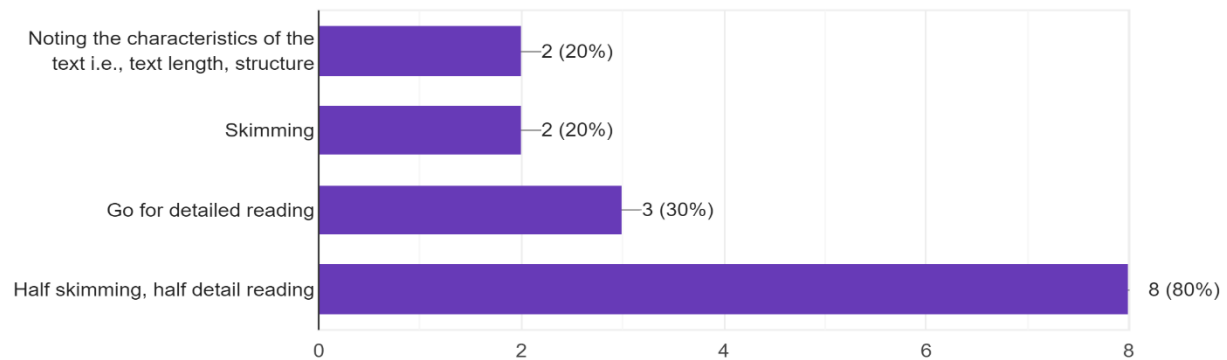


Figure 2.1 Approaches adopted towards reading an English Academic Text

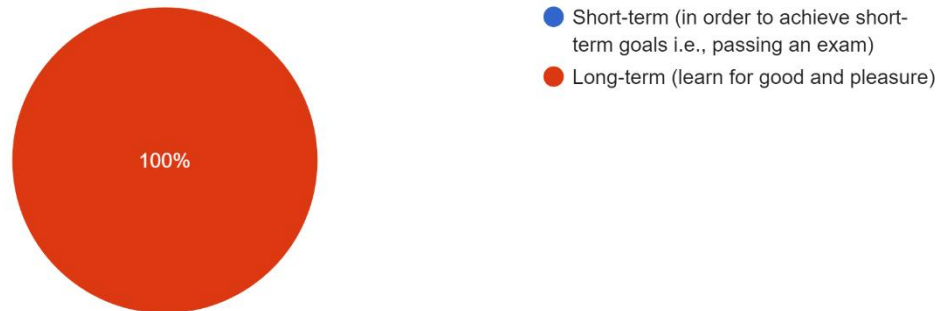
Figure 2.1 was a multiple selection answer choices and asked to make an inquiry about their initial approach to a reading text. The bar-plot encapsulate a distinct response between the first and second language readers. The FLRs mostly chose the option *go for detailed reading* with some people choosing other options such as *noting the characteristics of the text* and *half skimming, half detailed reading*. Astonishingly, no participant chose *skimming* for a single choice or multiple choice. On the other hand, SLRs chose *half skimming, half detailed reading* most with other choices simultaneously according to their preference. Such a distinction divulges specific strategies which are closely associated with their needs in comprehending the English text. Most of the SLRs had to go through English proficiency tests once or twice in their lives and was fairly introduced with how to react to the reading test. However, the FLRs reacted differently to the TOEFL test since they wanted to 'know' or get acquainted with the 'knowledge' that was provided in the reading passage. Because in the personal questionnaire all of the FLR participants in the Therefore, it can be concluded that first language readers chose that specific *go for detailed reading* option as they have never been exposed to an English proficiency test.

B. Before starting to read, what kind of goal do you set to achieve?

First Language Readers Response (FLRs)

2. Before starting to read, what kind of goal do you set to achieve?

5 responses



Second Language Readers Response (SLRs)

2. Before starting to read, what kind of goal do you set to achieve?

10 responses



Figure 2.2 Initial goal for the reading

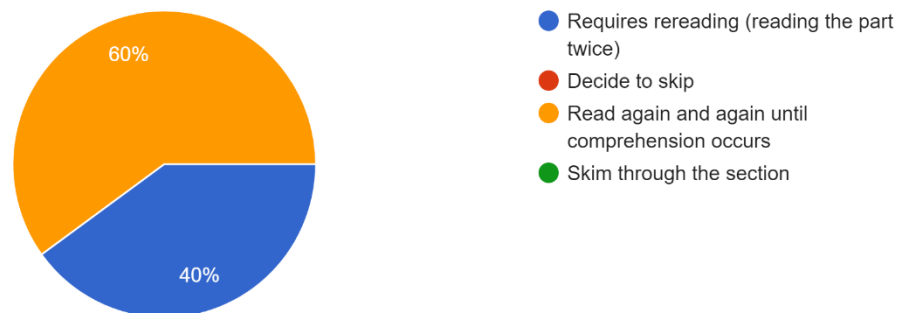
Figure 2.2 illustrates that FLRs and SLRs are quite similar except some participants of SLRs prefer short-time goals for reading. However, in general if it is not about any test, participants usually prefer long-term goals which include reading for pleasure.

C. What do you do when a complex sentence structure prohibits your understanding of the given information stated in there?

First Language Readers Response (FLRs)

4. What do you do when a complex sentence structure prohibits your understanding of the given information stated in there?

5 responses



Second Language Readers Response (SLRs)

4. What do you do when a complex sentence structure prohibits your understanding of the given information stated in there?

10 responses

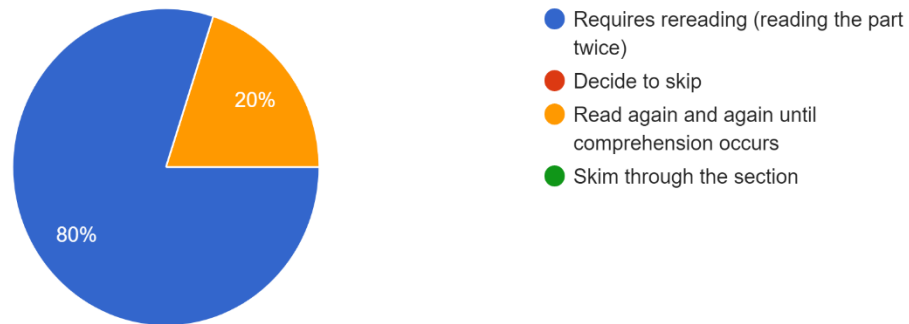


Figure 2.3 Encoding Complex Sentence Structure

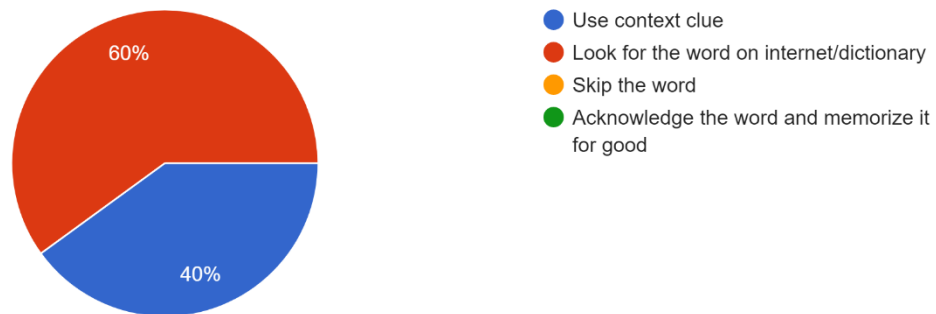
The strategies employed in figure 2.3 is quite aligned with FLRs and SLRs. In both cases, the participants chose only *requires rereading* and *reading again and again until comprehension occurs*. The major distinction here which is astounding as well is that the percentage of both of the options for FLRs are 40% and 60%, respectively. On the other hand, the percentage of both options in SLRs is 80% and 20%. However, the FLR participants were only 5 which is half the participant of SLRs. Interestingly, the SLRs prefer rereading or reading twice more than reading again and again. The strategy applied here demonstrates their structured ability to make comprehension rapidly.

D. While reading, if you do not understand a vocabulary what you do then?

First Language Readers Response (FLRs)

6. While reading, if you do not understand a vocabulary what do you do then?

5 responses



Second Language Readers Response (SLRs)

6. While reading, if you do not understand a vocabulary what do you do then?

10 responses

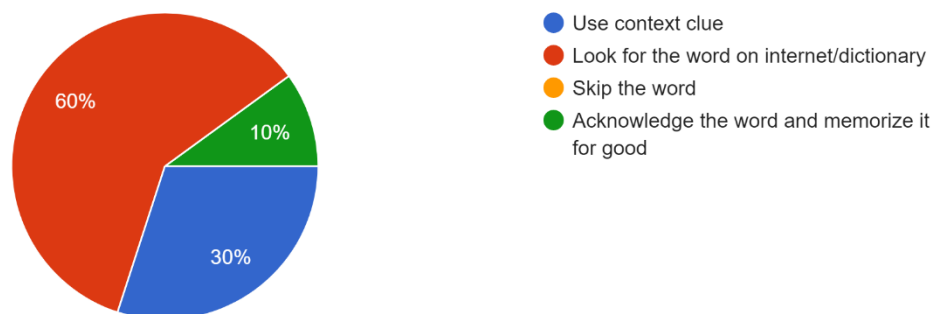


Figure 2.4 Understanding Vocabulary

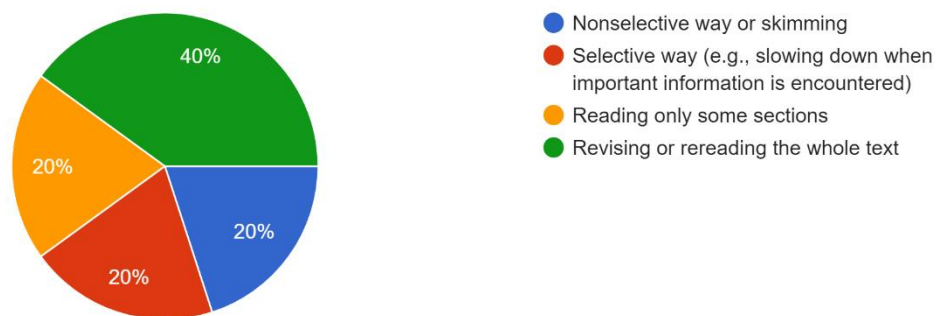
English Vocabulary has always been a trial for SLRs, and they always try to understand an unknown word from context clues and looking up on internet or dictionary. Figure 2.4 it establishes that FLRs use similar strategies for comprehending an unknown word.

E. What type of strategy do you employ if you want to make a summary of a reading passage?

First Language Readers Response (FLRs)

7. What type of strategy do you employ if you want to make a summary of a reading passage?

5 responses



Second Language Readers Response (SLRs)

7. What type of strategy do you employ if you want to make a summary of a reading passage?

10 responses

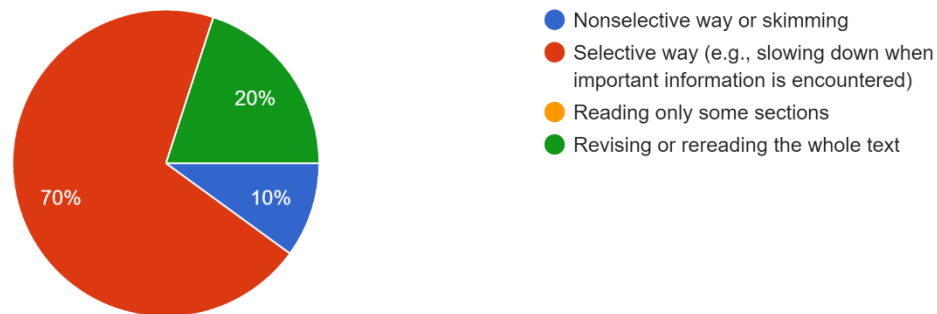


Figure 2.5 Summarizing Strategy

EPTs require examinees to make a good summary of the reading passage. In the TOEFL test, there was a prose summary question which measured the main ideas and arguments of the passage. In Figure 2.5 FLRs have adopted all the strategies equally for better grasping of the content except for rereading which was more preferable to most. However, SLRs have adopted the selective way the most. Since the SLRs are well aware of how to approach such a question, they favored the selective way.

Propositional Encoding: It brings forth relational meaning obtained from sentences. Lexical access establishes connection with instant conceptual information stored in the working memory and institute relational meaning to predicate-based structures or fragments of sentences. The structures are usually linked together to make complete text representations. This encoding process occurs within the limitations of the working memory. If there is a prior linkage structure is present in memory, then inferencing occurs without any deliberate effort. if memory cannot find any linkage, then the process will be less responsive in establishing connections on the basis of inference. (Bernhardt, 1993) establishes this fact as integration of both textual input and

necessary knowledge selection. In her (1993) words “in fluent reading, the two systems work together influencing, supplementing, and supporting each other.” A reader has a conceptual model of understanding what is being read and there is the language input or text-driven factors that facilitate the knowledge base to comprehend a full written or printed form of narration. (Graesser et al., 1987) puts it accurately “We assume that the reader constructs a structure of propositional units (called nodes) during comprehension. Some of these nodes are explicitly mentioned in the text, whereas other nodes are inferences. The comprehender needs to construct *bridging* inferences in order to establish conceptual connectivity between an incoming explicit statement and prior passage context.”

Table 6 manifests the integration of text-driven factors and conceptually driven factors in the TOEFL reading test for FLRs and SLRs.

Table 6 Propositional Encoding

Participant	Word Recognition	Syntactic Feature Recognition	Structure of Text	Prior Knowledge	Metacognition
FLR 1 (American Egyptian)	Requires time for vocabulary recognition	Rereads when a complex sentence comes	Looked at the length of the reading passage first	No. preferred rereading	Ensured a relaxed environment for herself and then went on detailed reading
FLR 2	Employ context clue	Requires rereading	Looked for the Text length and	Gave reference to	Went for skimming and then going back

questions concurrently her favorite book and forth with the questions and passage.

FLR 3 Employ context clue Prefer multiple reading Looked for the question pattern first Gave reference to her school readings Went for the questions first and then going back and forth.

FLR 4 Employ context clue Prefer skimming and multiple reading Looked for the title and question pattern first No Looked at the title and then went straight to the questions before starting to read.

FLR 5 Prefer looking the word on the internet Prefer rereading and multiple reading Looked for the question pattern first Gave reference to historical cities in her studies Looked at the question being asked before reading the text

SLR 1 (German) Prefer using context clue Prefer skimming, rereading, and detailed reading Looked at the sentence structure No Prefers selective way or slowing down method and rereading

SLR 2 (Indian)	Prefer looking for the word on the internet	Prefer skimming, detailed reading and multiple reading	Looked at the text length	No	Prefer slowing down method and multiple reading strategy
SLR 3 (Nepali)	Prefer looking for the word on the internet	Prefer rereading	Looked at the text length and questions	No	Prefer skimming and rereading
SLR 4 (Mali)	Prefer looking for the word on the internet	Prefer rereading	Looked at the question pattern first	No	Prefer slowing down and use context clue
SLR 5 (Persian)	Prefer looking for the word on the internet	Prefer rereading	Looked at the sentence structure/rhetoric	No	Prefer slowing down method and use context clue
SLR 6 (Chinese)	Prefer using context clue	Prefer multiple reading	Looked at the sentence structure/rhetoric	No	Prefer slowing down method, multiple reading and use context clue
SLR 7 (Bangladeshi)	Prefer acknowledging the word and memorize it for good	Prefer rereading	Looked at the sentence structure and question patterns concurrently	No	Prefer noting the characteristics of the text i.e., text length, structure Skimming,

Half skimming,
half detailed
reading

SLR 8
(Chinese)

Prefer looking
for the word
on the internet

Prefer
rereading

Looked at the
sentence
structure and
question patterns
concurrently

Gave
reference to
visiting a
historical
town called
Genoa

Prefer noting the
characteristics of
the text i.e., text
length, structure,
slowing down
method,
rereading and
researching on
the topic

SLR 9
(Indian)

Prefer using
context clue

Prefer
rereading

Looked at the
text length and
question pattern
concurrently

Gave
reference to
his school
reading of
ancient
Indian
civilizations
and his
gaming
experience

Prefer rereading,
half skimming
and half detailed
reading and
research on the
topic

SLR 10
(Filipino)

Prefer looking
for the word
on the internet

Prefer
rereading

Looked at the
question pattern
first

No

Prefer rereading,
half skimming,
half detailed
reading and
revising.

Text Modelling: The most pivotal component is the construction of the mental model of text. This model is frequently responding differently due to the change in the propositional encoding. The larger conceptual structures such as schemata becomes important in this section of text comprehension. Foorman & Siegel (2017) establishes that “These structures include specific knowledge with which to link the text content knowledge.” Text model bridges text content with background knowledge. Schemata is crucial for comprehension, yet it does not indicate individual reading ability differences. Full comprehension heavily depends on relevant knowledge exposure. Therefore, the schematic knowledge is undoubtedly necessary for total cognition. For instance, to understand a text on Football, one must have the necessary knowledge link of football as a game structure.

Limitations of the Study

The TOEFL test has significantly portrayed the distinction between FLRs and SLRs in their cognitive abilities during reading and going through the test. However, there are some drawbacks in the test. The TOEFL test was picked up from the ETS website as it was a practice test on the website. Since it was on the website for a long time, a lot of SLRs have already been through the test because it was free on the website. Luckily, most of the SLRs do not remember that much about this specific test and have gone through the test with their own effort. Moreover, as the practice test was an old test, it was lacking a lot of necessary questions of the actual test. The test did not have sentence simplification, fill-in a table and reference question in the practice test. In addition to that, it had two or three factual information question which was unnecessary.

In addition, the text-driven factors of reading would have given better performance of the readers if phonemic/graphemic features was measured. Since the survey was conducted online in a google form without personal meeting with the candidates, it could not evaluate the phonemic/graphemic features of each participant which impeded the absolute result of the text-driven factors.

Furthermore, the eye-movement tests were not tested in a laboratory therefore, the result was a hypothesis done through phone and email. Yet the whole investigation has proclaimed that FLRs and SLRs have interchangeable capabilities to encounter any English reading test.

Discussion and Conclusion

In this investigation, the aim was to assess and distinguish the individual and mental cognition of the first language readers (FLRs) and the second language readers (SLRs) of English through a TOEFL test and their response to reading tasks. This study also set out to determine the last research question of *How accurate is it to impose English proficiency tests for all Bilinguals?*

From the collected results of the TOEFL test and data analysis, it is evident that ESL readers display certain English text decipherable quality which showcases their strong understanding of the language knowledge. Some of the response of SLRs from the TOEFL also demonstrate better comprehending amplitude than FLRs (see figure 1.7, 1.10 and 1.12) In average, the test has established the fact that participants of both groups have responded to the correct answer choices at a proportional rate. In some questions, the majority of FLRs have selected the correct answer choice compared to SLRs and vice versa. For the wrong answer choices, participants have chosen answer choices according to their understandings.

Although, both FLRs and SLRs have denoted corresponding response in the experiment of the TOEFL reading test, they have adopted significant and prominent reading strategies pertaining text-driven and knowledge-driven factors of their own. For the text-driven factors, the FLRs and SLRs have chosen similar strategies for word recognition, syntactic feature recognition and the structure of the text. (See Table 6) However, for the knowledge-driven factors the FLRs have more exposure to prior knowledge or background knowledge than SLRs. The reason behind such findings could not be identified in the study due to limitations of the response from the participants but seemingly because of more exposure to reading in the language and experiencing discrete socio-cultural issues by the FLRs in the US.

Since most of the SLRs have greater exposure to English language from their early age (see figure 1.2) it is entrenched that there is little extent or requisite to transfer their own L1 linguistic knowledge into their L2 reading. The special case of Sarah, one of the Chinese candidates also pointed out that “I have stopped translating English text to Chinese a long time ago. I do not need it to understand English now. However, if I do not understand an unfamiliar vocabulary of English, I open and search in Chinese.” Enright et al. (2000) have delineated that “There seems to be good evidence for transfer effects at early levels of L2 reading ability. It also seems that transfer is stronger at word recognition and discourse levels and less strong at morphological and syntactic levels except for beginning L2 readers.”

Except for Sarah, most of the SLRs are not that consciously aware of the English language they are reading to make sense of the text. Their conscious effort was triggered by the test questions similar to the FLRs awareness.

Vocabulary or word recognition has been the most widely acknowledged phenomenon from the finding of the TOEFL test. From Table 6 it is evident that most of the SLRs went to the internet or dictionary to look for the unknown word or phrase for comprehension. Compared to FLRs, the rate of *looking on the internet/dictionary* is high in case of SLRs. The result is aligned with the notion that L1 and L2 usually have different level of vocabulary knowledge.

The surveyed SLRs are all currently studying, living or working in the US or Canada for several years. Yet it is evident from Table 6 that most of the SLRs do not have necessary background knowledge for the reading text compared to FLRs. Enright et al. (2000) has stated that “the level of cultural knowledge of L2 situations and language uses that an L2 reader cannot compare with the cultural resources used by an L1 reader. This issue represents the broadest level of the

influence of background knowledge on reading comprehension.” (p. 73) Nevertheless, the SLRs have significant amount of understanding of the linguistic content of the language as a whole and necessary strategies to read and answer the questions correctly.

Short Circuit Hypothesis: For both FLRs and SLRs, every reader accommodates certain level of reading proficiency in English. Even so, In the case of the Chinese participant Sarah who had special English learning background had demonstrated some definite impediment when she was reading the TOEFL reading passage. The interview with her revealed that she loved reading in English most when in her initial learning English days in her junior middle school and high school. In her opinion, “I understand every single detail in the English reading text and sometimes do not understand even single words.” A hypothesis about her case can set up the fact of Clarke (1980). He constructed a fact that “limited control over the language *short circuits* the good reader’s system, causing him/her to revert to poor reader strategies when confronted with a difficult or confusing task in the second language.” Sarah’s limitations in English language exposure have tossed her to read more slowly, fathom the content obtusely and answer the questions in prolonged manner. But it does not designate her as a poor reader for a person who likes to read a lot. She is only deficient in her aptitude of reading in English. Sarah has competence in three languages namely Chinese, English, and Korean. She has spoken expertise in Chinese and Korean more than in English.

From all the data analysis and observation, it can be implied that enforcing a English proficiency test for all Bilinguals of all levels is redundant and unnecessary discrimination towards the notion of English being a global language.

Reference

- Bernhardt, E. B. (1993). *Reading development in a second language: Theoretical, empirical, & classroom perspectives*. ERIC.
- Brown, H. Douglas (2012, January 4). TEACHING BY PRINCIPLES: AN INTERACTIVE APPROACH TO LANGUAGE PEDAGOGY (2nd ed). Wiley Online Library. Retrieved January 28, 2022, from <https://onlinelibrary.wiley.com/doi/abs/10.2307/3587655>
- Carver, Ronald. P. (2000). THE CAUSES OF HIGH AND LOW READING ACHIEVEMENT. Lawrence Erlbaum Associates, Inc.
- Clarke, M. A. (1980). The short circuit hypothesis of ESL reading-or when language competence interferes with reading performance. *The Modern Language Journal*, 64(2), 203–209.
- Davies, A., Hamp-Lyons, L., & Kemp, C. (2003). Whose norms? International proficiency tests in English. *World Englishes*, 22(4), 571–584.
- Enright, M., Grabe, W., Koda, K., Mosenthal, P., Mulcahy-Ernt, P., & Schedl, M. (2000). *TOEFL 2000 reading framework*. Educational Testing Service Princeton, NJ.
- ETS. (2022) Accepted and Preferred Worldwide. <https://www.ets.org/toefl/test-takers/ibt/why/accepted-preferred/>
- Foorman, B.R. & Siegel A.W. (Ed.). (1986). ACQUISITION OF READING SKILLS: CULTURAL CONSTRAINTS AND COGNITIVE UNIVERSALS. Lawrence Erlbaum Associates, Inc.
- Foorman, B. R., & Siegel, A. W. (2017). *Acquisition of Reading Skills (1986): Cultural Constraints and Cognitive Universals*. Routledge.

Glenberg, Arthur M. & Robertson, David A. (1999) Indexical Understanding of Instructions. *Discourse Processes*, 28(1), 1-26, <http://dx.doi.org/10.1080/01638539909545067>

Graesser, A. C., Haberlandt, K., & Koizumi, D. (1987). How is reading time influenced by knowledge-based inferences and world knowledge. *Executive Control Processes in Reading*, 217, 251.

International student. (2022, March 16). In Wikipedia.

https://en.wikipedia.org/wiki/International_student

Kern, R. (1994). The Role of Mental Translation in Second Language Reading. *Studies in Second Language Acquisition*, 16(4), 441-461. doi:10.1017/S0272263100013450

List of languages by number of native speakers. (2022, March 4). In Wikipedia.

https://en.wikipedia.org/wiki/List_of_languages_by_number_of_native_speakers

Liu, Huan (2020). Does questioning strategy facilitate second language (L2) reading comprehension? The effects of comprehension measures and insights from reader perception. *Journal of Research in Reading*, 44: 339– 359. doi:10.1111/1467-9817.12339

Nassaji, H. (2007), Schema Theory and Knowledge-Based Processes in Second Language Reading Comprehension: A Need for Alternative Perspectives. *Language Learning*, 57: 79-113. <https://doi.org/10.1111/j.1467-9922.2007.00413.x>

Pressley, M. & Afflerbach, P. (1995). VERBAL PROTOCOLS OF READINGS: THE NATURE OF CONSTRUCTIVELY RESPONSIVE READING. Lawrence Erlbaum Associates.

- Rayner, K., Schotter, E. R., Masson, M. E. J., Potter, M. C., & Treiman, R. (2016). So Much to Read, So Little Time: How Do We Read, and Can Speed Reading Help? *Psychological Science in the Public Interest*, 17(1), 4–34. <https://doi.org/10.1177/1529100615623267>
- Rumelhart, David E. (1980). Schemata: The Building Blocks of Cognition. In Spiro, Rand J., Bruce, Bertram C. & Brewer, William F. (Eds.), *THEORETICAL ISSUES IN READING COMPREHENSION: PERSPECTIVES FROM COGNITIVE PSYCHOLOGY, LINGUISTICS, ARTIFICIAL INTELLIGENCE AND EDUCATION* (33-58). L. Erlbaum Associates.
- Sungatullina, D. D., Zalyaeva, E. O., & Gorelova, Y. N. (2016). Metacognitive awareness of TOEFL reading comprehension strategies. *SHS Web of Conferences*, 26, 01046.
- Test of English as a Foreign Language. (2022, March 12). In Wikipedia. https://en.wikipedia.org/wiki/Test_of_English_as_a_Foreign_Language
- Wenden, Anita. (1987). Metacognition: An Expanded View on the Cognitive Abilities of L2 Learners. *Language Learning*. 37(4), 573–597. doi:10.1111/j.1467-1770.1987.tb00585.x

Appendix

Hello! Thank you for your interest in joining my survey. I am investigating on the cognitive abilities of first and second language readers of English. I hope you will also benefit from this survey.

Please complete this personal information in the table first

Name (Optional): Age:	Major and (year): Occupation: Nationality:
How long have you been exposed to English language (Total year of English learning and practicing till now):	Have you ever attempted for any English proficiency tests i.e., TOEFL, IELTS or others? If yes what was your overall score and reading score:
How many years have you been living in the US?	Proficiency in English: • 1 – Elementary Proficiency • 2 – Limited working proficiency • 3 – Professional working proficiency • 4 – Full professional proficiency

Questionnaire

Choose your answers from the following Multiple-choice questions:

1. Do you like to read in English?
 - Love it
 - Sometimes like it
 - Do not like it
 - Prefer reading in my first language
2. Before starting to read, what kind of goal do you set to achieve?
 - Short-term (in order to achieve short-term goals i.e., passing an exam)
 - Long-term (learn for good and pleasure)
3. While reading any English academic text, a reader considers multiple approaches. what your approaches? Please mark the options with numbers.
 - Noting the characteristics of the text i.e., text length, structure
 - Skimming
 - Go for detailed reading
 - Half skimming, half detail reading
4. What do you do when a complex sentence structure prohibits your understanding of the given information stated in there?
 - Decide to skip
 - Requires rereading (reading the part twice)
 - Read again and again until comprehension

- Skim through the section
5. If you do not understand an academic text while reading for the first time, what do you do for comprehension?
- Use prior knowledge
 - Use context clue
 - Prefer reread or multiple reading
 - Research on the topic before reading again
6. While reading, if you do not understand a vocabulary what do you do then?
- Use context clue
 - Look for the word on internet/dictionary
 - Skip the word
 - Acknowledge the word and memorize it for good
7. What type of strategy do you employ if you want to make a summary of a reading passage?
- Nonselective way or skimming
 - Selective way (e.g., slowing down when important information is encountered)
 - Reading only some sections
 - Revising or rereading the whole text
8. What is more complex to you while you read a text in English?
- Words
 - Phrases
 - Sentences
 - The whole text in general

*Please go through this little reading task below and answer the multiple-choice questions following the passage. It is a TOEFL reading test which can be completed within 10 minutes. But you can take as much time as you need. It is preferable if you sit with a timer for the test. Do not hesitate if you did not correct all or most of them because the goal of this survey lies elsewhere. After the test there will be a short answer questions from this reading test. It is **mandatory** to answer those questions. Thank you! Happy Reading 😊*

The Rise of Teotihuacán

1. The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200 –100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico).
2. How did this tremendous development take place, and why did it happen in the Teotihuacán Valley? Among the main factors are Teotihuacán's geographic location on a natural trade route to the south and east of the Valley of Mexico, the obsidian¹ resources in the Teotihuacán Valley itself, and the valley's potential for extensive irrigation. The exact role of other factors is much more difficult to pinpoint — for instance,

Teotihuacán's religious significance as a shrine, the historical situation in and around the Valley of Mexico toward the end of the first millennium B.C., the ingenuity and foresightedness of Teotihuacán's elite, and, finally, the impact of natural disasters, such as the volcanic eruptions of the late first millennium B.C.

3. This last factor is at least circumstantially implicated in Teotihuacán's rise. Prior to 200 B.C., a number of relatively small centers coexisted in and near the Valley of Mexico. Around this time, the largest of these centers, Cuicuilco, was seriously affected by a volcanic eruption, with much of its agricultural land covered by lava. With Cuicuilco eliminated as a potential rival, any one of a number of relatively modest towns might have emerged as a leading economic and political power in Central Mexico. The archaeological evidence clearly indicates, though, that Teotihuacán was the center that did arise as the predominant force in the area by the first century A.D.
4. It seems likely that Teotihuacán's natural resources—along with the city elite's ability to recognize their potential — gave the city a competitive edge over its neighbors. The valley, like many other places in Mexican and Guatemalan highlands, was rich in obsidian. The hard volcanic stone was a resource that had been in great demand for many years, at least since the rise of the Olmecs (a people who flourished between 1200 and 400 B.C.), and it apparently had a secure market. Moreover, recent research on obsidian tools found at Olmec sites has shown that some of the obsidian obtained by the Olmecs originated near Teotihuacán. Teotihuacán obsidian must have been recognized as a valuable commodity for many centuries before the great city arose.
5. Long-distance trade in obsidian probably gave the elite residents of Teotihuacán access to a wide variety of exotic goods, as well as a relatively prosperous life. Such success may

have attracted immigrants to Teotihuacán. In addition, Teotihuacán's elite may have consciously attempted to attract new inhabitants. It is also probable that as early as 200 B.C. Teotihuacán may have achieved some religious significance and its shrine (or shrines) may have served as an additional population magnet. Finally, the growing population was probably fed by increasing the number and size of irrigated fields.

6. The picture of Teotihuacán that emerges is a classic picture of positive feedback among obsidian mining and working, trade, population growth, irrigation, and religious tourism. The thriving obsidian operation, for example, would necessitate more miners, additional manufacturers of obsidian tools, and additional traders to carry the goods to new markets. All this led to increased wealth, which in turn would attract more immigrants to Teotihuacán. The growing power of the elite, who controlled the economy, would give them the means to physically coerce people to move to Teotihuacán and serve as additions to the labor force. More irrigation works would have to be built to feed the growing population, and this resulted in more power and wealth for the elite.

**obsidian: a type of volcanic glasslike rock used for manufacturing tools and ceremonial objects*

Directions: Answer the questions.

1. In paragraph 1, each of the following is mentioned as a feature of the city of Teotihuacán between A.D. 150 and 700 EXCEPT:

- A. regularly arranged streets
- B. several administrative centers spread across the city
- C. many manufacturing workshops
- D. apartment complexes

2. The word "ingenuity" in paragraph 2 is closest in meaning to:

- A. ambition
- B. sincerity
- C. faith
- D. cleverness

3. Which of the following is NOT mentioned in paragraph 2 as a main factor in the development of Teotihuacán?

- A. The presence of obsidian in the Teotihuacán Valley
- B. The potential for extensive irrigation of Teotihuacán Valley lands
- C. A long period of volcanic inactivity in the Teotihuacán Valley
- D. Teotihuacán's location on a natural trade route

4. What can be inferred from paragraph 3 about Cuicuilco prior to 200 B.C.?

- A. It was a fairly small city until that date.
- B. It was located outside the Valley of Mexico.
- C. It emerged rapidly as an economical and political center.
- D. Its economy relied heavily on agriculture.

5. Which of the following allowed Teotihuacán to have "a competitive edge over its neighbors"?

- A. A well-exploited and readily available commodity
- B. The presence of a highly stable elite class
- C. Knowledge derived directly from the Olmecs about the art of toolmaking
- D. Scarce natural resources in nearby areas such as those located in what are now the Guatemalan and Mexican highlands

6. According to paragraph 4, what has recent research on obsidian tools found at Olmec sites shown?

- A. Obsidian's value was understood only when Teotihuacán became an important city.
- B. The residents of Teotihuacán were sophisticated toolmakers.
- C. The residents of Teotihuacán traded obsidian with the Olmecs as early as 400 B.C.
- D. Some of the obsidian used by the Olmecs came from the area around Teotihuacán.

7. Select the TWO answer choices that are mentioned in paragraph 5 as being features of Teotihuacán that may have attracted immigrants to the city. **TO RECEIVE CREDIT, YOU MUST SELECT TWO ANSWERS.**

- A. The prosperity of the elite
- B. Plenty of available housing
- C. Opportunities for well-paid agricultural employment
- D. The presence of one or more religious shrines

8. In paragraph 6, the author discusses "The thriving obsidian operation," in order to:

- A. explain why manufacturing was the main industry of Teotihuacán
- B. give an example of an industry that took very little time to develop in Teotihuacán
- C. illustrate how several factors influenced each other to make Teotihuacán a powerful and wealthy city
- D. explain how a successful industry can be a source of wealth and a source of conflict at the same time

9. In paragraph 1 of the passage, there is a missing sentence. The paragraph is repeated below and shows four letters (A, B, C, and D) that indicate where the following sentence could be added.

In fact, artifacts and pottery from Teotihuacán have been discovered in sites as faraway as the Mayan lowlands, the Guatemalan highlands, northern Mexico, and the Gulf Coast of Mexico.

Where would the sentence best fit?

The city of Teotihuacán, which lay about 50 kilometers northeast of modern-day Mexico City, began its growth by 200 –100 B.C. At its height, between about A.D. 150 and 700, it probably had a population of more than 125,000 people and covered at least 20 square kilometers. (A) It had over 2,000 apartment complexes, a great market, a large number of industrial workshops, an administrative center, a number of massive religious edifices, and a regular grid pattern of streets and buildings. (B) Clearly, much planning and central control were involved in the expansion and ordering of this great metropolis. (C) Moreover, the city had economic and perhaps religious contacts with most parts of Mesoamerica (modern Central America and Mexico). (D)

A. Option A

B. Option B

C. Option C

D. Option D

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by **selecting the THREE answer choices** that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

- A. The number and sophistication of the architectural, administrative, commercial, and religious features of Teotihuacán indicate the existence of centralized planning and control.
- B. Teotihuacán may have developed its own specific local religion as a result of the cultural advances made possible by the city's great prosperity.
- C. Several factors may account for Teotihuacán's extraordinary development, including its location, rich natural resources, irrigation potential, intelligent elite, and the misfortune of rival communities.
- D. As a result of its large number of religious shrines, by the first century A.D., Teotihuacán became the most influential religious center in all of Mesoamerica.
- E. In many important areas, from the obsidian industry to religious tourism, Teotihuacán's success and prosperity typified the classic positive feedback cycle.
- F. Although many immigrants settled in Teotihuacán between A.D. 150 and 700, the increasing threat of coerced labor discouraged further settlement and limited Teotihuacán's population growth.

Thank you so much for going through this test. Please look for the answer choices somewhere else if you want to know your score (Although this is not the focus of this survey). Now answer the following questions from your experience of the test. (Word limit for each question 60-70)

A. Even before starting to read the text, what did you do first? Explain in details. (Minimum 30 words)

A. Did you look at the question pattern first or the structure of the text (e.g., text length, sentence structure etc.) Choose any or your preferred method and explain. (Minimum 35 words)

B. Since you know the goal of the reading task (answering the questions), did you explicitly attempt to get the “big picture” of the whole text?

C. Which question did you attempt first and why?

D. Which question did you answer last and why?

E. Approximately how much time did you spend on each question?

- F. Which question was the hardest and why? What strategy did you use to answer that question?
- G. Did you feel like translating the reading passage (in your mind) for better understanding of the content? If yes, explain why.
- H. How did you translate? Sentence by sentence, paragraph by paragraph, or your own way? (Please describe that)
- I. While you were skimming through the passage, did any kind of prior knowledge on the topic occurred in your thought? If (yes), what is that? Did it help you to understand the content more? If (no), what did you do to understand the text swiftly?
- J. Have you ever read anything like the passage of *The city of Teotihuacán*? If yes, did it occur in your mind and how did you relate with it?
- K. Did you simplify any sentence structure in order to answer any question? What did you do to simplify them? Please explain.

- L. Apart from answering the questions of the reading passage, what do you think about the author's intention here? As a reader, do you think the author has expertise in the area? Do you feel challenged or pleased regarding reading the passage about *Teotihuacán*?
- M. Did you go for main ideas for each passage or the whole text?
- N. After reading and completing all the answer choices (and coming to this question), did you remember the specific details stated in the passage or did you forget everything?
(Please be honest here, do not go through the passage after seeing this question)
- O. What kind of information and how many of them did you get from the initial reading?
- P. While answering the inference questions, how many times did you went back and forth in the passage and questions? (You can give an approximate number from your memory)
- Q. After reading for the first time (and before answering the questions), what did you do from the following? Please select multiple and explain.

- Rereading linearly and non-selectively
- With an eye out for particular information
- Skimming
- Reciting the text to increase memory of it
- Listing pieces of information in text
- Self-questioning, self-testing over text content
- Reflecting: may go on for a very long time and make consequent shifts in interpretation
- Rereading parts of text
- Continuously evaluating and possibly reconstructing a new understanding of the text

R. Approximately how many times did you lose your concentration and why? If you have been through some negative reactions, what are they? (You can choose from the following)

- Boredom
- Frustration
- Anxiety (fearing failure to comprehend, believing it may not be possible for you to “get the meaning”)

S. Which kind of material did you read carefully and why? (You can choose more than 1)

- Unfamiliar
- Difficult
- Important
- Interesting

Thank you so much for your patience! Your effort here is highly acclaimed. I hope you were also benefitted from this survey as it outlined your English reading abilities.

Correct Answer Choices from the reading passage: 1. B 2. D. 3. C 4. D 5. A 6. D 7. A, D 8. C 9.
D 10. A, C, E